

PARKING MATTERS



APPENDIX 1-1 CURRENT TRENDS IN PLANNING AND MANAGING PARKING

Mississauga Parking Master Plan and
Implementation Strategy (PMPIS)

1 CURRENT TRENDS IN PLANNING AND MANAGING PARKING

Parking plays an important supporting role in every modern transportation system. Planning for parking requires an understanding of people, goods movements, and coordination with other transportation elements to provide a multi-modal system that can accommodate the City's many demands for transportation.

An examination of current trends in parking research and management provides context for the development of this Parking Master Plan. It addresses questions such as: What socio-cultural trends are influencing the City's need for transportation and parking? What emerging technologies can the City's parking system consider incorporating now and in the future? How can the delivery and management of parking contribute to environmental sustainability?

An understanding of the local context is equally important to ensure that the parking policies and timelines implementation applied in the various locations are appropriate.

This Section explores emerging trends in the parking industry and provides an overview of Mississauga's demographic and transportation trends in recent years.

1.1 EMERGING TRENDS IN PARKING

Section 1.1.1 highlights some recent societal changes and trends relevant to parking policy. Sections 1.1.2 to 1.1.7 then highlight some of the technological advances that have dramatically changed how transportation professionals and parking providers plan and deliver parking. The following technological advances are discussed: emerging trends in parking, sustainable parking solutions, parking and transit, Transportation Demand Management (TDM), parking technologies, and autonomous vehicles (AVs). Section 1.3 provides a summary of how parking policy is evolving in response to the City's growth, land use, density changes, and changing transportation needs and focus.

1.1.1 SOCIETAL FACTORS INFLUENCING PARKING

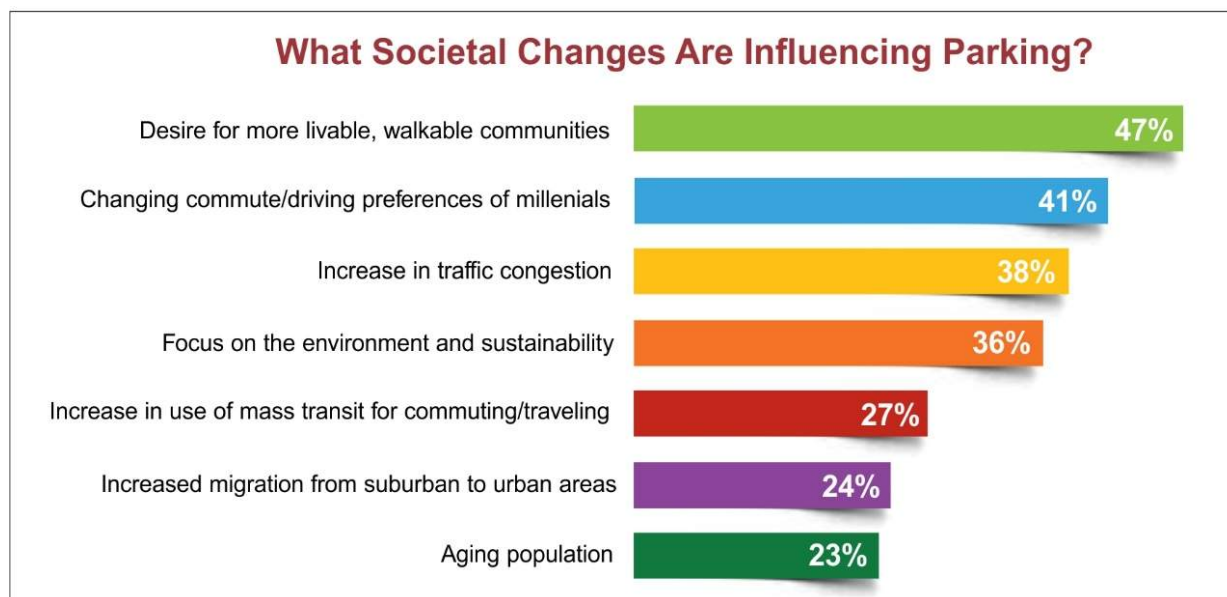
Parking has evolved far beyond providing adequate supply to meet demand. Parking policy discussion now includes sustainability, alternative modes of transportation, demographics, and lifestyle.

The 2015 International Parking Institute (IPI) conducted a survey among IPI members, where a clear majority of respondents were managers, consultants, owners, and operators involved in the design, management, and operations of parking infrastructure. The survey identifies and ranks the most significant societal changes affecting the parking industry.¹

¹ Emerging Trends in Parking, International Parking Institute, 2015

Exhibit 1-1 shows the top seven societal changes that influence parking. The top two changes were the “desire for more livable, walkable communities” and “the changing commute/driving preferences of millennials.”

Exhibit 1-1 – What Societal Changes are Influencing Parking?



Source: *Emerging Trends in Parking Survey*, International Parking Institute, 2015

1.1.2 EMERGING TRENDS IN PARKING

Exhibit 1-2 shows the top 10 emerging trends in parking.¹ The application of technology to improve parking user experience and parking management emerged as very clear trends. For example, the top two trends were the “move toward innovative technologies to improve access control and payment automation” and the “prevalence of mobile applications.” As technologies become more available and affordable, Mississauga should update its policies and technologies to help achieve the City’s overall planning aspirations.

“Collaboration among parking, transportation, and decision-makers” was also an important trend. This is evident in the way that parking related discussions are now commonly linked to TDM, active transportation, transit, and last-mile solutions.

Exhibit 1-2 – Top 10 Emerging Trends in Parking

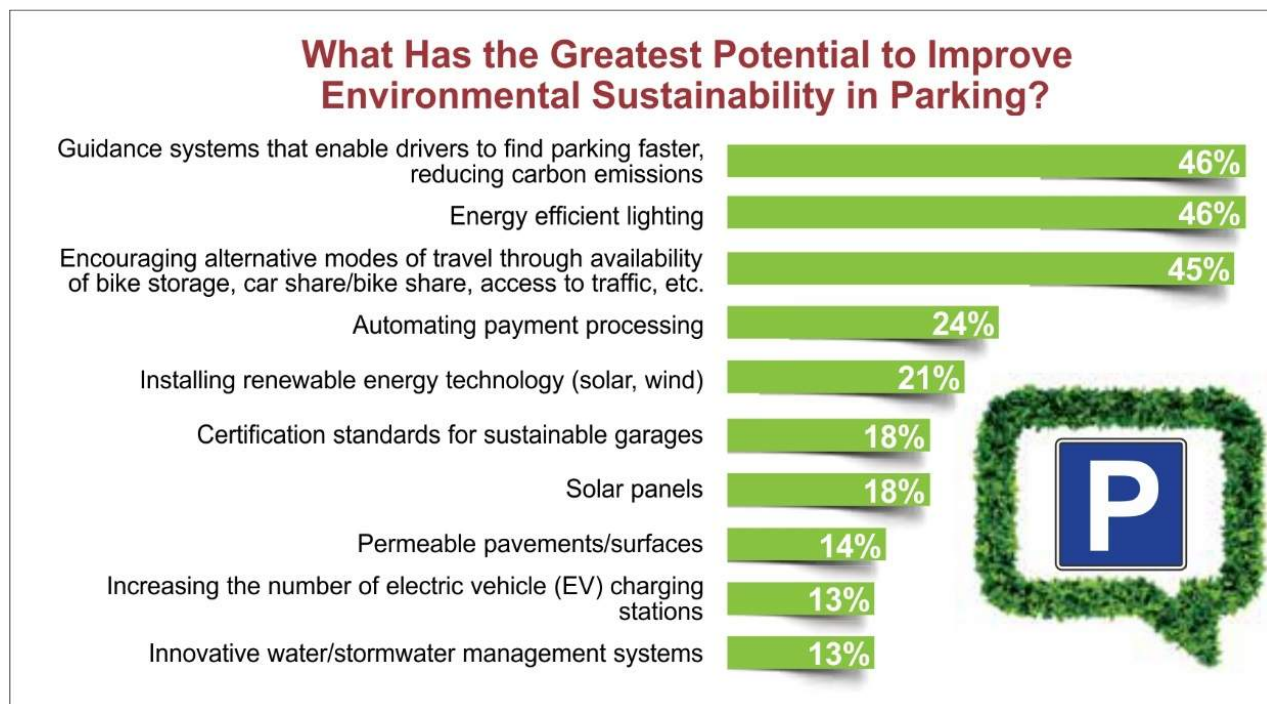


Source: *Emerging Trends in Parking Survey*, International Parking Institute, 2015

1.1.3 SUSTAINABLE PARKING SOLUTIONS

Environmental sustainability is among the top considerations in planning discussions at the municipal, regional, and provincial levels. Exhibit 1-3 shows the top 10 sustainability solutions in parking according to IPI's 2015 survey. The survey ranked the top three parking solutions with the greatest potential for improving environmental sustainability as: "guidance systems that enable drivers to find parking faster, reducing carbon emissions," "energy efficient lighting," and "encouraging alternative modes of travel through availability of bicycle storage, car or/bicycle share, access to traffic, etcetera."¹ These solutions can be considered for implementation in the City. The City should also consider installing highly visible signage in locations such as downtown and university campuses to increase promotion and awareness of sustainable parking trends.

Exhibit 1-3 – What Has the Greatest Potential to Improve Environmental Sustainability in Parking?



Source: *Emerging Trends in Parking Survey*, International Parking Institute, 2015

1.1.4 PARKING AND TRANSIT

Many cities are now large enough to consider an increase in the use of transit. For example, areas previously classified as suburban are becoming more urbanized. These areas are now characterized by commercial clustering and land value changes. The increased congestion and increased parking problems may justify the cost of introducing improved transit.

A review of the literature on parking and transit is instructive. Todd Litman, in his paper *Evaluating Public Transit Benefits and Costs*, notes that high quality transit (transit that is relatively fast, convenient, comfortable, and integrated) can attract discretionary travelers who would otherwise drive. This reduces traffic problems including congestion, parking costs, accidents, and pollution emissions.²

² Evaluating Public Transit Benefits and Costs, Victoria Transport Policy Institute, 2018

According to Litman, shifts from automobile to transit travel create a chain of benefit. For example, reduced vehicle ownership reduces residential parking demand (including on-street parking demand in residential areas) and reduces non-residential parking demand such as commercial parking requirements. These benefits can manifest themselves in various ways: user cost savings where the cost of a transit trip is less than the fee for parking, reduced competition for parking in high-demand locations, and reductions in the need for businesses and governments to provide and subsidize parking facilities. Indirect benefits of reduced parking include reducing the land area needed for parking facilities and helping more clustered development and infill development to occur. Transit can also help achieve various land use planning objectives. Increased use of transit reduces the land area required for roads and parking facilities and provides a catalyst for more compact urban redevelopment. Calgary provides an example of a city that eliminated much of the need for parking in the downtown area. The City's downtown plan, implemented a transit corridor as an alternative to driving and parking for the downtown area.

Parking management can be an effective way to increase transit use. Parking management in relation to transit includes "parking cash out" programs (employees who receive free parking have the option of choosing cash or a transit subsidy instead), "unbundling" (renters of buildings pay only for the parking they want), and more flexible parking regulatory requirements to allow developers to supply less parking where appropriate. Parking pricing is one of the most effective ways of reducing the number of automobile trips and increases transit ridership. Cost-based parking pricing (parking fees set to recover parking facility costs) typically increases transit ridership by 10 to 30 percent, depending on the previous level of transit ridership and the range of travel options available.

1.1.5 PARKING AND TRAVEL DEMAND MANAGEMENT

TDM balances people-focused and infrastructure-focused approaches to managing or reducing problems like traffic congestion, infrastructure costs, parking challenges, and environmental impact. Strategically, TDM functions at two major levels: the surface level and the deeper level.

At the surface level, TDM aims to provide information, incentives, resources, and support to people who want to make the best possible use of available transportation options. This part of TDM includes parking policies, public transit, carpooling, vanpooling, ridesharing, walking, and cycling. Some conceptual models also include telecommuting as a TDM topic.

At a deeper level, TDM is also concerned with urban design and municipal planning. For example, TDM strategies can be used to encourage residents to engage with transportation alternatives such as walking and cycling and to use these alternatives more often. At this level, key concepts include walkability indices, "complete streets," sustainability, urban livability, and the integrated management of key transportation corridors.³

³ What is Transportation Demand Management? RideAmigos, n.d.

Two common misconceptions are associated with the reduction or removal of parking spaces. The first is that there will be fewer people to support local businesses; the second is that businesses will not support a move to removing parking spaces. Developers, residents, and business owners often view the reduction or removal of parking spaces as detrimental to their business opportunities and quality of life, but municipalities that have implemented sound parking policies that reduce or remove parking in favour of active or sustainable transportation modes have experienced the exact opposite effect as documented by many including Litman and Donald Shoup. In many cases, managing parking effectively can increase property values, enhance business opportunities, mitigate developer impacts, provide opportunities for active and sustainable transportation, and improve traffic circulation.

According to Donald Shoup, a professor of urban planning at UCLA and an expert on parking economics and policies, conventional parking policies that encourage ample free parking or municipal requirements for a certain level of parking can lead to a self-perpetuating cycle in which increased supply of parking leads to increased demand. Plentiful parking encourages people to buy more cars and more cars lead cities to require even more parking spaces.

Building and maintaining parking is expensive. Municipalities that proactively reduce the number of parking spaces in favour of TDM measures, can reduce these costs and gain additional benefits. For example, some communities are replacing existing parking spaces with bicycle racks. The racks increase choice for commuters and recreational cyclists and can potentially reduce the number of cars on the road.

There are many other benefits to reducing or eliminating parking spaces in favour of active transportation and TDM. Municipalities can make better use of land, especially in downtown areas or town centres where space is at a premium. Developers benefit from being able to use land assigned as parking spaces for other building uses, which can lower construction and maintenance costs.

Increased pedestrian and cyclist activity can enhance economic opportunities for businesses. Reducing the paved area can have environmental benefits such as reducing storm water runoff and the urban heat island effect.

Reducing the number of parking spaces can encourage more active transportation, such as walking and cycling. This, in turn, can make roads safer, reduce greenhouse gas emissions and ease traffic congestion.

A survey conducted by the Clean Air Partnership of over 500 people along Bloor Street in Toronto's Annex neighbourhood found that pedestrians and cyclists spend more time and money in the neighbourhood than drivers. In addition, when merchants along Bloor Street were asked whether they thought that their businesses would be affected if the city removed one lane of parking in favour of a bicycle lane, 75 percent believed that their business would either improve or stay the same.⁴

⁴ Bike Lanes, On-Street Parking & Business, Clean Air Partnership, 2016

1.1.6 SMART PARKING AND PARKING TECHNOLOGIES

Smart Parking refers to the use of sensing devices to determine occupancy at the space or lot/structure level. The many types of sensing device include cameras positioned on counting equipment like gates at lot entrances and sensors embedded in the pavement of individual parking spaces.

Robust sensing systems can determine the state of a parking space (occupied or vacant) and can analyze and transmit the information to various channels such as mobile applications, web applications, and dynamic signage.⁵

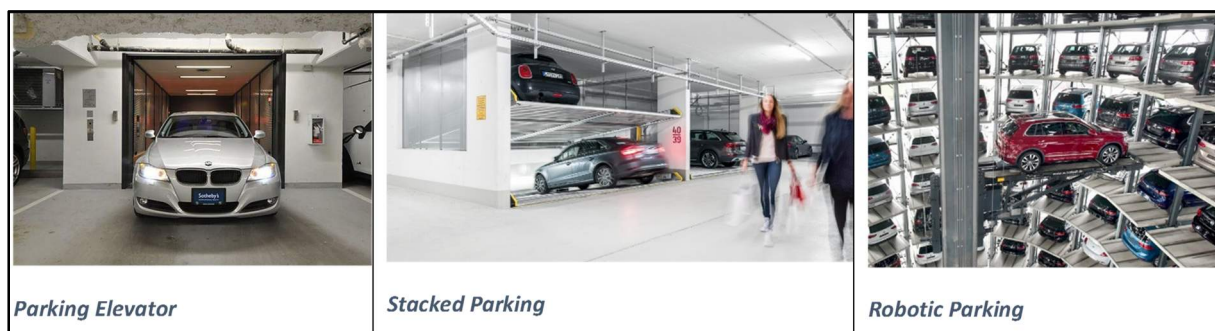
One or more parking apps for both on-street and off-street parking are increasingly common in large Canadian cities such as Toronto, Vancouver, Calgary, and Edmonton. Drivers can get real-time parking information through their smartphones, directions to the nearest parking facility, and pricing information. The payment of on-street and off-street parking by phone with a credit card is available in several Canadian cities via paybyphone.com.

Various additional examples of the application of parking technology are of interest. Calgary has just started its digital Residential Parking Permit (RPP) Program. Under the new program, residents do not need to affix a permit to a vehicle's windshield as the license plate number of vehicles with RPP is confirmed by photo enforcement.

Cities are installing electric charging stations for on-street parking. Toronto, for example, started a pilot program to install on-street charging stations. Cities are also requiring developers to install electric vehicle charging stations in their developments. Vancouver, for example, requires that all the parking spaces in residential multiunit development must have electric outlets for electric vehicle charging.

Parking elevators, stacked or mechanical parking, and automated or robotic parking are becoming popular in urban areas where parking is at a premium. Exhibit 1-4 shows examples of some of these parking technologies. Some multi-unit residential buildings in Vancouver, Calgary, and Toronto provide parking elevators in their central areas. Some multi-unit residential buildings in Vancouver and Toronto have implemented mechanical parking. In 2012, Vancouver introduced a 240-space robotic parking garage, the largest of its kind in North America and the first in Canada. It is located at 838 West Hastings Street, a mixed-use 38 storey building.

Exhibit 1-4 – Parking Technologies



Source: *Global Robotic Parking Systems Market 2018, Gulf Feed, 2018*

⁵ Smart Parking: What Is It? How Can Your Facility Benefit? Realcomm, 2014

In New York City, updated parking requirements offer increased support for buildings opting for automated parking solutions. As discussed in Future Thinking, an article by IPI, New York City is making changes to deal with the increase in the number of people in the city and the related increased demand for parking.⁶ Exhibit 1-5 shows that automated parking allows for much denser storage of cars, and frees valuable space for other uses such as additional housing units or common-element amenities. Automated parking also greatly reduces the distance driven indoors and the associated indoor vehicle exhaust emissions and accidents caused by human error, increasing wellness and safety for tenants. A drawback of automated parking technology is the problem of emergency response in the case of power outages involving flooding and other extreme weather events.

Exhibit 1-5 – Automated Parking Frees Space for Valuable Alternative Uses



Source: *Future Thinking*, International Parking Institute, 2016

⁶ Future Thinking, International Parking Institute, 2016

1.1.7 PARKING AND AUTONOMOUS VEHICLES

There are two possible models for AV ownership: private and shared. A study done by the University of Toronto titled *Driving the Future* suggests that if shared ownership becomes prevalent, AV's could be hailed whenever needed possibly resulting in a reduced demand for parking. Passengers could simply be dropped off and picked up at a curb and the vehicle could then return home or proceed to the next trip.

AVs may affect private developers as many municipalities currently have mandatory parking space requirements. Developers will wish to avoid investing in parking spaces that could be unused if a building's residents no longer own personal vehicles.

Reductions in parking demand may well have fiscal implications for municipalities due to the loss of a significant portion of parking enforcement revenue.

Much on-street parking no longer required can be reconfigured to improve road capacity or prioritize other modes such as cycling and walking. Reducing or eliminating the need for street parking spaces might lead to larger sidewalks and more public or retail space. A carefully planned deployment of shared and self-driving vehicles can increase the developable area by up to 20 percent, allowing innovation to redesign space that previously needed to be reserved for parking.⁷

Large parking lots have many potential alternative uses. According to a WSP study large parking lots could be redeveloped as parks or garden spaces.⁷ The lots could have a new life as urban gardens and could help cities to be more resilient. AVs offer cities an opportunity to transform paved surfaces into green spaces that can naturally absorb excess water and have a direct impact on the long-term capacity of municipal drainage systems.

1.2 LOCAL CONTEXT

This section reviews of several of the characteristics within the City of Mississauga that will provide an understanding of how the City can incorporate the most appropriate parking trends and changes discussed in Section 1.1.

Section 1.2.1 presents the City's demographics, Section 1.2.2 discusses land use in relation to population and employment, Section 1.2.3 presents vehicle ownership information, and Section 1.2.4 summarizes travel mode data.

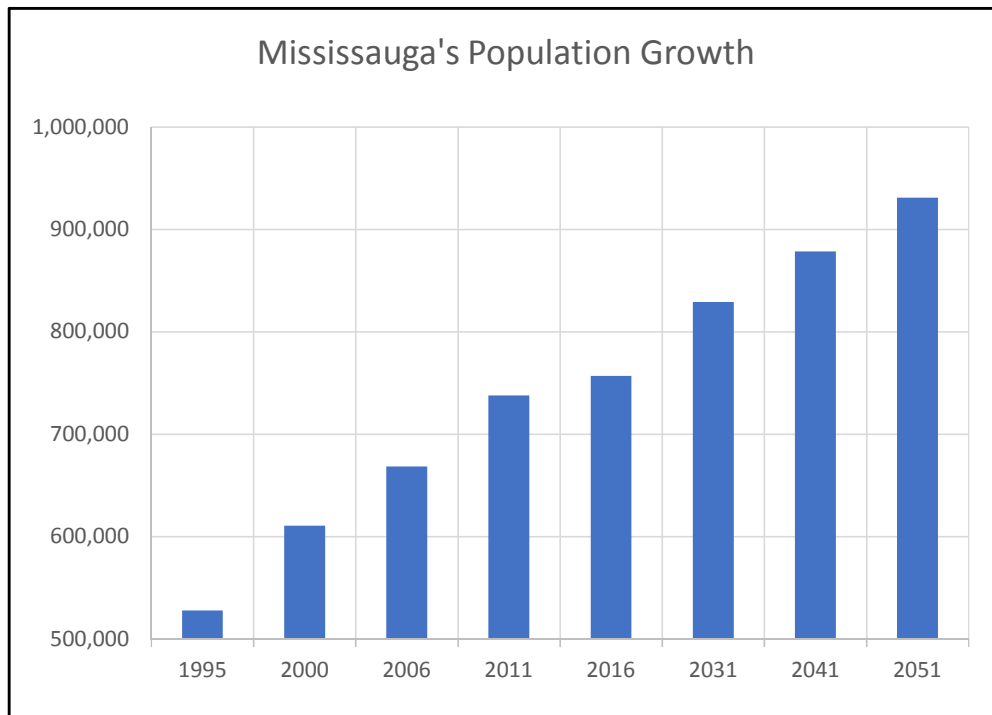
1.2.1 DEMOGRAPHICS

The City of Mississauga is one of the fastest growing municipalities in the Greater Golden Horseshoe Area. The City's population has increased by 1.5 percent annually since 2000. The 2017 population of about 766,000 is expected to grow to 930,000 in 2041. This projected rate of growth will drive the demand for mobility and will put great pressure on the City's transportation system.

⁷ Self-Driving in the City of Tomorrow, WSP, n.d.

Exhibit 1-6 shows the City's historical and projected population growth.

Exhibit 1-6 – Mississauga Population Growth

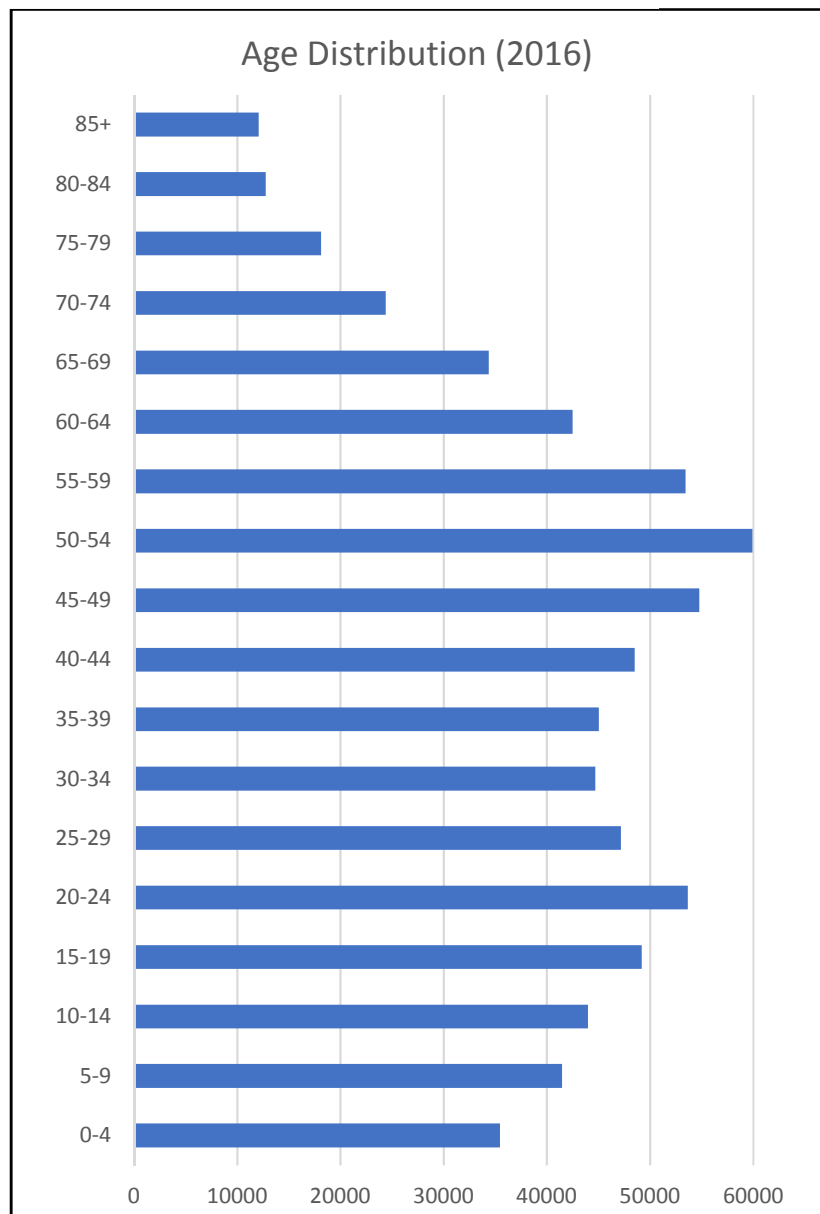


Source: Population, Demographics, and Housing Survey, City of Mississauga, 2016

Exhibit 1-8 shows Mississauga's population by age group and presents an interesting picture of the future. The largest single age cohort is between the ages of 50 and 54 indicating that many people will retire in the next decade or two. This will lead to changes in housing choice and travel habits for this age cohort.

Despite the aging population, Mississauga is clearly a family-oriented community. About 69 percent of the City's population is of working age (aged 15 to 64, according to Statistics Canada). Commuting and other home-based trips obviously have a great impact on the transportation system including parking. The millennial population (age 15 to 34, according to Statistics Canada), which is Internet-savvy and highly connected, is likely to respond easily to new parking technologies through outreach campaigns that use online and social media platforms.

Exhibit 1-7 – Age Distribution (2016)



Source: Population, Demographics, and Housing Survey, City of Mississauga, 2016

1.2.2 LAND USE, POPULATION, AND EMPLOYMENT

From 2011 to 2017, 327 hectares of vacant land were reallocated in part, for open space and greenlands, commercial (retail and office) and mixed-use, industrial and residential developments. During the same period, residential land increased by 39 hectares (0.4 percent) while the City's population grew by 2.6 percent. This indicates a shift towards higher-density forms of housing such as apartments and townhouses.

Mississauga expects the trend towards apartments and townhouses to continue and accelerate with the number of detached and semi-detached housing types expected to grow only by 2,338 units by 2041⁸. The density of future residential areas is likely to be higher than the density of older neighbourhoods. If the density reaches a critical mass, the denser neighbourhoods will be well-suited to non-auto transportation modes such as transit, walking, and cycling as a critical mass is needed for transit to become viable and for walking and cycling to have a significant impact. The anticipated shift to alternative modes has implications for the City's parking needs, particularly in the denser neighbourhoods and corridors.

Future development will occur mainly through intensification in existing urban areas.⁹ This means that existing parking stock will inevitably undergo some transformations. For example, existing parking may be displaced by new development, surface parking may be replaced by structured parking in denser areas, paid parking may become the norm in more areas of the City as land becomes more scarce and valuable, and exclusive parking for some specific land uses could be phased out in favour of more affordable and space-saving solutions such as off-site, shared public parking.

Future population growth will be largely concentrated in downtown. Significant growth is also expected to occur in areas along Hurontario, the waterfront, and in the Central Erin Mills Major Node located in the west of the City, as shown in deep green in Exhibit 1-10.

Exhibit 1-9 shows population density in Mississauga in 2011.

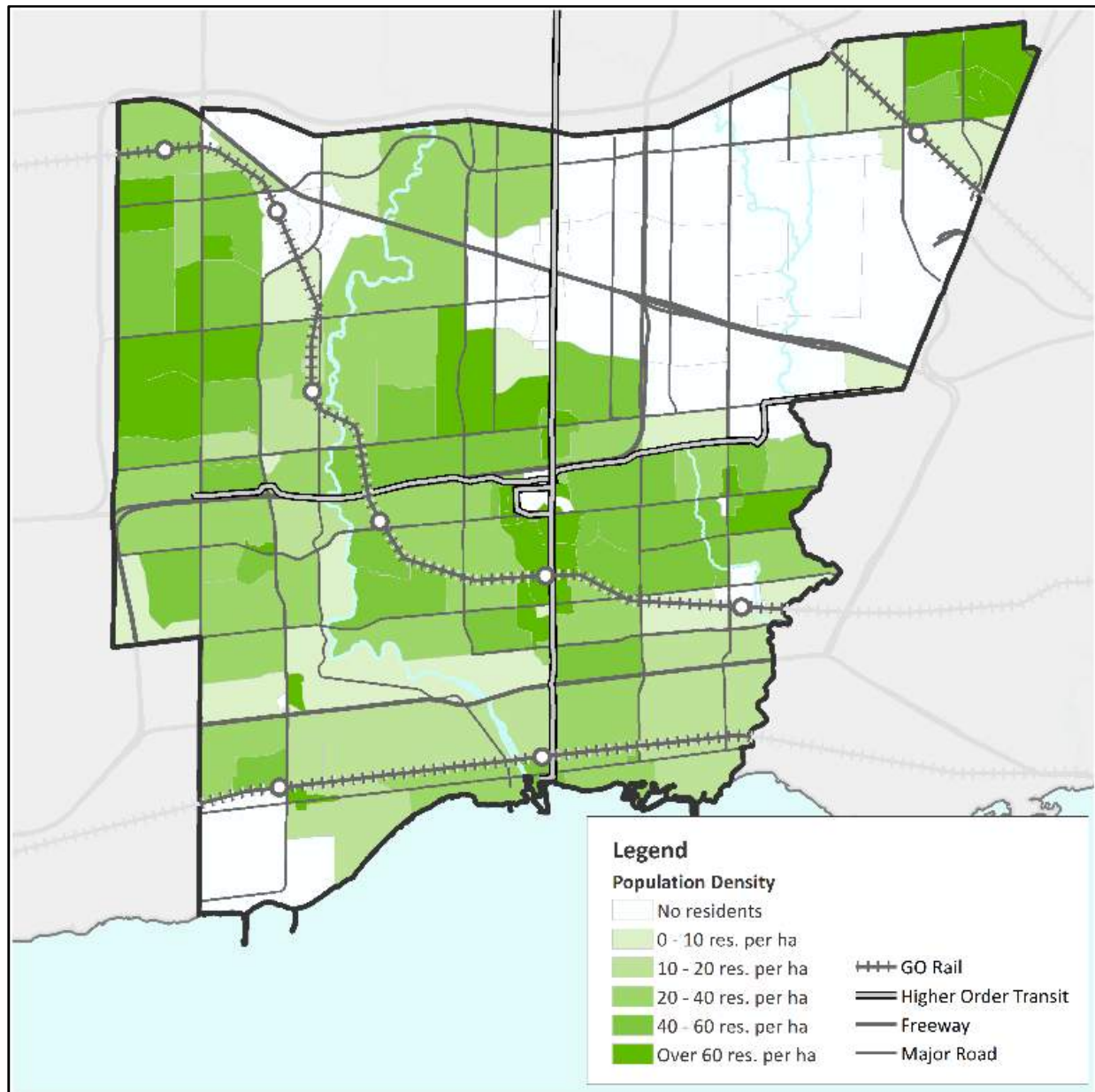
Exhibit 1-10 shows change in population density from 2011 to 2041.

Exhibit 1-11 shows the expected change in population from 2011 to 2041 by land use designation.

⁸ Population, Demographics, and Housing Survey, City of Mississauga, 2016

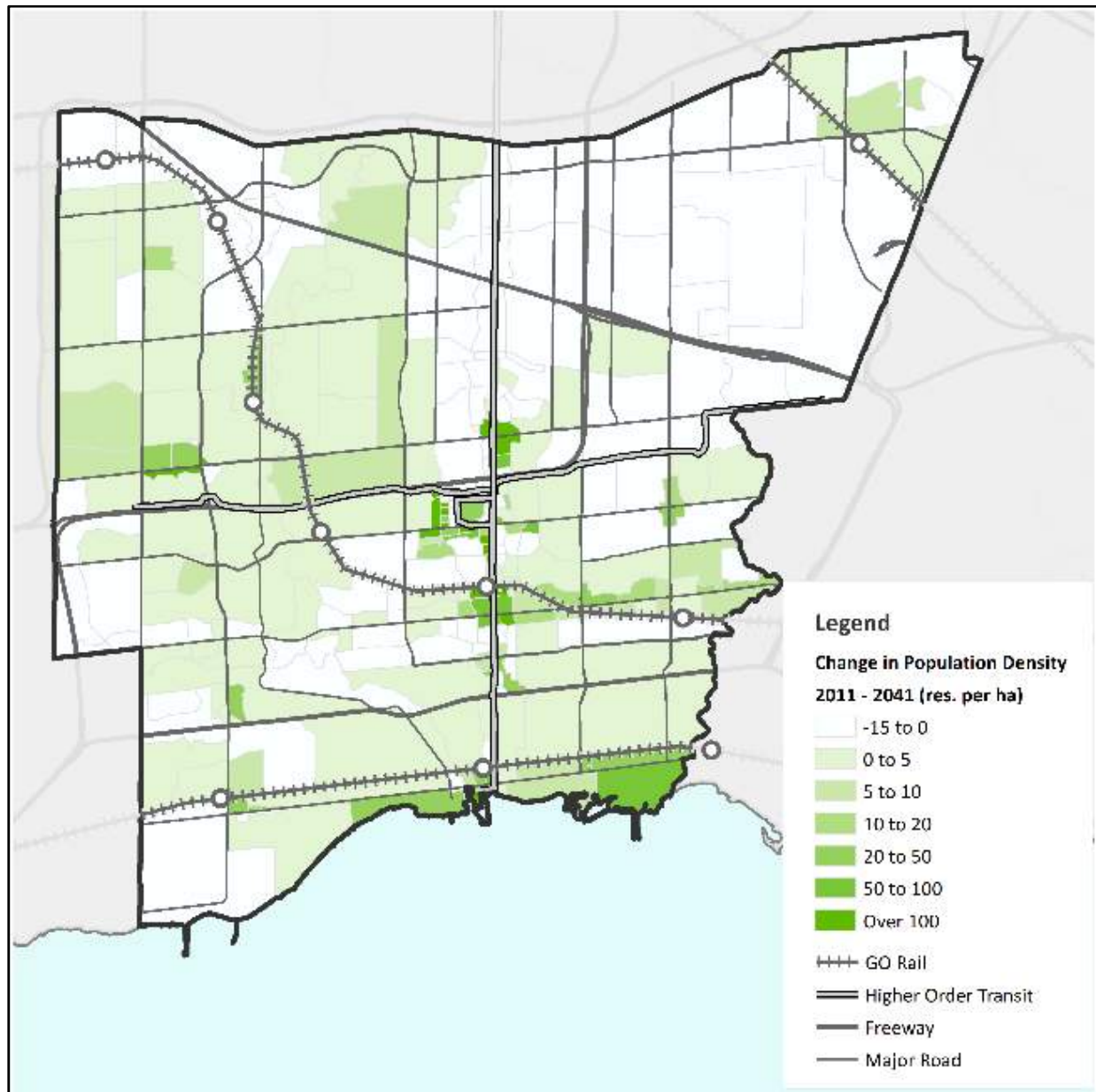
⁹ Working files associated with the development of Transportation Master Plan, Steer Davies Gleave, 2017

Exhibit 1-9 – Population Density in Mississauga



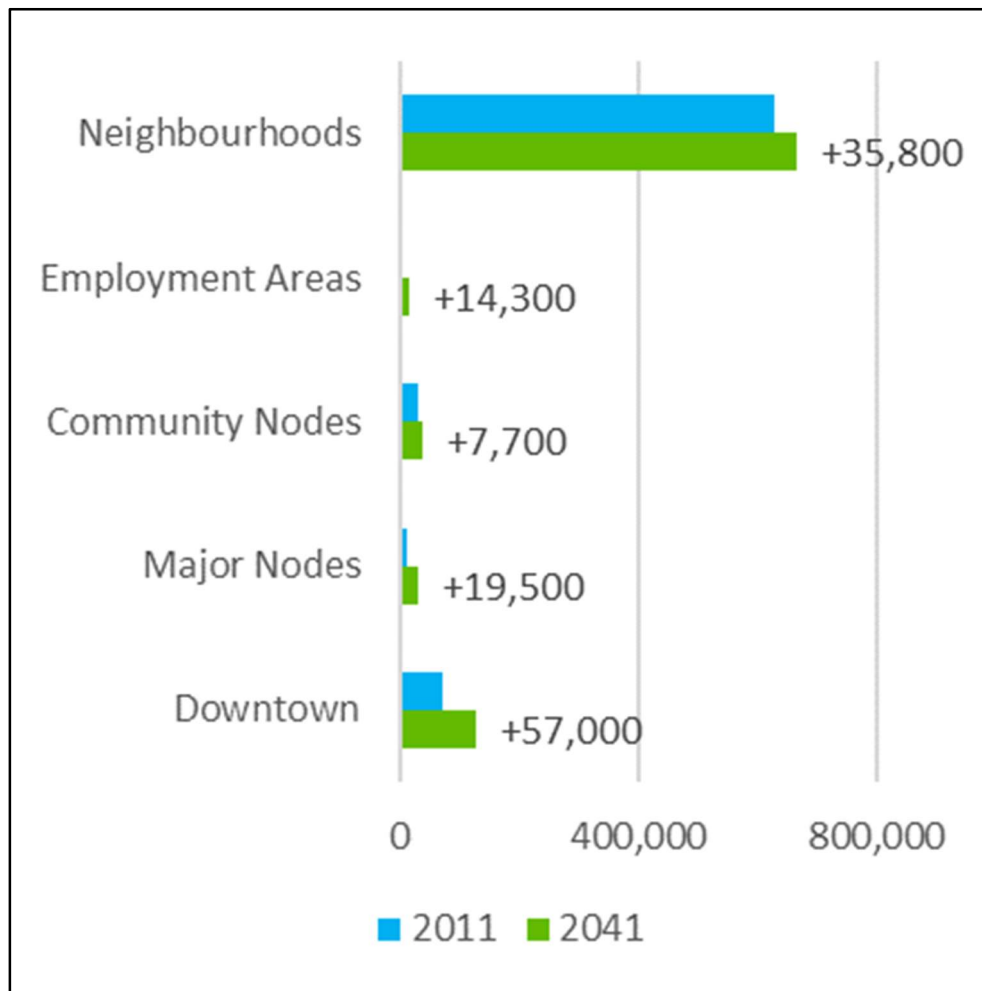
Source: Working files associated with the development of Transportation Master Plan, Steer Davies Gleave, 2017

Exhibit 1-10 – Change in Population Density - 2011 to 2041



Source: Working files associated with the development of Transportation Master Plan, Steer Davies Gleave, 2017

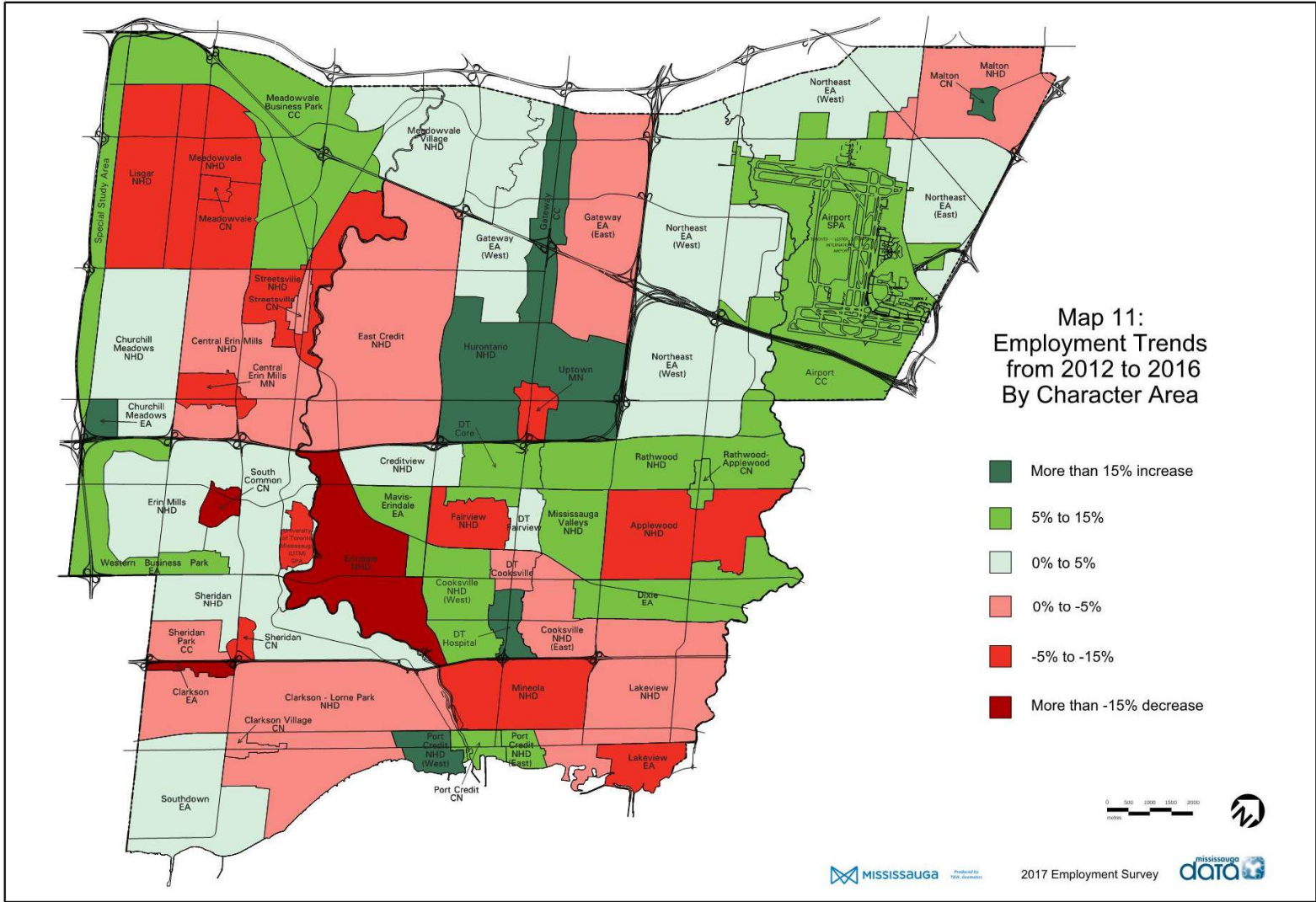
Exhibit 1-11 – Population Change by Land Use Designation - 2011 to 2041



Source: Working files associated with the development of Transportation Master Plan, Steer Davies Gleave, 2017

Like population, employment in Mississauga has grown steadily. More than 10,000 jobs were created between 2013 and 2017. During this period, the number of businesses also increased. Exhibit 1-12 shows changes in employment from 2012 to 2016 by Character Area (previously known as Planning District).

Exhibit 1-12 – Employment Trends by Character Area - 2012 to 2016

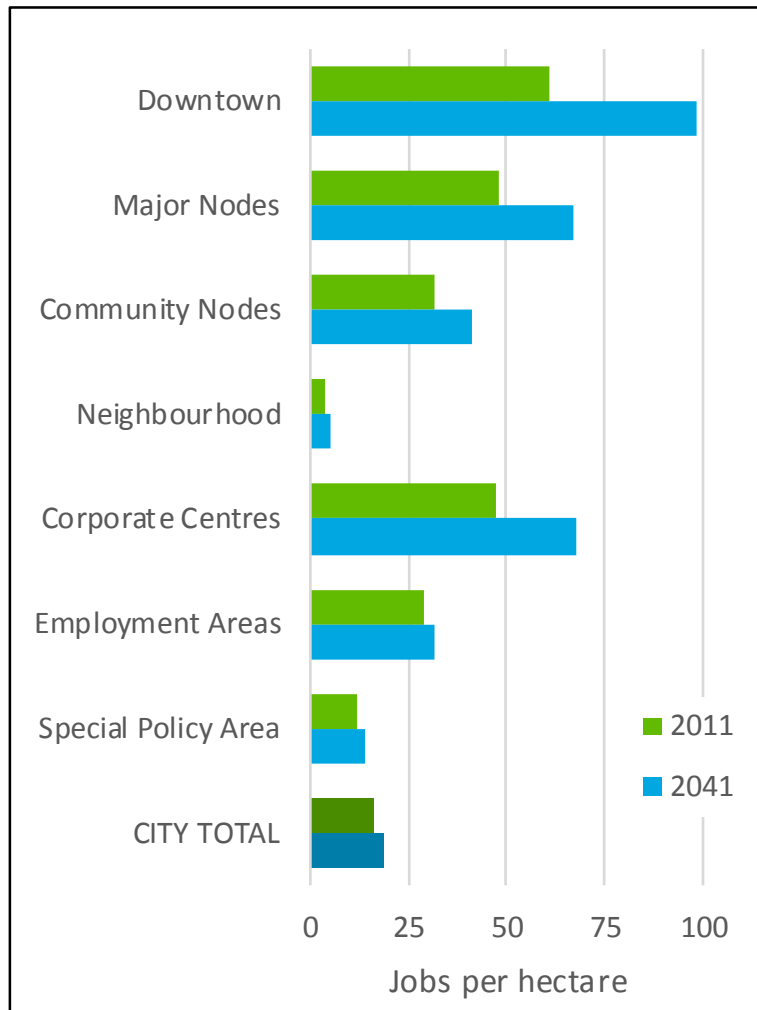


Source: Mississauga Employment Survey, City of Mississauga, 2017

Future employment is expected to grow by around 95,000 jobs from 2011 to 2041. Office development is expected to become the main driver: 60 percent of the employment growth (around 62,000 jobs) is expected to be in the major office development sector. Most of the remaining growth (around 33,000 jobs) is expected to be retail, healthcare, and education.⁹ Like residential growth, employment growth will be focused in the downtown.

Exhibit 1-13 shows the expected change in jobs/hectare from 2011 to 2041 by land use designation.

Exhibit 1-13 – Change in Jobs per Hectare by Land Use Designation - 2011 to 2041



Source: Working files associated with the development of Transportation Master Plan, Steer Davies Gleave, 2017

The concentration of future employment growth in the form of office developments downtown and in Corporate Centres and Major Nodes creates opportunities for TDM strategies aimed at commuter. Strategies might include, for example, preferential parking for carpool vehicles. Centralized shared parking serving multiple sites may also be appropriate in some locations. Considering millennials' openness to alternative modes and the use of new technology, the City may consider app-based trip planning programs that add information about parking location and fees to information about transit and ridesharing alternatives.

1.2.3 VEHICLE OWNERSHIP

Vehicle ownership in the City has declined slightly over time. According to TTS data, the average vehicle ownership rate in the City has declined from 1.77 vehicles per household in 2011 to 1.6 vehicles per household in 2016. The trends toward apartment-style living, increased walkability particularly in intensification areas, environmental consciousness, and different travel preferences among the younger generation suggest that the trend toward lower vehicle ownership is likely to continue. Declining vehicle ownership has direct implications for residential parking demand and triggers the need to reconsider the City's existing minimum parking requirements.

Although overall vehicle ownership rate is declining, reconsideration of the City's parking requirements will require a closer examination of vehicle ownership patterns in different areas of the City and for different housing types.

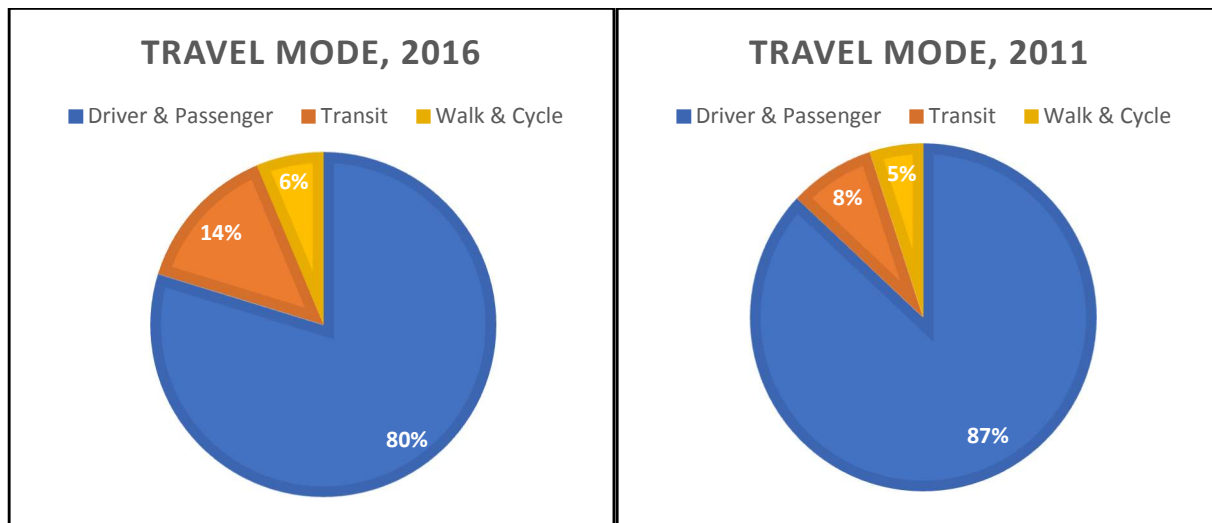
1.2.4 TRAVEL MODE

Approximately three million trips start or end in Mississauga every day.⁹ As Mississauga is a car-oriented City, most of these trips are currently made by auto. Transit use has, however, increased in recent years.

Exhibit 1-14 is based on TTS data for 2011 and 2016. The Exhibit shows that auto decreased from 87 percent to 80 percent, transit increased from 8 percent to 14 percent, and active transportation (walking and cycling) increased from 5 percent to 6 percent. Current and planned investments in regional rail, bus rapid transit (BRT), and light rail transit (LRT) are intended to support growing transit ridership.

As part of the push toward sustainable modes, parking in the City can be managed in a way that supports auto travel without encouraging increased auto use to the detriment of transit, active transportation, and TDM. It is the intention of this study to develop such parking policies that contribute to a multimodal city.

Exhibit 1-14 – Travel Mode - 2011 to 2016



Source: *Transportation Tomorrow Survey, University of Toronto, 2011 and 2016*

1.3 FUNDAMENTAL CHANGES IN PARKING POLICY

Parking policy is evolving as cities grow and as land use, density and transportation needs and possibilities change. For example, parking policy is responding to the trends toward multi-modal cities, sustainability and use of new technology.

Exhibit 1-15 shows Litman's summary of the old and new parking policy paradigms. The old paradigm focused heavily on parking supply whereas the new paradigm emphasizes parking management as a fully integrated and important element of transportation planning. The new paradigm recognizes that parking policy plays an important role in the transportation system, affects travel behaviour, and should evolve to accommodate changing demographics, land use, and travel behaviours.

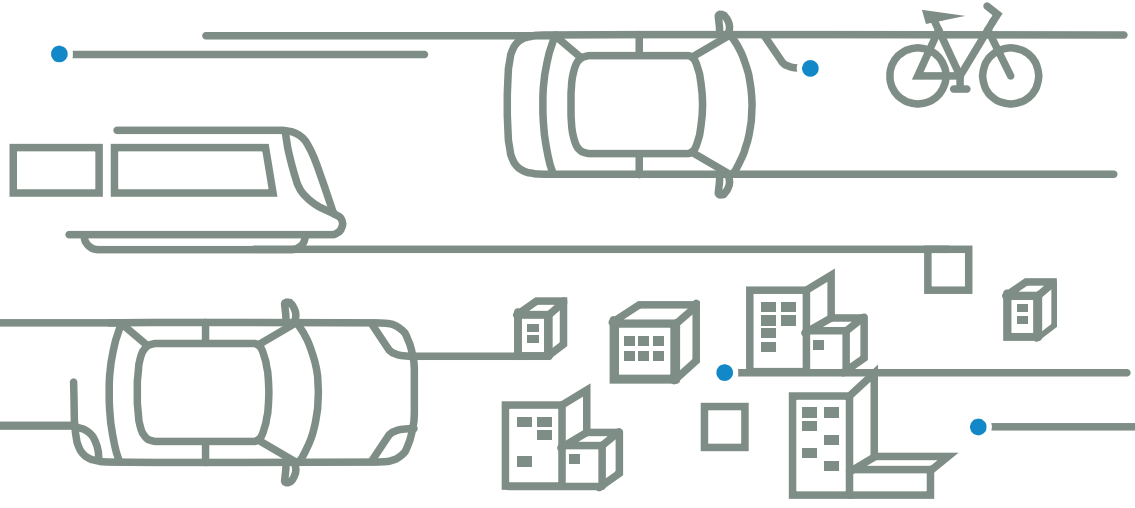
Exhibit 1-15 – Comparison of Old and New Parking Policy Paradigms

Old Paradigm	New Paradigm
Parking problem means inadequate parking supply.	There can be many types of parking problems, including inadequate or excessive supply, too low or high prices, inadequate user information, and inefficient management.
Transportation parking supply is always desirable.	Travelers may use various modes. Not everybody drives.
Abundant parking supply is always desirable.	Too much supply is as harmful as too little.
All parking demand should be satisfied on-site. Motorists should not be forced to walk to their cars.	Parking can often be provided off-site, allowing sharing of parking facilities among various destinations.
Parking should generally be provided free, funded indirectly, through rents and taxes.	As much as possible, users should pay directly for parking facilities.
Parking should be available on a first-come basis.	Parking should be regulated to favour higher priority uses and encourage efficiency.
Parking requirements should be applied rigidly, without exception or variation.	Parking requirements should reflect each particular situation, and should be applied flexibly.
Innovation faces a high burden of proof and should only be applied if proven and widely accepted.	Innovations should be encouraged, since even unsuccessful experiments can provide useful information.
Parking management is a last resort, to be applied only if increasing supply is infeasible.	Parking management programs should be widely applied to prevent parking problems.
Land use dispersion (sprawl) is acceptable or even desirable.	Dispersed, automobile-dependent development can be harmful.

Source: *Evaluating Public Transit Benefits and Costs*, Victoria Transport Policy Institute, 2018

Due to different needs and planning goals in different parts of the City, parking policies and their application may differ for the various locations, and the implementation of parking policies may be phased over time as local conditions trigger the need for change. For example, intensification areas such as downtown and locations along transit corridors may be suitable for TDM and corresponding parking policies, but more traditional policies may continue to be appropriate for traditional suburban areas where existing travel habits are likely to persist.

The Section that follow discuss planning and parking policies and develop a parking policy framework that considers the emerging societal, environmental, and technological trends influencing the provision and management of parking in the City of Mississauga. The framework supports the City's overall parking vision which will be defined in the next Section and provides the flexibility necessary to accommodate the needs of different areas.



PARKING MATTERS



APPENDIX 1-2

POLICY REVIEW

Mississauga Parking Master Plan and
Implementation Strategy (PMPIS)

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1 INTRODUCTION

Mississauga's existing policies and planning framework guided the study's in-depth considerations. This Section reviews existing policies and, where possible, those in development to maximize consistency between the City's policies and the parking framework developed in this study. The Section identifies the policy directions, procedures, and recommendations that present important opportunities for this study to be consistent with specific city parking policies. This Section also identifies gaps in current policies. It is understood that some policies will need to be updated to reflect the new long-term vision for parking.

2 PROVINCIAL POLICY REVIEW

2.1 GROWTH PLAN FOR THE GREATER GOLDEN HORSESHOE 2017

The Places to Grow Act (2005) is a legislative framework that seeks to guide future land use development within the Province of Ontario. The Act is designed to promote healthy communities by conserving environmentally sensitive lands, providing a planning process that reaches across municipal boundaries, and increasing densities, where appropriate and feasible, to ensure adequate housing and land supply for the future.

The Act sets out to achieve the following goals: revitalize downtowns to become vibrant and convenient centres; create complete communities offering more options for living, working, learning, shopping and playing; provide housing options to meet the needs of people at any age; curb sprawl and protect farmland and green spaces; and reduce traffic gridlock by improving access to a greater range of transportation options.

The *Growth Plan for the Greater Golden Horseshoe (2017)* is the accompanying Implementation Plan that provides guidelines on infrastructure planning, land-use planning, housing, urban form, transportation and natural heritage and resource protection issues that are expected to develop over time as communities in the Greater Golden Horseshoe (GGH), expand and grow. The Plan promotes dense, mixed-use communities that support public transit, walking, and cycling, as well as aims to reduce private vehicle demand by promoting public and active transportation as viable options.

Specific guidelines that directly affect parking supply and demand include:

- Section 2.2.4 (Transit Corridors and Station Areas):
 - ‘All major transit station areas will be planned and designed to be transit-supportive and to achieve multimodal access to stations and connections to nearby major trip generators by providing, where appropriate [...] infrastructure to support active transportation, including sidewalks, bicycle lanes, and secure bicycle parking’.
 - ‘Within all major transit station areas, development will be supported, where appropriate, by [...] providing alternative development standards, such as reduced parking standards’.
- Section 2.2.5 (Employment):
 - In planning for employment, surface parking will be minimized and the development of active transportation networks and transit-supportive built form will be facilitated.

- Section 3.2.2 (Transportation General):
 - ‘The transportation system within the GGH will be planned and managed to [...] offer a balance of transportation choices that reduces reliance upon any single mode and promotes transit, cycling and walking’.
 - ‘Municipalities will develop and implement transportation demand management policies in official plans or other planning documents or programs to [...] increase the modal share of alternatives to the automobile, which may include setting modal share targets; prioritize active transportation, transit, and goods movement over single-occupant automobiles’.

2.2 OMAH LAND USE PLANNING PROVINCIAL POLICY 2014

In 2014, the Ontario Ministry of Municipal Affairs and Ministry of Housing issued the *Provincial Policy Statement 2014* under Section 3 of the Planning Act (1990). The Statement sets out policies pertaining to the government’s long-term land-use vision.

The Provincial Policy Statement is required to contain general policy directions on matters of provincial interest related to land use planning and development. The “shall be consistent with” rule means that a council is obliged to ensure that policies under the Provincial Policy Statement are applied as an essential part of the land use planning decision-making process. It is expected that the council will implement the Provincial Policy Statement in the context of other planning objectives and local circumstances. *Parking facilities* (in *Section 6: Definitions*) are considered as part of the overall transportation system which facilitates the movement of people and goods.

The Statement includes the following relevant objectives:

- Transportation systems which are safe, energy efficient, facilitate the movement of people and goods, and are appropriate to address projected needs.
- Efficient use of existing and planned infrastructure, including through the use of transportation demand management strategies, where feasible.
- A land use pattern, density and mix of uses that minimizes the length and number of vehicle trips and supports current and future use of transit and active transportation.
- Transportation and land use considerations that are integrated at all stages of the planning process.
- A multimodal transportation system, where connectivity within and among transportation systems and modes are maintained and, where possible, improved including connections which cross jurisdictional boundaries.

2.3 METROLINX: 2041 REGIONAL TRANSPORTATION PLAN

In 2018, Metrolinx released the *2041 Regional Transportation Plan*, a Regional Travel Plan (RTP) that included a series of policy statements on the future transportation challenges in the GTHA.

Building on the vision of an “integrated, multi-modal regional transportation system” from the previous RTP, the key strategies in the new Plan focus on improving traveler needs. The RTP includes the following relevant objectives:

- Strategy #3 *Optimize the transportation system:*
 - ‘Recover the cost of providing parking at GO stations to help shift trips to modes that do not require parking’.
 - ‘Continue to explore how mobility pricing (e.g., parking, road pricing, HOT lanes and off-peak fares) could be used to shift travel behaviour.’
 - ‘Coordinate the planning and operation of transit, roads and on-street parking within each municipality, across municipal boundaries, and where municipal, regional and provincial roads meet.’
- Strategy #4 *Integrate transportation and land use:*
 - ‘Coordinate the development of a region-wide policy that [...] provides guidelines and encourages best practices in parking management; identifies common goals for on- and off-street parking management, especially near transit stations; [and] includes public education and demonstrates the benefit of new parking practices.’
 - ‘Coordinate station area parking requirements with the expansion of transit infrastructure and services. Zoning standards should be reviewed, with the expectation that minimum parking requirements will be reduced, particularly in transit-supportive neighbourhoods.’
 - ‘Adopt a region-wide approach to parking management for the arrival of shared mobility and autonomous vehicles.’
 - ‘Research and regularly publish existing parking-related data and emerging trends to improve parking planning and management.’

2.4 METROLINX MOBILITY HUB GUIDELINES

In early 2011, Metrolinx released the *Mobility Hub Guidelines*. The goal of the Guidelines is to define, organize and provide guidance to the scale, intensity and type of development surrounding future mobility hubs as the region's transit system expands. A number of these exist in Mississauga: Mississauga City Centre, Cooksville GO, Port Credit GO, Renforth Gateway and Pearson Airport.

The Guidelines define a mobility hub as being the 800-metre radius surrounding the station or junction at the intersection of two higher order levels of transit lines. Mobility hubs are classified according to their location, size and projected usage. These range from "Central Toronto" to such as "Suburban Transit Node".

Metrolinx also provides a guide to transit supportive densities within mobility hub boundaries. For instance, it is intended that the Mississauga City Centre (MCC) will be predominantly serviced by LRT and BRT, an area that requires at least 300 residents and jobs per hectare.

In the *Seamless Mobility* category of measures outlined in the guide, Metrolinx has nominated *Strategic Parking Management* as a desirable policy objective (Chapter 4). The three themes that Metrolinx has nominated to achieve this are as follows:

- 'Right-sizing commuter parking'
- 'An Area-Based Approach to parking management and reduction'
- 'Parking designed to high standards'

Each theme contains two to three measures that are designed to achieve the strategic parking management objective.

2.5 ONTARIO'S CLIMATE CHANGE ACTION PLAN AND ENVIRONMENT PLAN

Under the previous provincial government, the Climate Change Action Plan 2016-2020 is the most recent provincial plan of specific legislative actions and programs designed to address climate. It includes a cap-and-trade scheme, select direct investments in public infrastructure and technologies as well as initiatives to reform existing land use regulations.

Relevant objectives include:

- More publicly accessible bike parking at transit stations to support more multi-modal travel, including cycling and walking.
- Eliminating minimum parking requirements in municipal zoning bylaws, especially in transit corridors and other high-density, highly walkable communities through reforms to the Municipal Act.
- Requiring electric vehicle charging services in surface lots (Action Start 2017/18).

Relevance to Mississauga

The Province has a number of plans in place that seek to reform land use planning and introduce and improve parking management for those transportation corridors and lands over which the Province has either control or influence. Given the significant impact of parking on land use and transportation, it is unsurprising that most plans identify parking as a major area of reform.

At present, the extent to which the province is willing to intervene and regulate parking is not yet clear. The PMPIS is an opportunity for the City to make its own determination as to which of the Province's initiatives are considered significant for future transportation performance in Mississauga and also to determine those areas in which attention should be focussed as part of the Master Plan.

Under the current Progressive Conservative government, a new *Made-in-Ontario Environment Plan* has been introduced and is currently under review. It eliminates the cap-and-trade program and proposes incentives to stimulate growth in clean technologies.

Relevant objectives include:

- Improve public transportation to expand commuter choices and support communities by committing \$5 billion more for subways and relief lines.
- Establish a public education and awareness program to make people more aware of the environmental, financial and health impacts of their transportation choices.

3 CITY OF MISSISSAUGA EXISTING PARKING POLICY AND FRAMEWORK

3.1 OFFICIAL PLAN AND LOCAL PLANS

The MOP is generally characterized by the desire to facilitate a more urban-based, compact land use system. The plan includes a wide range of parking policies and notes the need for well-defined and deliberate parking management plans, but does not clearly define specific initiatives or the changing current and future role of parking in the transportation system as Mississauga continues to urbanize.

The main parking policies presented in the MOP include:

- Create a Multi Modal City (Section 8) through Municipal Parking Objectives and Policies (Section 8.4), such as:
 - New development that encourages off-street parking facilities that are inclusive and support Transportation Demand Management (TDM) initiatives (8.4.1).
 - Encouragement of shared and off-site parking (8.4.2).
 - Reduction in off-street parking requirements to support greater use of alternative modes (8.4.3).
 - Criteria to be considered when requesting payment-in-lieu of parking for developments that do not meet the City's parking standards (8.4.4 and 8.4.5).
 - Maximize on-street parking while balancing the needs of other modes of transportation (8.4.6).
 - Board policy objectives for Intensification Areas. The objectives include reducing minimum parking requirements, establishing maximum parking standards, limiting surface parking, maximizing on-street public parking, coordinating with TDM initiatives, and requiring phasing and implementation plans (8.4.7).
 - Support for developing municipal parking facilities to support shared parking, transit and encouraging development (8.4.8).
 - Support for taking an active role in providing off-street parking, including public investment in parking projects that are directed towards these objectives (8.4.9):
 - Provide strategically located public parking structures that can serve a variety of uses.
 - Serve development within a proposed higher-order transit corridor.
 - Provide an appropriately sized structure considering economies of scale, efficiency of structure, character of the area, and financial aspects.

- Allow for the consolidation of pre-existing surface lots to encourage intensification.
- Make efficient use of publicly owned land.
- Integrate commercial uses into the ground level façade for above grade structures.
- Allow for integration of community infrastructure.
- Provide for convenient pedestrian linkages to, from, and through the parking structure to connect with surrounding development.
- Consider temporary surface parking lots to secure strategic locations for future public parking structures.
- Consideration for “allowing the use of municipal parking facilities to meet or reduce the parking requirements for cultural facilities where it does not impair the functioning of other uses or the economic viability of the area” (8.4.10).
- “Development within and adjacent to neighbourhoods will mitigate parking impacts on the residential use” (8.4.12).
- Discouraging “parking in neighbourhoods on local streets for non-residential purposes” (8.4.13).
- Create a Desirable Urban Form (Section 9) through, for example:
 - Consideration of bicycle parking and destination amenities as part of site development (9.4.1.3).
 - Consideration of design objectives for parking, servicing, and loading (9.5.5) and location of parking with respect to buildings (9.5.5.1).
 - Development of appropriate above grade design principles (9.5.5.2).
 - Development of appropriate surface parking design principles (9.5.5.3).
 - Support for shared parking (9.5.5.4).
 - Support for secure bicycle parking (9.5.5.5).

Many existing policy statements seek to address undesirable aspects of parking by attempting to regulate parking for, but important aspects that concern the quantity or scale of parking provision are often left to other regulations such as the Zoning By-law.

Section 3.1.1 discusses the City Structure document with reference to parking policy issues relating to seven different land uses. Parking policy issues in intensification corridors and at major transit stations areas are discussed in Section 3.1.3 and 3.1.4 respectively. Section 3.1.5 considers parking policy related to the long-term transit network, and Section 3.1.6 examines mobility hubs.

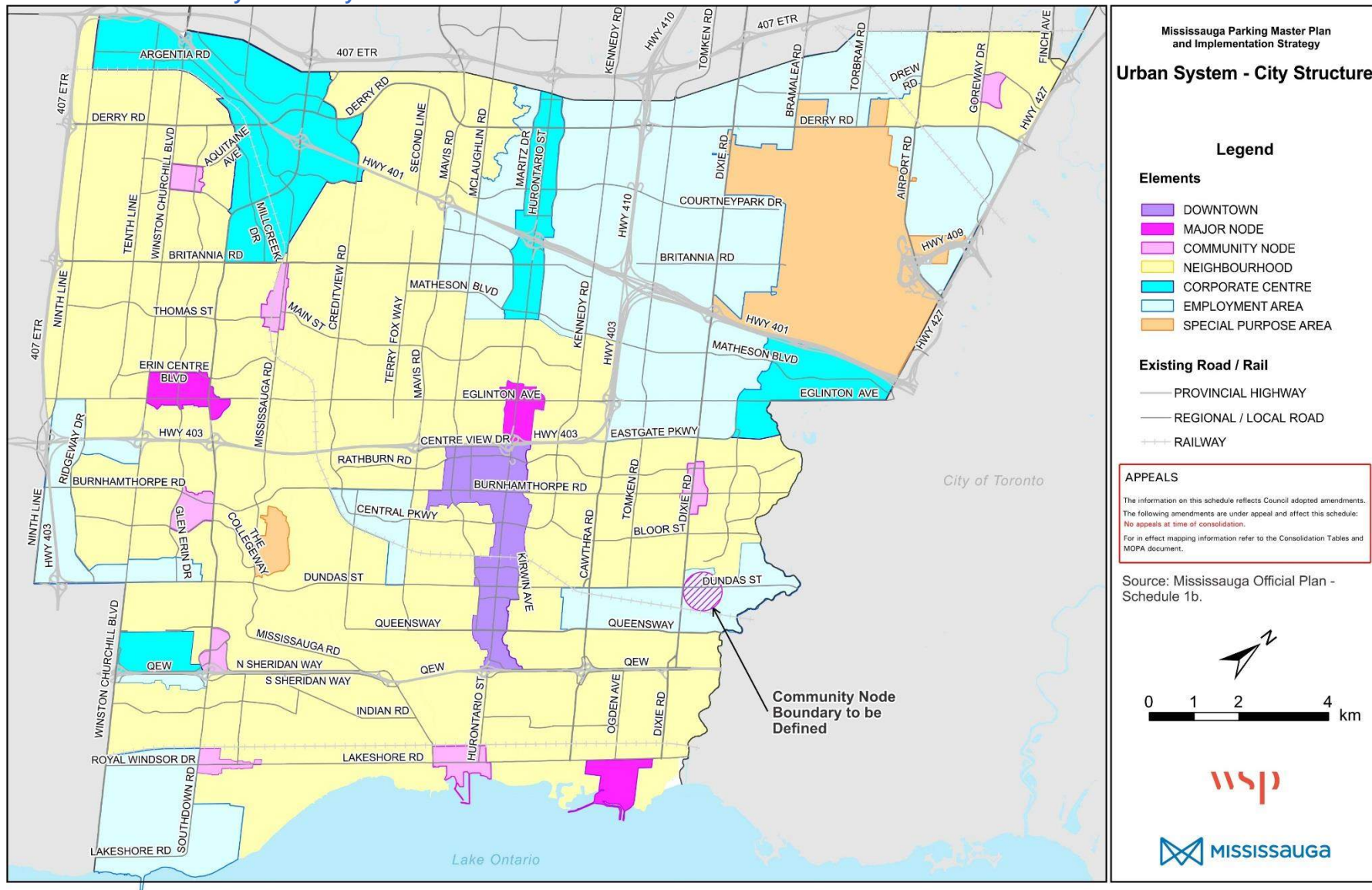
3.1.1 CITY STRUCTURE

The MOP defines a City Structure in Schedule 1B of the plan. Exhibit 3-1 shows the structure. The structure identifies seven policy areas called “elements.” Each element reflects a distinct urban character and land use pattern. It was agreed early in the project that the City’s parking policies should be sensitive to the city building goals in each area.

The following Sections focus on the parking issues related to each of the seven land use elements:

- Downtown
- Major Node
- Community Node
- Neighbourhood
- Corporate Centre
- Employment Area
- Special Purpose Area

Exhibit 3-1 Urban System City Structure



Downtown

The City expects much of the new population and employment growth to be in its Downtown. The City intends Downtown to be a place where people live, work, shop, and come for entertainment. Infrastructure improvements will provide a mixed-use environment that is suitable for such uses and that create an inviting overall public realm.

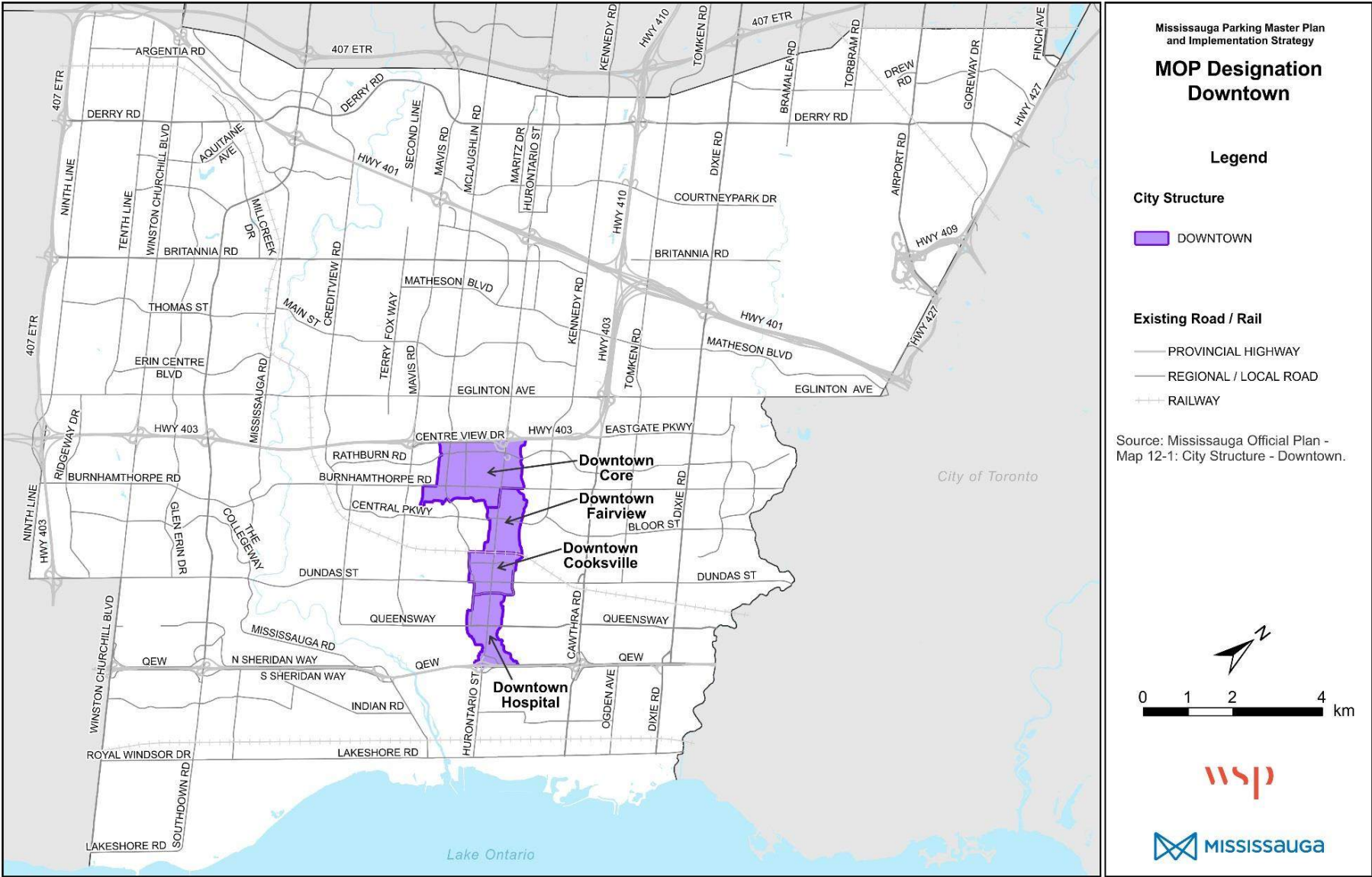
Section 5 of the MOP defines four Character Areas within the Downtown:

- Downtown Core
- Downtown Fairview
- Downtown Cooksville
- Downtown Hospital

The Downtown and its four Character Areas are shown in Exhibit 3-2.

The parking policies related to the Downtown are discussed in Section 12 of the MOP. The discussion mainly concentrates on broad parking policies for these areas. The policies include urban design objectives that focus on location and form rather than the amount and type of parking provided. There are some special site policies that include specific parking provisions for certain locations.

Exhibit 3-2 MOP Downtown



Major Nodes

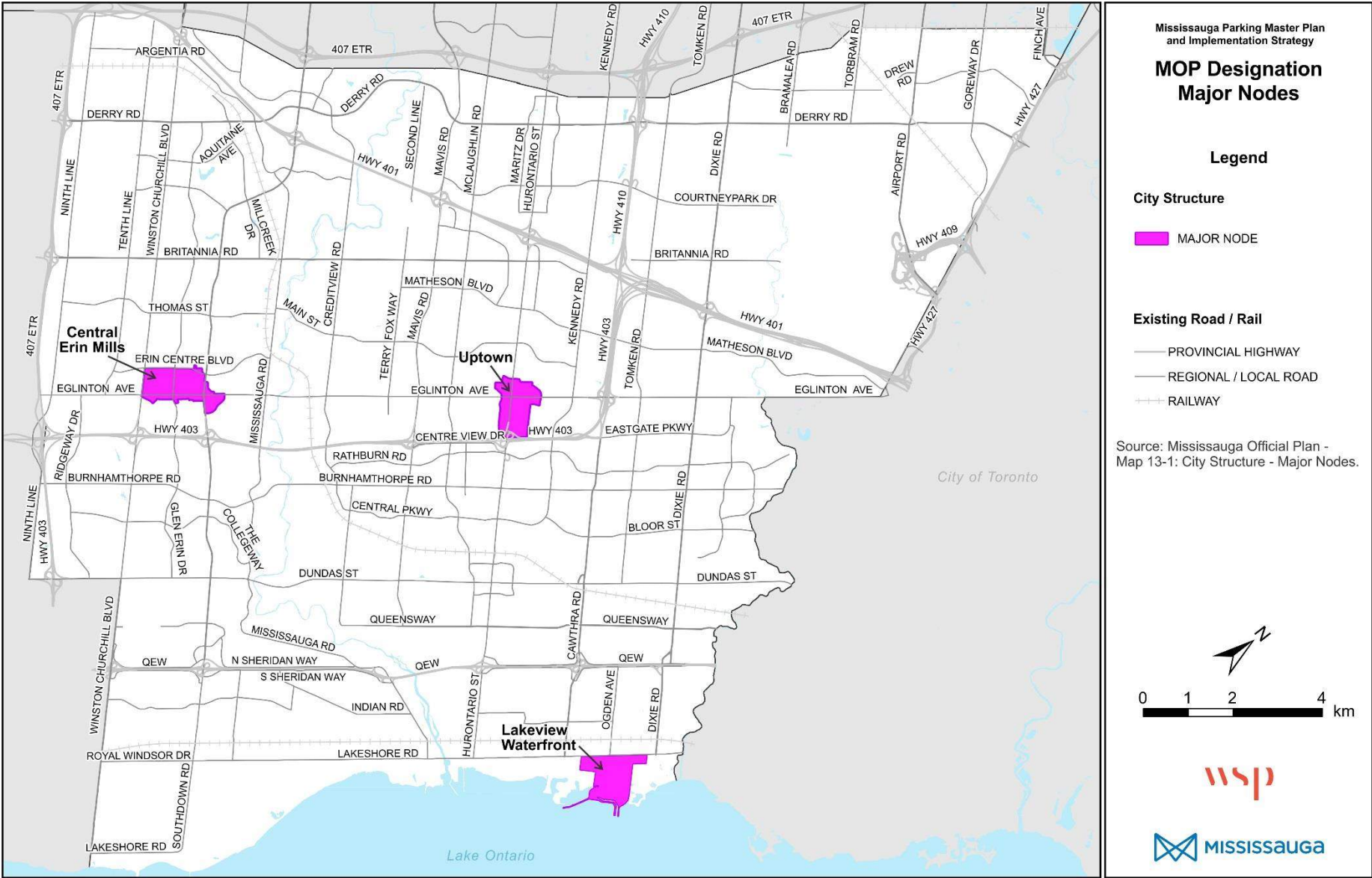
The development of the City's Major Nodes is to create and foster important centres of mixed-use activities that will provide:

- Regional shopping services and employment opportunities that attract people adjacent neighbourhoods and from more distant surrounding areas.
- Higher-density housing which will accommodate people from a wide range of demographics and income levels. A Major Node should be able to accommodate residents through the different phases of their lives.

Mississauga currently has three Major Nodes: Uptown, Central Erin Mills, and Lakeview, as shown in Exhibit 3-3.

The Uptown Major Node is located directly on the proposed higher-order transit facility on the Hurontario Street Corridor, and the Central Erin Mills Major Node is adjacent to the Mississauga Transitway corridor.

Exhibit 3-3 MOP Major Nodes



Community Nodes

Community Nodes are intended to provide diverse housing stock and easy access to schools, parks, local shops, community facilities, etc. The aim is compact, mixed-use developments with walkable streets and a strong sense of place and community identity.

Exhibit 3-4 shows the City's nine Community Nodes:

- Clarkson Village
- Dixie-Dundas
- Malton
- Meadowvale
- Port Credit
- Rathwood-Applewood
- Sheridan
- South Common
- Streetsville

Section 14 of the MOP outlines parking policies for some of the abovementioned Community Nodes. The parking related policies for Clarkson Village, Malton, Meadowvale, Rathwood-Applewood, and Streetsville place parking at the rear of buildings or underground out of sight. The policies also stipulate that no parking should be placed between buildings and the street line in Malton and Meadowvale. Parking policies for the other Community Nodes are not discussed in the MOP.

Exhibit 3-4 MOP Community Nodes



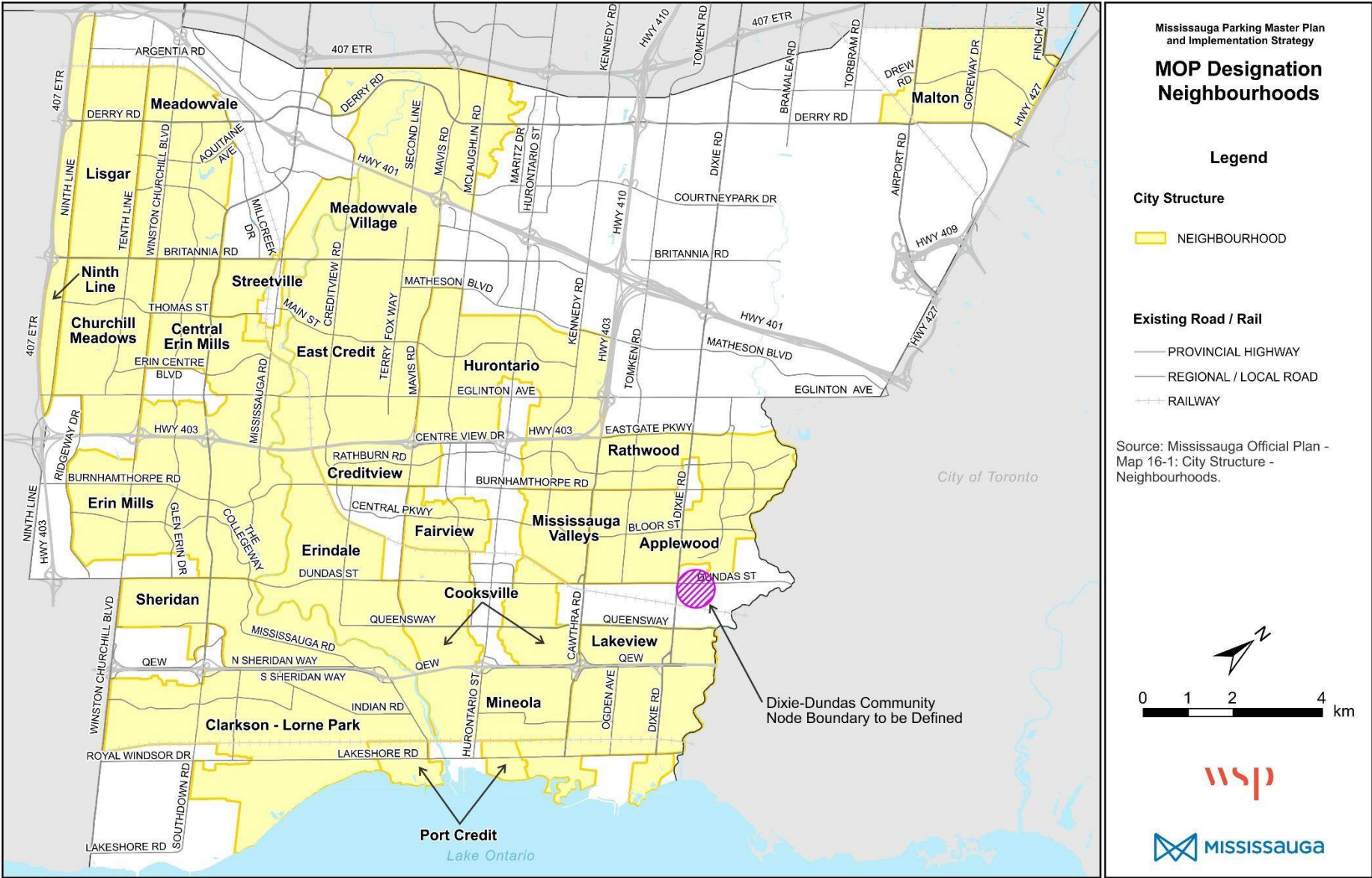
Neighbourhoods

Neighbourhoods are not identified as intensification areas. The 22 Neighbourhoods are discussed in Section 16 of the MOP. The discussion mainly concentrates on broad parking policies for these areas. The policies include urban design objectives that focus on location and form rather than the amount and type of parking provided. There are some special site policies that include specific parking provisions for certain locations.

Exhibit 3-5 shows the 22 Neighbourhoods:

- Applewood
- Central Erin Mills
- Churchill Meadows
- Clarkson-Lorne Park
- Cooksville
- Creditview
- East Credit
- Erindale
- Erin Mills
- Fairview
- Hurontario
- Lakeview
- Lisgar
- Malton
- Meadowvale
- Meadowvale Village
- Mineola
- Mississauga Valleys
- Port Credit
- Rathwood
- Sheridan
- Streetsville

Exhibit 3-5 MOP Neighbourhoods



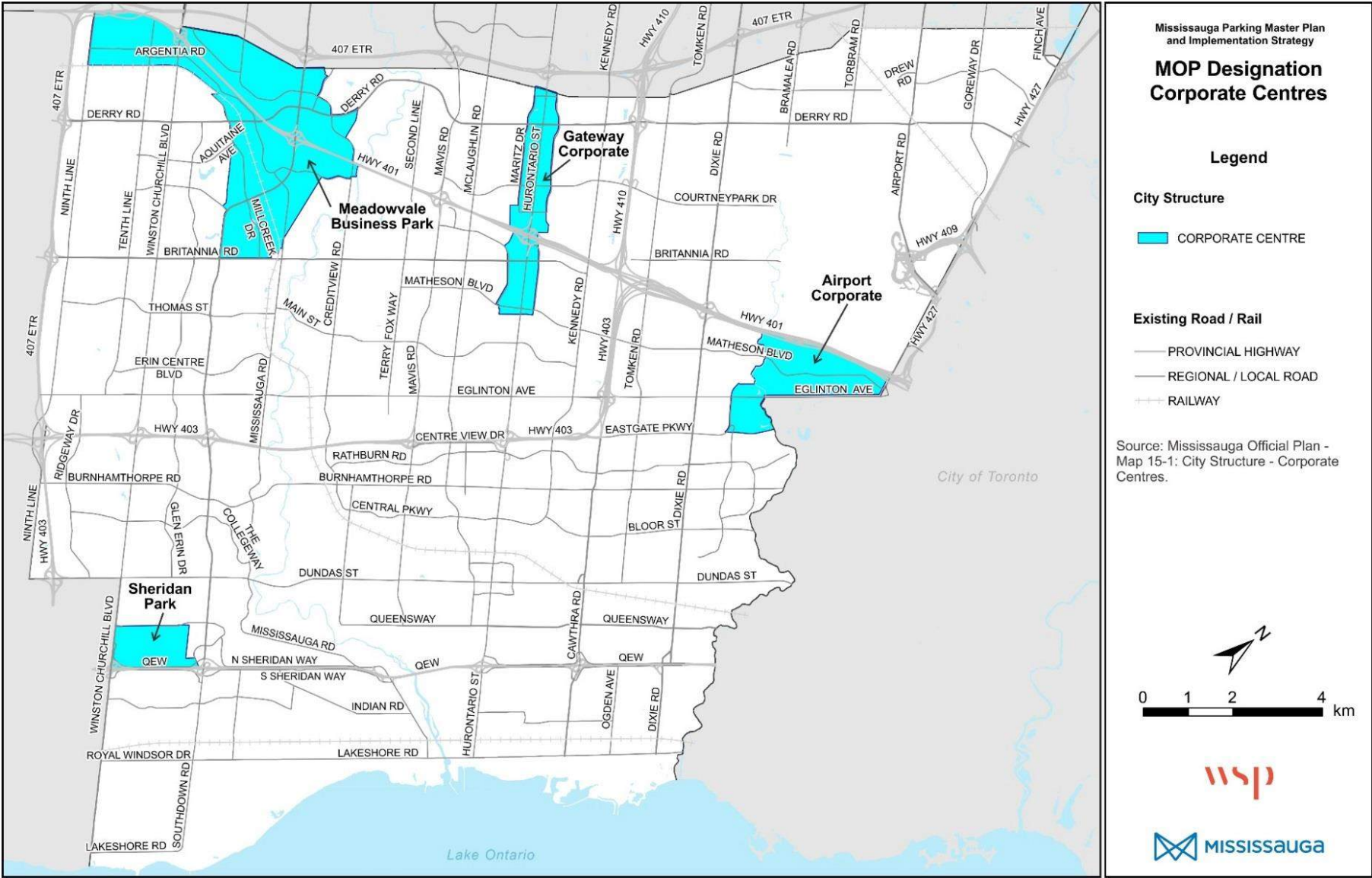
Corporate Centres

The City's four Corporate Centres are areas with high concentrations of employment. The emphasis is on office development and high employment densities. Exhibit 3-6 Exhibit 3-6 shows Mississauga's four Corporate Centres:

- Airport Corporate
- Gateway Corporate
- Meadowvale Business Park
- Sheridan Park

The MOP's existing parking policies for the four Corporate Centres vary substantially. Some seek to ensure sufficient parking as part of any planned expansion, some encourage shared parking, some require bicycle parking, some stipulate a site specific TDM strategy as part of any development, some prescribe design features, and some prohibit parking in potential BRT corridors. Some of the policies are part of a broader urban design framework, and some included a generic requirement such as "a generous landscape buffer and or an upper limit on parking between the building and the street."

Exhibit 3-6 MOP Corporate Centres



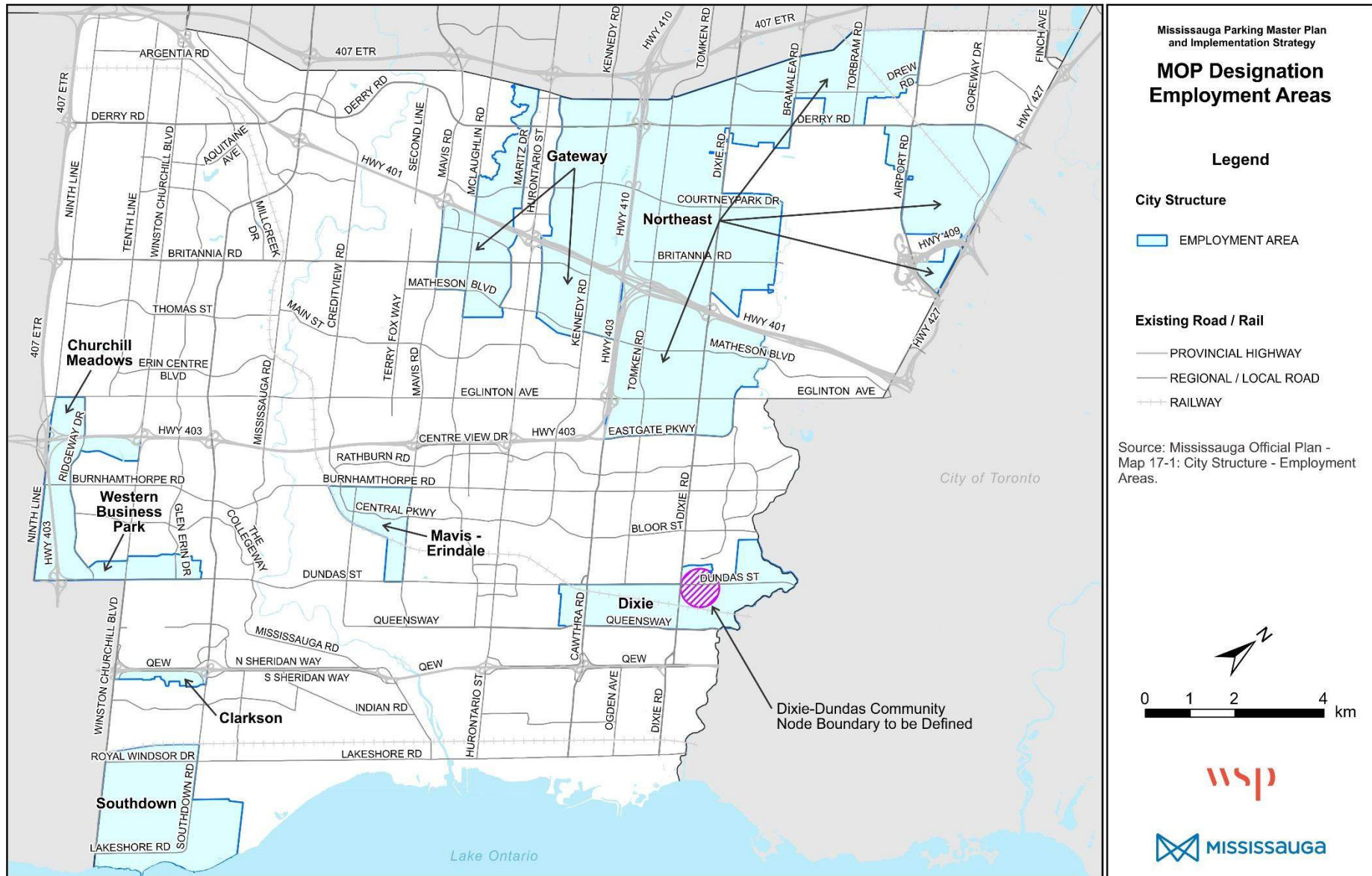
Employment Areas

Like Neighbourhoods, Employment Areas are not identified as intensification areas. Exhibit 3-6 shows the City's eight Employment Areas:

- Churchill Meadows
- Clarkson
- Dixie
- Gateway
- Mavis-Erindale
- Northeast
- Southdown
- Western Business Park

At present, only Churchill Meadows, Dixie and Western Business Park have parking policies. The policies refer high level urban design in relation to parking.

Exhibit 3-7 MOP Employment Areas

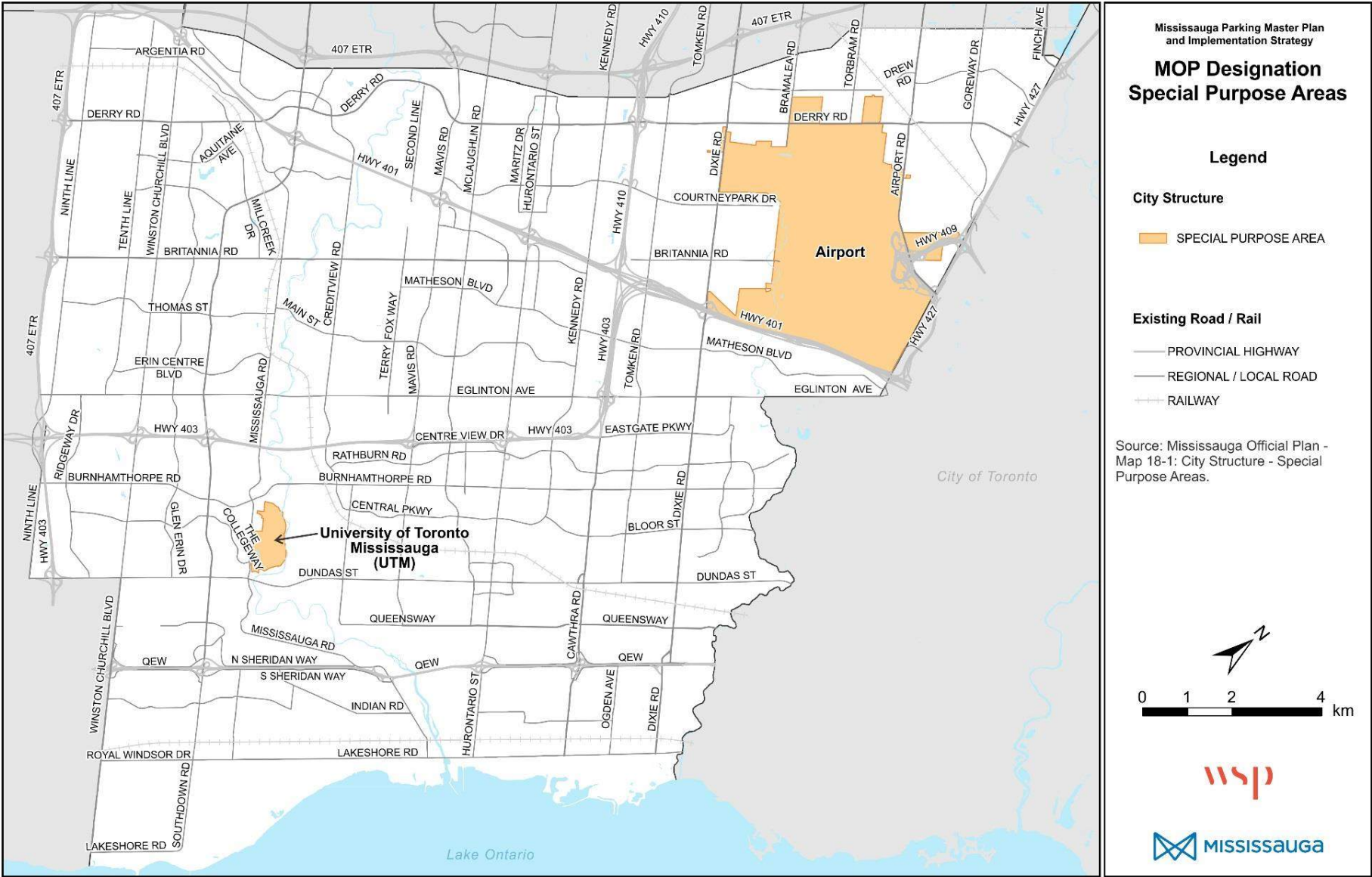


Special Purpose Areas

The MOP identifies two Special Purpose Areas in the City: Toronto Lester B. Pearson International Airport, and the University of Toronto Mississauga (UTM). See Exhibit 3-8.

These areas “will develop as unique destinations of city and regional significance.” The City’s influence on parking policy in the two areas is expected to be limited to an indirect role, but the City will work with all stakeholders to improve the planning of parking in these locations.

Exhibit 3-8 MOP Special Purpose Areas



3.1.2 RELEVANT MOP PARKING POLICIES

MOP Parking Policies are generally characterized by an intention to move towards facilitating high quality urban outcomes by implementing more deliberate parking management. MOP acknowledges that careful consideration of parking is part of a wider accessibility challenge and that there is a need to address unwanted aspects of parking, but still maintain sufficient servicing and loading needs. A combination of general and specific policies appear throughout MOP. The following represents a short, non-conclusive summary:

- *Create a Multi Modal City* (Chapter 8), including Municipal Parking Objectives and Policies (Chapter 8.4), such as:
 - New development that encourages inclusive off-street parking facilities (8.4.1)
 - Encouragement of shared and off-site parking (8.4.2)
 - Reduced off-street parking requirements to support greater use of alternative modes (8.4.3)
 - Cash-in-lieu policy objectives (8.4.4) and criteria for cash-in-lieu considerations (8.4.5)
 - On-street parking design objectives (8.4.6)
 - Broad policy objectives for Intensification Areas (8.4.7)
 - Support for developing municipal parking facilities to support shared parking, transit, and encourage development (8.4.8)
 - Support for ‘tak[ing] an active role in providing off-street parking’, including public investment in parking projects that are directed towards nine specific objectives (8.4.9)
 - Consideration for ‘*allowing the use of municipal parking facilities to meet or reduce the parking requirements for cultural facilities where it does not impair the functioning of other uses or the economic viability of the area*’ (8.4.10)
 - ‘*Development within and adjacent to neighbourhoods will mitigate parking impacts on the residential use*’ (8.4.11)
 - Discouraging ‘*parking in neighbourhoods on local streets for non-residential purposes*’ (8.4.12)
- *Build a Desirable Urban Form* (Chapter 9)
 - Bicycle Parking and destination amenities considerations as part of Site Development (9.4.1.3)
 - Design Objectives for Parking, Servicing and Loading (9.5.5) including
 - Location of parking with respect to buildings (9.5.5.1)
 - Above grade design principles (9.5.5.2)
 - Surface parking design principles (9.5.5.3)
 - Support for Shared Parking (9.5.5.4)
 - Secure bike parking (9.5.5.5)

Other elements of MOP contain **more area specific policies** which are intended to address character and need of each area e.g. intensification areas, character areas, and local area plans.

3.1.3 INTENSIFICATION AREAS AND CORRIDORS

Intensification Areas are expected to accommodate more than 75% of the city's growth in population and employment between now to 2031. As shown in Exhibit 3-9, these areas are designated to be mixed use areas with a sufficiently high density to support frequent transit service and a variety of amenities and services. To accommodate much of this growth, existing single storey buildings and surface parking lots within these areas are expected to be redeveloped into multi-storey developments and structured parking facilities. Low density developments will also be discouraged within Intensification Areas.

Section 8.4.7 contains a wide range of parking policies that apply exclusively to Intensification Areas such as: reduced minimum parking requirements to reflect transit service levels, establishment of maximum parking standards to support transit investments, limiting surface parking and requiring structured parking facilities to be underground.

Corridors generally refer to the roadway right-of-way and the lands on each side of the road. Intensification Corridors provide connection between the various elements of the City. Generally, they will be developed to allow for growth and accommodation of multi-modal transportation.

According to Schedule 2 of the MOP, the City has two notable intensification corridors: Hurontario Street and Dundas Street. No specific parking policies currently relate to intensification corridors.

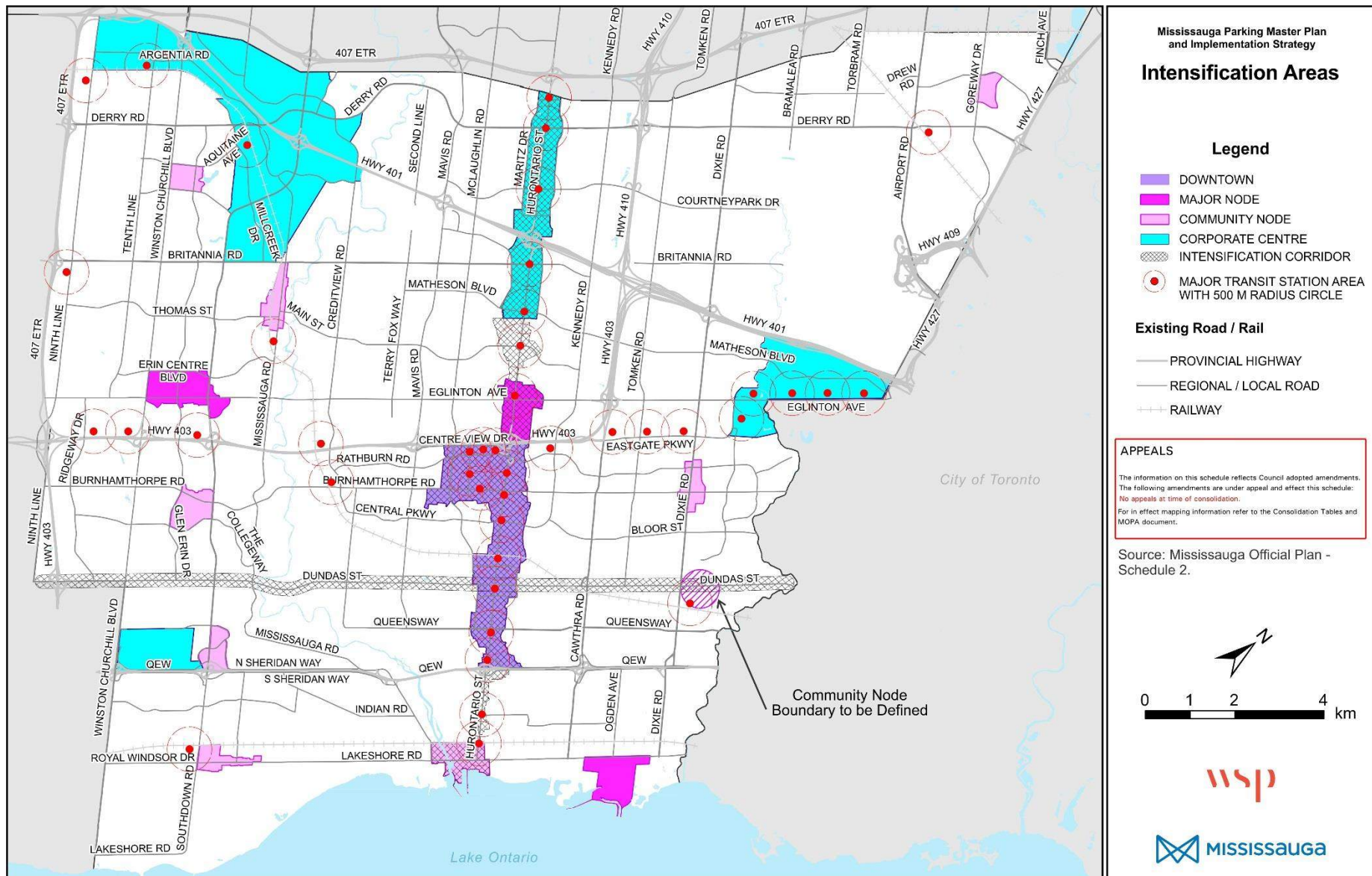
3.1.4 MAJOR TRANSIT STATION AREAS

The MOP defines a Major Transit Station Area as the location of an existing or planned higher-order transit station. A Major Transit Station Area generally consists of the area within a 500-metre radius of the higher-order transit station (i.e. the area within an approximately 10-minute walk). Major Transit Station Areas will be developed to provide connections to various modes of transportation and will include components such as bicycle parking and commuter pick up/drop-off areas.

Exhibit 3-9 shows the Major Transit Station Areas. Most of these areas are in the Downtown or on an intensification corridor, with the exception of select GO stations.

The MOP includes no specific parking policies for Major Transit Station Areas.

Exhibit 3-9 MOP Intensification Areas



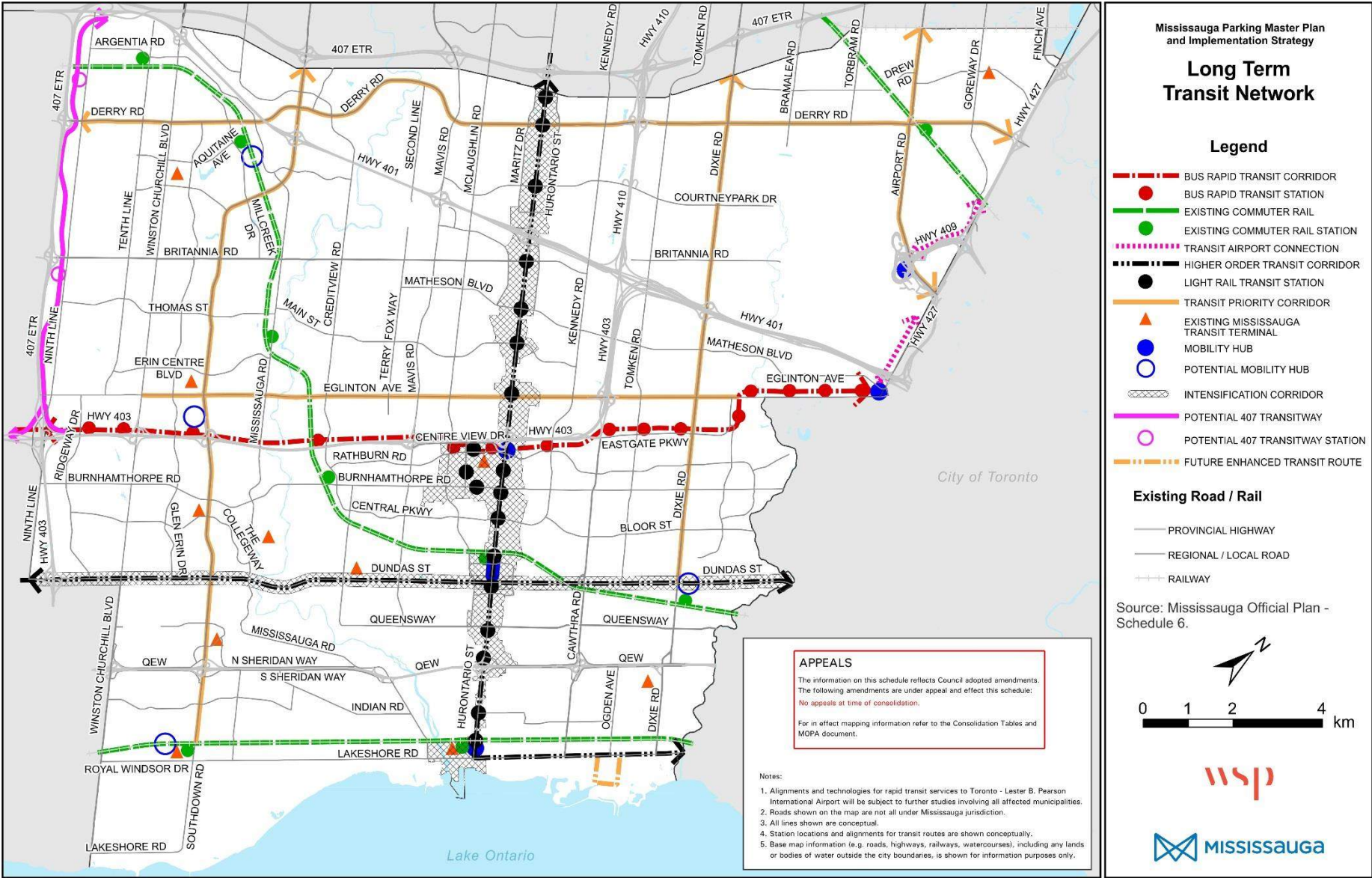
3.1.5 LONG-TERM TRANSIT NETWORK

In the long term, a higher-order transit network will serve the Downtown Core, provide connections to other parts of Mississauga, and provide connections to other municipalities.

The existing transit terminal will be modified to connect to the BRT facility and to handle the City's growth. The transit terminal will be located near Rathburn Road West and City Centre Drive.

Exhibit 3-10 shows the long-term transit network including the LRT along Hurontario Street.

Exhibit 3-10 MOP Long Term Transit Network



3.1.6 MOBILITY HUBS

Mobility hubs are concentrated around Major Transit Station Areas. The City of Mississauga currently has six mobility hubs, shown in Exhibit 3-11. Two are anchor hubs and four are gateway hubs. Anchor hubs are major transit station areas associated with an urban growth centre as well as Pearson Airport and Union Station. Gateway hubs are major transit station areas that are located at the interchange of two or more current or planned regional rapid transit lines with high anticipated levels of ridership. Exhibit 3-11 provides some key information about the six hubs.

The hubs include employment, shopping, housing, and recreational uses interconnected by various transportation modes including walking, cycling and transit. Future hub design and infrastructure will promote alternative modes of transportation through pedestrian facilities, cycling facilities, and linkages to commuter parking lots and commuter pickup/drop-off areas.

Locations for four additional potential mobility hubs have been identified:

- Dundas Street East and Dixie Road area.
- Lakeshore Road West and Southdown Road area.
- Erin Mills Parkway and Highway 403 area.
- St Lawrence and Hudson Railway between Derry Road West and Erin Mills Parkway.

Exhibit 3-11 Key Information for Mississauga's Current Mobility Hubs

Name	Type of Hub	Planning Status	Parking Area (ha)	Type	Area Used for Parking	Notes
Mississauga City Centre	Anchor		31	Surface	15%	Plans to link with Hurontario LRT.
Renforth Gateway	Gateway		23	Surface	14%	Plans to integrate Rapid Transit and local bus services.
Cooksville GO	Gateway	Urban Design Framework Official Plan Policies Zoning	20	Surface	11%	Mobility Hub Master Plan (2011) Mobility Hub Plan Implementation Business Case and Implementation Plan
Port Credit GO	Gateway	Port Credit Mobility Hub Study (2011)	10	Surface	6%	Plans to intensify lands around the future Port Credit GO station are coming to a head, with the City's planning staff finalizing details regarding parking, land use and building heights. An 800-space parking structure is being proposed.
Pearson Airport	Anchor		22	Surface	11%	
Hurontario-Steeles	Gateway		21	Surface	11%	Located at the border of City of Mississauga and City of Brampton. Includes Brampton Gateway Bus Terminal. Plans to integrate Rapid Transit and local bus service.

Source: Mobility Hub Profiles, Metrolinx, 2015

3.1.7 LOCAL AREA PLANS

The Municipality has area-specific plans that are designed to guide development for their respective Local Areas. Each area has different land-uses and activities. Therefore area-specific plans will help to pay attention to each local area's individual issues. As shown in Exhibit 3-12, in cases where the Official Plan does not touch on area-specific issues, the local area plan will go beyond and address them.

Exhibit 3-12 Local Area Plans

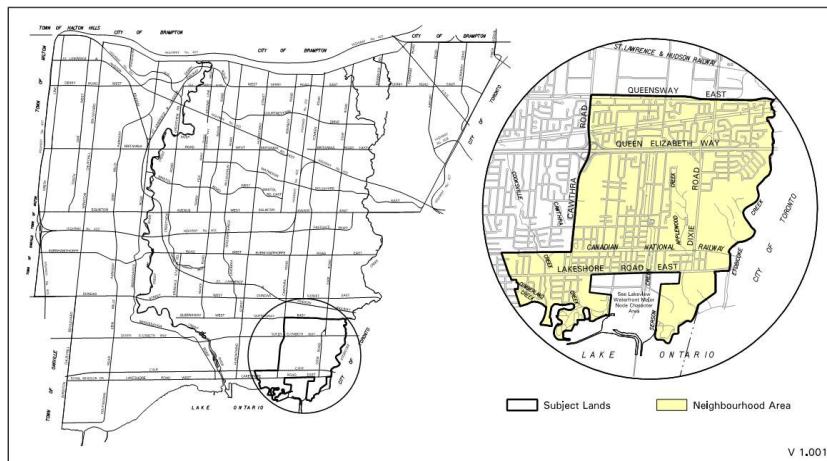
Port Credit Local Area Plan



Objectives:

- Reduce parking requirements
- Minimize surface parking
- Encourage underground parking
- Provide secure bicycle parking storage facilities

Lakeview Local Area Plans



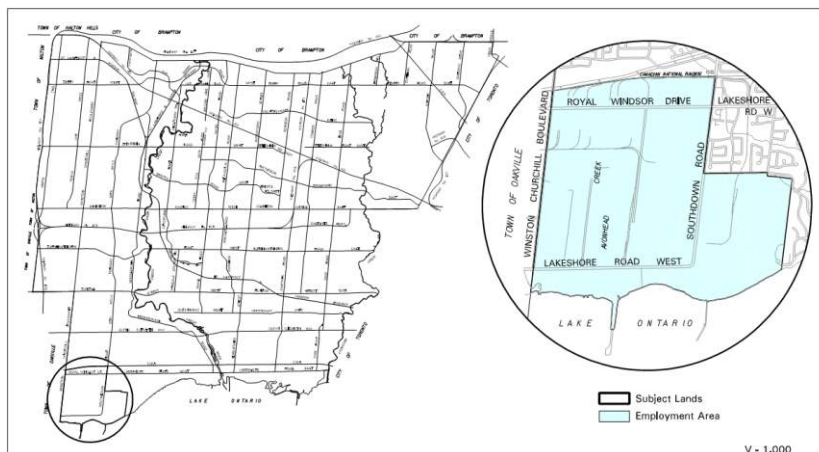
Objectives:

Locate parking below-grade, or at the rear of sites

Screen surface parking from adjacent streets and properties by using landscaping and other structural materials

- The City will identify appropriate locations for on-street parking
- Reduce parking requirements and consider max. parking standards
- Provide centrally located visitor parking that is not visible from a public road

Southdown Local Area Plan



Objectives:

- Locate most of the required parking at the rear or the sides of the building
- Limit parking between a building's face and the edge of the right-of-way to visitor's parking
- Parking lots should have defined pedestrian circulation systems leading conveniently to main and employee entries.

3.2 STRATEGIC PLAN

Mississauga's Strategic Plan, developed in 2007, was created to shape and direct strategic decision-making for the City. The Strategic Plan is a roadmap "guiding our vision for the future - a plan to get us from where we are today to where we want to be as a city."

During the public conversation that was part of Mississauga's Strategic Plan development in 2007-2008, many residents said that lack of mobility options was one of their most pressing concerns.

The City's Strategic Plan notes that roughly a quarter of the comments received from the City's bi-annual Customer Satisfaction Survey related to improving transit and transportation in Mississauga. It was clear that residents do not want to be entirely car-dependent and would like more choice when it comes to how they travel in and around Mississauga.

Drawing from Our Future Mississauga, a community engagement program connecting over 100,000 people, City Council, various advisory groups, City staff, and the community developed a vision statement and five Strategic Pillars for Change.

The five Strategic Pillars for Change are:

- Move: developing a transit-oriented city.
- Belong: ensuring youth, older adults, and new immigrants thrive.
- Connect: completing our neighbourhoods.
- Prosper: cultivating creative and innovative business.
- Green: living green.

The strategic goals of the Move Pillar are summarized in Exhibit 3-13.


In addition to the strategic goals in Move, the Move initiatives to transition Mississauga to a transit-oriented City include 19 action items:

- Provide "complete" streets that balance land uses and forms.
- Reduce our carbon footprint through "green" transit.
- Implement a parking strategy that supports public transit.
- Investigate higher-order transit (express rail or subway) between downtown Mississauga and Union Station.
- Provide alternatives to the automobile along major corridors.
- Shorten the travel time to a transit stop.
- Create mobility hubs.
- Improve transit service between Mississauga, Union Station, and Pearson International Airport.
- Improve the transportation network for pedestrians, cyclists, and automobiles.
- Encourage walking by establishing maximum block sizes.
- Accommodate the needs of cyclists.
- Implement "real time" bus tracking.
- Establish transit stops at locations that are convenient to walk to.
- Implement transit priority measures.

- Provide sidewalks to all transit stops.
- Use development revenues from “density bonusing” to support higher-order transit.
- Use special development levies to support higher-order transit.
- Require development standards for mixed-use development to support transit.
- Accelerate the creation of higher-order transit infrastructure.

The PMPIS needs to be aligned with the principles set of in the Strategic Plan. PMPIS focuses on forward-thinking policies for parking provision and helping to advance the development of a transit-oriented city.

Exhibit 3-13 Strategic Goals - Move Pillar



Direction Our Future Mississauga is a city 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.

Principle Mississauga is a city that values clean air and healthy lifestyles through the promotion of transit as a preferred, affordable and accessible choice.

Strategic Goals

Develop Environmental Responsibility - to contribute to environmental responsibility by reducing private automobile use and developing compact mixed-use development.

Connect our City - to contribute to a vibrant, successful city by connecting communities within Mississauga and within the Greater Golden Horseshoe to support a 24-hour city.

Build a Reliable and Convenient System - to make transit a faster and more affordable alternative to the automobile, one that is frequent, clean, safe, reliable and convenient, with a transit stop within walking distance of every home and an intricate web of higher order transit.

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.

Direct Growth - to direct growth by supporting transit-oriented development policies and deliberate civic actions.

Source: Strategic Plan – What is our future Mississauga? City of Mississauga, 2016

3.3 MAJOR TRANSIT PROJECTS

Mississauga has been making significant progress in the planning and provision of higher-order transit in the City. The provision of BRT and LRT can have a significant impact on the travel behaviour of residents who live and work within reach of transit if transit offers an attractive alternative to auto travel and car ownership.

The City's major transit infrastructure and projects are:

- Mississauga Transitway
- Hurontario LRT
- Dundas Rapid Transit
- Metrolinx Regional Express Rail (RER) Projects.

3.3.1 MISSISSAUGA TRANSITWAY

The Mississauga Transitway is a dedicated busway running for 18 kilometres through Mississauga from Winston Churchill Boulevard to Renforth Drive. There are 12 stations (see Exhibit 3-13). The latest station opened in the fall of 2017.

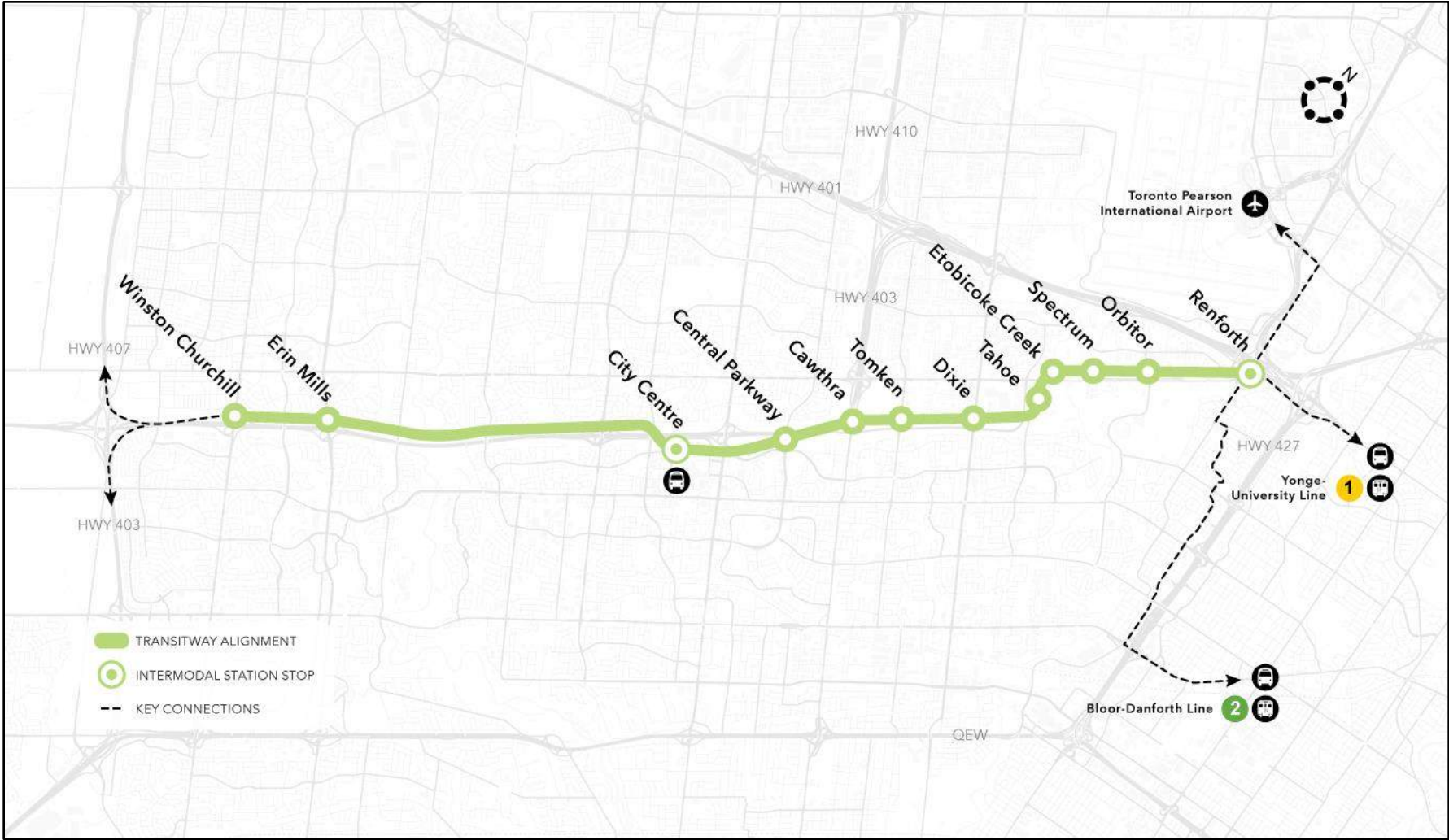
In peak hours, the Transitway provides a five-minute service. Parking is free at five of the stations.

Patrons can connect to other MiWay services and other transit service providers for intra-city and regional travel:

- MiWay at all stations.
- TTC (Toronto Transit Commission) bus services at Renforth.
- GO bus services at Renforth, Dixie, Erin Mills, and Winston Churchill.
- Brampton Transit at Dixie and City Centre.
- The intermodal station at Renforth provides connection to the Pearson Airport and TTC subway lines 1 and 2.

The intermodal station at City Centre is adjacent to the Square One GO Bus Terminal, which connects to the GO trains.

Exhibit 3-14 Mississauga Transitway Stations



Source: Mississauga Transitway, Metrolinx, 2017

3.3.2 HURONTARIO LIGHT RAIL TRANSIT PROJECT

The *Hurontario LRT Project Environmental Project Report*, completed by the City of Mississauga, Metrolinx, and the City of Brampton in 2014, is a high frequency LRT joint city project planned for Mississauga and Brampton. The current project study area is the Hurontario Street corridor lands from the Gateway Terminal on Steeles Avenue in the north to the Port Credit GO Station in the south. See Exhibit 3-15.

The current scope includes 22 dedicated right-of-way stations connecting multiple public transit modes within the two cities.

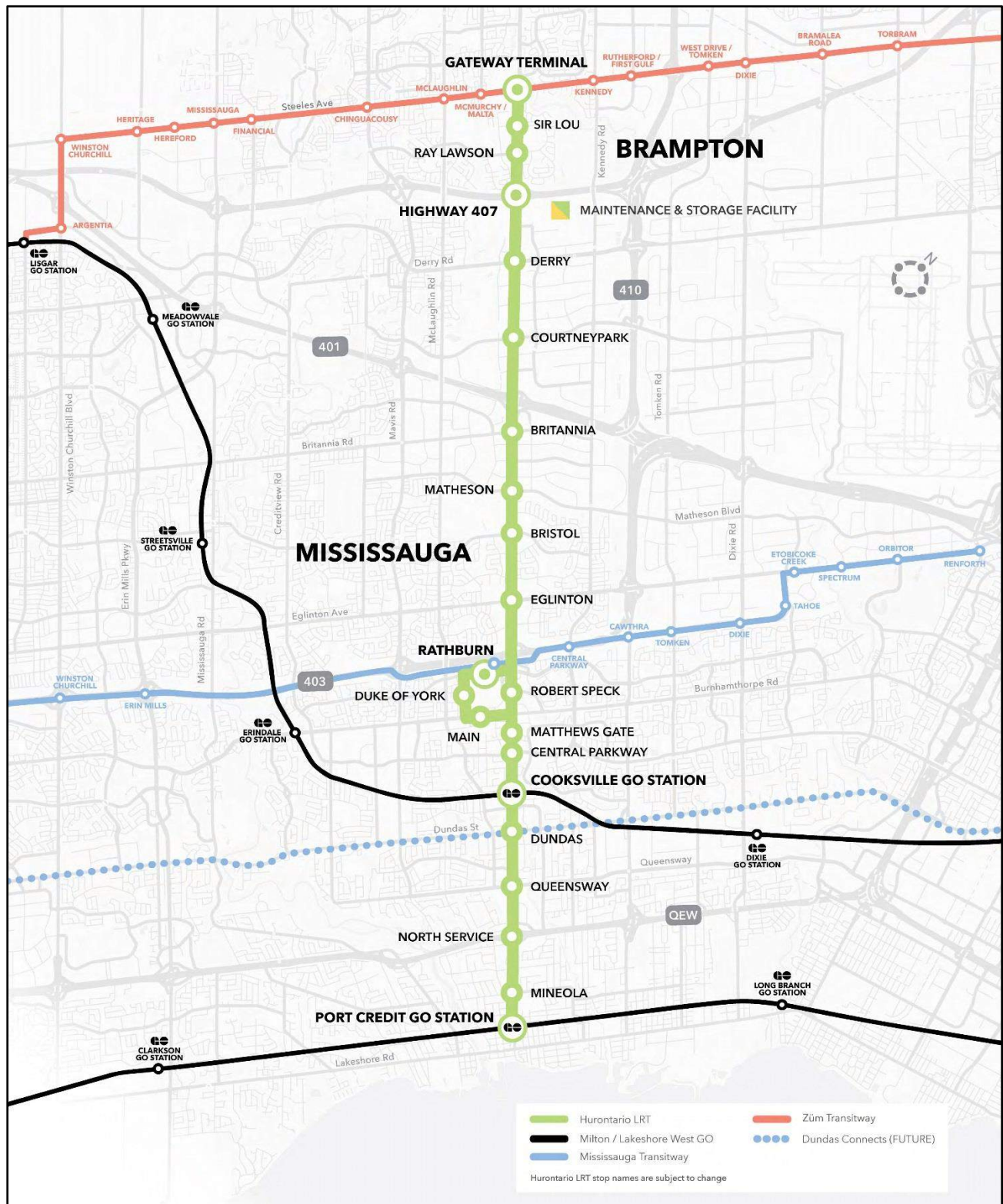
According to Metrolinx, the project is currently undergoing the procurement process with construction scheduled to begin in 2018 and anticipated completion in 2022.¹

The Hurontario LRT plans make five provisions relevant to parking:

- Various segments of the corridor will apply the Complete Street design approach and will lose approximately 80 on-street parking spots.
- The LRT design process will include residents and businesses when strategize parking and loading to minimize the impact of the changes.
- Additional parking is planned on the lands east of Hurontario Street and south of the rail line. The plans may include a pedestrian bridge connection at the Cooksville mobility hub.
- On-street parking to support small business and retail will be considered only at strategic locations.
- Bicycle parking should be provided near all major transit and LRT stops.

¹ Hurontario LRT, Metrolinx, 2018

Exhibit 3-15 Hurontario LRT Project Corridor Map



Source: Hurontario LRT, Metrolinx, 2017

3.3.3 DUNDAS RAPID TRANSIT

The Big Move identified the Dundas Rapid Transit initiative as a Top 15 priority project. The project involves the provision of a higher-order rapid transit service along Dundas Street from Highway 407 in Burlington to Kipling station in the City of Toronto. The service provides a link between the Etobicoke and Mississauga City Centres (designated as Urban Growth Centres), the proposed rapid transit at Hurontario, the UTM campus, and the Oakville Uptown Core at Trafalgar. There is no on-street parking along Dundas Street, but all establishments along the street provides off-street parking.²

The Dundas Connects Master Plan was endorsed by the City's Planning and Development Committee meeting on June 11, 2018. The plan calls for the endorsement of BRT for Dundas Street.²

According to the plan, Dundas BRT will run along the Dundas Street corridor from Ridgeway Drive at Mississauga's western border to Kipling GO station in Toronto.

The Dundas BRT plans include 20 stops. Two stops will link the BRT to current regional GO rail service (at Dixie and Kipling stations). The stop at Hurontario Street will allow riders to connect to the Hurontario LRT (The Hurontario LRT is scheduled for completion by 2022).¹

The plan recommends a median BRT from Toronto border west to The Credit Woodlands. The service would run in a single reversible dedicated lane from The Credit Woodlands west to Mississauga Road. It would then run as a curbside BRT from Mississauga Road to Ridgeway Drive. There would also be a short secondary route north from Dundas Street to the UTM campus.

The plan would also incorporate significant transit-oriented development along the route. The recommendations include allowing new densities in different Sections of the corridor to allow for residential buildings as high as 25 storeys in some Sections.

² Dundas Connects Master Plan, City of Mississauga, 2018

3.3.4 METROLINX AND GO TRANSIT REGIONAL EXPRESS RAIL PROJECTS

RER is a \$13.5 billion program that will expand GO service. RER will provide a 15-minute two-way all day electrified service on core segments of the GO network and will expand GO service systemwide by 2025. The improvements include electrification of the Barrie, Stouffville, Lakeshore East, Lakeshore West, Kitchener, and Union Station rail corridors. The Lakeshore West and Kitchener GO Corridor improvements also will benefit Mississauga citizens.

The increase in GO service will provide Mississauga residents with increased opportunities to travel in and around the City and region:

- Lakeshore West GO Rail Corridor Improvements include tunnels and platform upgrades at Exhibition GO station, full station rehabilitation at Mimico GO and Long Branch GO stations, and various other corridor and station improvements. Parking lot will be constructed at new stations. The anticipated start of construction is 2019.
- Kitchener GO Rail Corridor Improvements include track construction to support RER service levels with allowances for future SmartTrack stations at St. Clair Avenue and Liberty Village, grading, Bloor Street bridge realignment, West Toronto rail path realignment and connection to the City of Toronto Phase 2 Rail path, and Bloor GO station connection to Dundas TTC Subway station.³ This project has already started.

³ Regional Express Rail Program Update - Attachment 3, Metrolinx, 2017

3.4 DOWNTOWN CORE

3.4.1 DOWNTOWN MISSISSAUGA MOVEMENT PLAN

The Downtown Mississauga Movement Plan (Steer Davies Gleave, 2014) seeks to address the development of a finer street grid, provision of high quality facilities and spaces for pedestrians and cyclists, and how to plan for and manage general road traffic as well as servicing and goods movements.

The Plan also suggests that there is a need to consider how the Downtown moves from a surface level parking-dominated environment to a higher quality, higher density urban core. It notes that the form, location, and management of new/replacement parking will be a key component, with the routing of traffic to/from structured parking facilities being a key consideration that should not detract from the greater emphasis on walking, cycling and transit use.

The Plan seeks to identify key policy themes across existing national and provincial legislation, and provincial and municipal policies. It also seeks to improve the financial sustainability of different transportation networks, including transit and parking: efficient use of land for development; and use of revenue generating opportunities and development contributions to fund enhancements to non-auto modes and transportation demand management measures.

With regards to parking, the Plan recommends that *“New parking maximum standards should be adopted, to balance development, the new user hierarchy and the capacities of the new integrated Transit System and the street network. The City should explore opportunities for publicly-owned parkades to control and manage parking as the new urban Downtown evolves.”* Furthermore, the use of street design and dynamic car park signing (i.e. parking guidance system) should be considered. *“The volume of and location of on-street parking should be reviewed with consideration given to more diverse use of space currently allocated to parking and add to street vibrancy and interest.”*

Sections 4.123 - 4.162 of the plan addresses parking. Specific considerations and recommendations include:

- If the City removes all on-street parking it is estimated it would need a total of 70 000 structured parking spaces
- The City introduces new parking maximum standards which apply to all development in the Downtown and takes into consideration the scale, location and type of the development.
- The potential of publicly owned parkades be explored, allowing the City to lease parking space to new developments reducing their development costs while maintaining control of parking
- Consideration is given to an “interceptor parking strategy”. This implements street design and dynamic car park signing to direct a car-driver approaching Downtown to where parking is available.
- The volume of on-street parking is subject to review, based on the hypothesis that an over-abundance of parking attracts travellers away from sustainable modes.

3.4.2 MOPA 8

MOPA 8 (2013) replaces the Downtown Core Local Area Plan. The City adopted this document in March of 2013 and it is currently under appeal.

Relevant parking policies are summarized as follows:

- The City will undertake a strategy to evaluate the provision of parking in the Downtown.
- Parking for new development will be accommodated in below ground or above ground structures.
- Surface parking lots for new development will not be permitted.
- Mississauga will encourage Transportation Demand Management measures as part of development applications within the Downtown Core.
- Parking will be managed carefully within Transit Station Areas. The City will consider reducing parking requirements within Transit Station Areas.

Urban form in the Downtown will be achieved through the following:

- The incremental transition of large surface parking lots into more intensive, urban scale development incorporating structured parking
- On-street parking and cycling amenity in public rights of way, where feasible
- Structured parking designed to minimize impacts on the property and surrounding properties using screening and liner buildings
- New parking facilities that recognize the needs of cyclists and pedestrians

It is also important to note that MOPA permits commercial parking facilities under all land use designations within the governed area as shown in Exhibit 3-16.

Exhibit 3-16 MOPA



3.4.3 COMMUNITY IMPROVEMENT PLAN

The Community Improvement Plan is proposed to assist in attracting new office development to the entire Downtown Core Character Area. It was identified in the study that the cost of constructing parking in downtown is a major barrier to office developers.

Programs to be considered may include:

- Tax Increment Equivalent Grant (TIEG) – As an incentive to improve or redevelop property, the grant covers a portion of the increase in the municipal property taxes directly attributable to a development or improvement. The grant is provided from the City to the property owner annually for an agreed upon term, and may diminish in scale over time.
- A Development Processing Fees Rebate – whereby a one-time rebate would cover the municipal planning application fees.
- Municipally Funded Parking Program – To stimulate new office developments, the City may build and own a municipal parking facility as a standalone building or within a private office development. The City may offer a below market-value rate for the rental or lease of the parking.
- Municipal Property Acquisition and Disposition – The City may purchase land and initiate office development through requests for proposals for private development, or through public-private partnership (P3). The City may also dispose of City-owned lands for the purpose of attracting new major office building development.

3.4.4 CITY CENTRE PARKING STRATEGY (2009)

The Parking Strategy for Mississauga City Centre (2009) was prepared to provide the City direction and guidance in accommodating future public parking needs associated with private sector development in the City Centre, while facilitating the area's transition to a truly urban environment.

The study recommended a Mississauga City Centre Parking Strategy with 38 specific action plans that are grouped under the 6 main topics as outlined in Exhibit 3-17.

These items were proposed to be implemented in 3 phases. Many of the action items have been initiated, implemented, or completed. For instance, some of the completed items include:

- Establishment of a new City Parking Management Group/Division
- Establishment of pay for parking at all civic garages (City Hall, Centre Library, and Living Arts Centre)
- Expansion of on-street paid parking
- Incorporation of new parking and TDM goals and objectives into the Official Plan
- Adding a carshare service
- Adding secure bicycle parking and priority car/van pool parking spaces in all civic garages
- Providing emergency ride home program

General recommendations for typical parking policies for the City's nodes and corridors were also identified to support City's goal to create higher density transit oriented development along major corridors and in some nodes throughout the City.

Exhibit 3-17 Mississauga City Centre Parking Strategy with 38 specific action plans summaries

	Improved Management of Existing System	Policy and Regulatory Initiatives	TDM Initiatives	New Parking Infrastructure Investment	Financial Resources	Management Structure and Direction
1	Implement On-Street Paid Parking	City Centre PIL Policy	Deliver TDM through Municipal Parking Program	New On-Street Parking	Charge for All City Centre Municipal Parking	Approve Guiding Principles
2	Revitalize & Open Up Garage to Public	Incorporate Parking Strategy Goals & Objectives into Official Policy Plan Review & District Policies	Add Car Share Service	Partner with Private Sector to Deliver New Garage with Institutional or Hotel Development	Regularly Increase Parking Fees	Create Separate Parking / TDM Department
3	Implement Paid Parking in Civic Garages	New City Centre Shared Parking Schedule	Add Employee Bicycle Spaces / Lockers in Civic Garages	Partner with Private Sector to Deliver New Garage in North City Centre	Set up Parking Reserve Fund to retain annual surplus revenue	Create Parking / TDM Authority
4	Add 750 Burnhamthorpe Parking Lot to Municipal Parking Portfolio with Paid Parking	Require Bicycle Parking for New Commercial / Institutional & Residential Development	Provide Emergency Ride Home Program	Partner with Private Sector to Deliver New Garages in South East City Centre	Payment-In-Lieu Policy	
5	Add Parking Management Software	New Requirement for 80% of Parking in Garages	Create Car / Van Pool Program	Partner with Private Sector to Deliver New Garage in South West City Centre	New Commercial Development Realty Tax Uplift	
6	Create Web-Based Marketing & Communications Program	Require Designated Car / Van Pool Parking for New Office / Institutional Development	Provide Motorcycle / Moped Spaces in Civic Garages			
7	Initiate Paid Parking Test Programs on Private Properties	Require Parking Staging Plans for Phased New Developments	Engage City Centre Employers			
8		Revise and Improve Parking Facility Urban Design Guidelines				
9		Require Transportation Demand Management Plans for New Developments				
10		Reduced Office Parking Requirement to 2.7 / 100 m ²				

3.5 TRAFFIC BY-LAW

The Traffic By-law 555-00 contains rules that regulate traffic and covers the following parking and curbside management topics:

- Stopping and Parking on City roads;
- Permit Parking;
- Angle Parking;
- Commercial Motor Vehicle and Heavy Vehicle Parking;
- Parking for Restricted Periods;
- Off-Street Parking Lots;
- Parking Meter Control and Parking Machines;
- School Bus Loading Zones;
- Commercial Vehicle Loading Zones;
- Taxicab stands;
- Designated On-street parking for the Disabled;
- Parking is allowed between 8 a.m. and midnight beyond the three-hour limit for the statutory holidays; and
- No person shall stop or park as authorized in the by-law for a continuous period greater than 30 minutes.

3.6 PORT CREDIT AND LAKEVIEW PARKING STRATEGY

The Port Credit and Lakeview Parking Strategy study (2014) was completed to recommend strategies for managing and expanding municipal parking resources in Port Credit and Lakeview and future amendments to the Zoning By-law. The following recommendations and discussions for Port Credit and Lakeview are highlighted from the study:

- The pay for parking environment in Port Credit is recommended to be expanded to include off-street lots and extend the time period for paid parking. The long term municipal parking goal is to continue to provide good service to residents, businesses and visitors with a self-sustaining parking management system.
- In terms of new municipal parking locations, the City Transportation and Works has completed Phase One Feasibility Investigations of all the potential sites.
- The practice of permitting a parking ‘free holiday’ is to be continued within the implementation time period of the study and suggested that additional public consultation with the business community would be required before any change can be made to the holiday provision.
- Implementation of monthly paid parking for the general public on municipally owned lands was recommended.
- Two key recommendations for financing the Port Credit parking operation were identified. The first is to set a monetary goal to fund a future parking garage. The second is to increase revenues to help finance existing and future parking and TDM initiatives. Immediate consideration should be given to implementing the revenue generating recommendations, in particular the introduction of paid parking in all municipal off-street lots that service the main commercial area.
- The Lakeview area has minimal public parking. The City should start looking for opportunities to provide new off-street parking by using Payment-in-lieu of Off-street parking funds to purchase properties, partnering with the private sector as part of development requirements, and through Section 37 bonusing provisions.

Exhibit 3-18 shows the study also recommended 25 specific action plans that are grouped under the 6 main topics.

Exhibit 3-18 Port Credit and Lakeview Parking Strategy Study Recommended Actions

	Port Credit Parking Strategy	Lakeview Parking Strategy	Cultural Considerations	Zoning By-law Considerations	Financial Considerations	General Management & Operational Considerations
1	Implement additional on-street paid parking	Implement On-Street Paid Parking along Lakeshore Road East	Reduce Zoning By-law requirements for Art Galleries, Museums and Cultural association offices	Implement reduced parking requirements for commercial and apartment uses into Zoning By-law for Port Credit and Lakeview	Develop a business plan to finance and construct new parking facilities in Port Credit	Parking Manager engagement with the Port Credit BIA
2	Develop a plan to provide additional new municipal parking in the Primary Node	Develop a plan to provide 385 new off-street municipal parking spaces in Lakeview	Implement a heritage exemption into the Zoning by-law	Implement new bicycle parking requirement and shower/ change room requirements into Zoning By-law	Increase parking revenues to fund future parking resources.	Develop a parking communications and marketing program for both Lakeview and Port Credit
3	Undertake a feasibility plan for a parking garage at the Port Credit Library and/ or J.J. Plaus Park	Develop a policy framework for future redevelopment of OPG lands	Support events and festivals through parking management	Implement designated heritage building exemption and reduce parking requirements for some cultural uses	Create a separate PIL account for Lakeview	Develop a business plan for future parking development and operations
4	Review potential of constructing a new parking lot on the Imperial Oil lands adjacent to Port Street		Support the transformative parking space project.		Review Corporate PIL policy to reflect the cost to the City of providing shared public parking resources	Eliminate time limits for on-street parking if rates increased to \$1.50 per hour or introduce \$2.00 for third hour.
5					Revise internal accounting practices to better track expenses associated with parking operations in Port Credit and Lakeview	Implement municipal bicycle parking development recommendations
6						Place the nine to ten off-street parking facilities in Port Credit being converted to paid parking under the management of Transportation & Works Dept.

3.7 2018 CYCLING MASTER PLAN UPDATE

The City of Mississauga has recently concluded its Cycling Master Plan Update, and the final document has been approved by Mississauga City Council.

The City's *Cycling Master Plan Update* outlines a four-fold strategy: to improve cycling safety; increase the number of cycling trips in Mississauga; build a connected, convenient, and comfortable bicycle network; and foster a culture of cycling in the City. The plan's overall vision is to make Mississauga a city where people choose to cycle for recreation, fitness, and daily transportation needs.

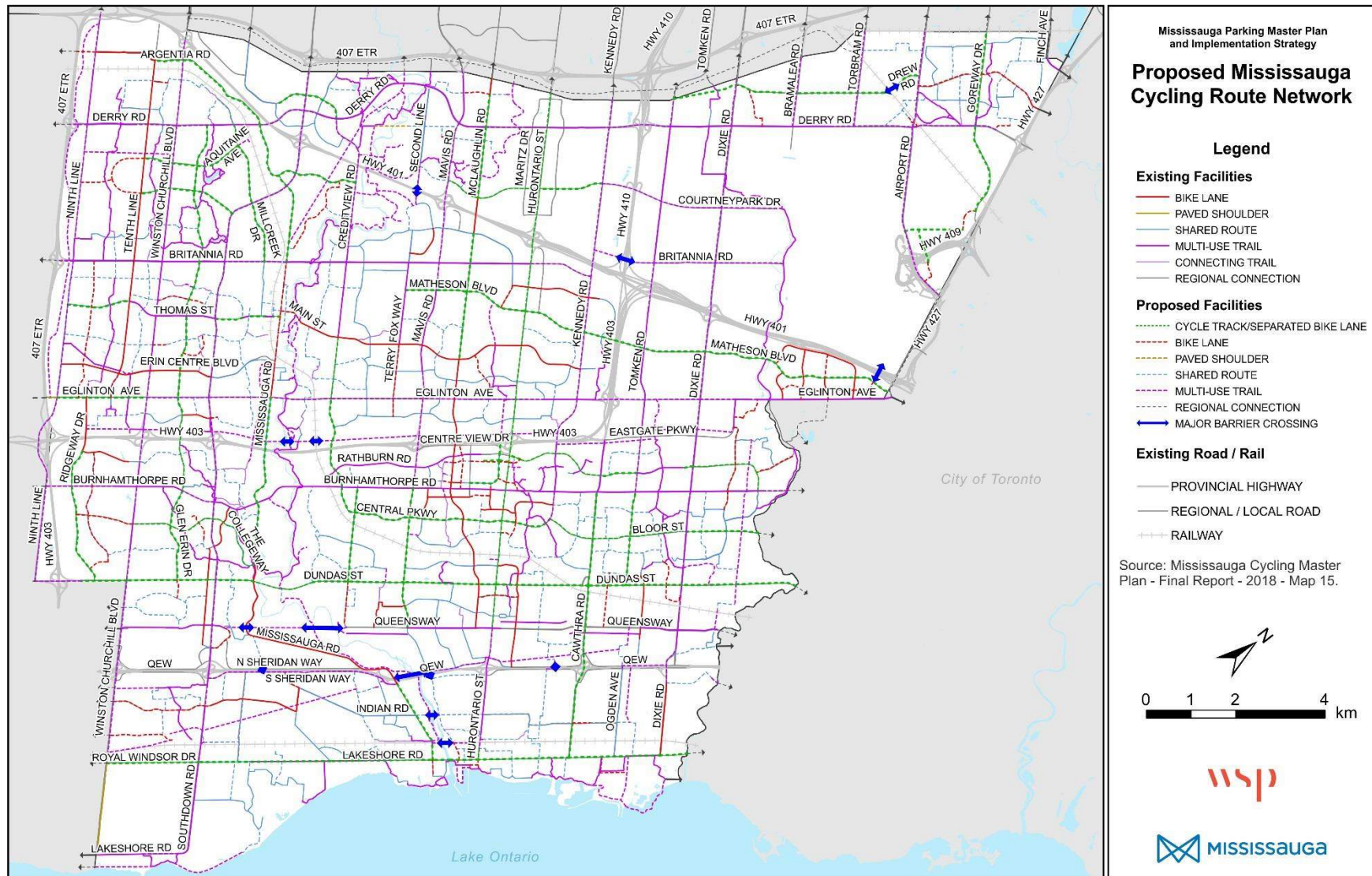
The *Cycling Master Plan Update* provides recommendations regarding:

- Building a connected, comfortable, and convenient cycling network that includes off-road and on-road bicycle route facilities such as conventional and separated bicycle lanes, shared routes on roadways and trails along roadway boulevards or off-road.
- Delivering supporting programs like bicycle parking (on public property within the road right-of-way and at public facilities such as community centres, transit stations, etc.), bicycle share, marketing, and education programs.

Exhibit 3-19 shows the cycling network laid out in the Cycling Master Plan. It will result in 897 kilometres of infrastructure to be built over 27 years, including:

- Cycle tracks where a bicycle lane is physically separated from the road by a curb and is either at sidewalk level or slightly lower, reserved for bicycles only.
- Bicycle lanes separated from traffic lanes by flexible posts, planters, parking stalls, curbs or other barriers, reserved for bicycles only.
- Bicycle lanes where cyclists travel in a lane beside regular traffic lanes, reserved for bicycles only.
- Multi-use trails along boulevards and through parks.
- Shared routes between cyclists and motorists on roads with lower speeds.

Exhibit 3-19 Proposed Mississauga Cycling Route Network



3.8 TRANSPORTATION DEMAND MANAGEMENT STRATEGY

The *Transportation Demand Management Strategy* emphasizes the importance of TDM for an urbanizing city, and recommends policies for decreasing automobile use by increasing the attractiveness of sustainable modes such as walking, cycling, carpooling, and transit. Section 4 of the strategy recommends some bicycle parking standards on private property (For example, bicycle parking and showers).

3.9 ZONING BY-LAW 225-2007

The purpose of *Zoning By-law 225-2007* is “to regulate the use of land, buildings and structures and to implement the Mississauga Official Plan.”

Part 3 of the by-law is concerned with parking, loading, and stacking lane regulations. The by-law prescribes standards for the provision, location and dimension of parking spaces, minimum parking requirements for a range of land uses, shared parking standards for mixed use developments, and accessible parking requirements. Part 3 also includes loading and stacking lane regulations.

A comprehensive review of the Zoning By-law's minimum parking requirements had not been completed since the 1980s. In 2007, when the by-law was last consolidated, a benchmarking exercise was completed and some standards underwent minor changes. Other standards have been updated on a piecemeal basis over time.

The Zoning By-law specifies minimum parking requirements for 14 residential land use categories. For some residential land use categories, including apartments, minimum parking requirements are specified for each unit type. The by-law also stipulates minimum parking requirements for 51 non-residential land use categories. For mixed use developments involving office, retail, service, restaurant, overnight accommodation, or residential components, the by-law provides a shared use parking formula. The shared use parking formula is a matrix that stipulates the level of shared parking supply that the City is willing to approve. The formula considers the time of day (typically morning, noon, afternoon, and evening periods for weekday and weekends) and the land use category. The practical effect of this is to reduce the amount of minimum parking required for a shared parking facility when compared to the minimum parking requirements for independent land uses.

3.10 PARKING DESIGN STANDARDS

Minimum parking space and aisle width dimensions are outlined in Part 3 of the Mississauga Zoning By-law 225-2007. The requirements are summarized in Exhibit 3-20.

Exhibit 3-20 Mississauga By-Law 225-007 Provision

Mississauga by-law 225-007 provision	Dimension(s)
Minimum Parking Space Dimensions	5.2 metres x 2.6 metres ¹
Minimum Dimensions for Parallel Parking Space	6.7 metres x 2.6 metres
Parking Space Aisle Width	7.0 metres
Parking Space Aisle Width (One-way, parking angle not exceeding 60°)	5.5 metres
Type A Accessible Parking Space Dimensions	5.2 m x 3.4 metres ²
Type B Accessible Parking Space Dimensions	5.2 m x 2.4 metres ³

Notes:

¹ Width shall be increased to 2.75 metres where the length of one side of the parking space abuts a building, structure or part thereof, except for a building, structure or part thereof, that extends 1.0 m or less into the front and/or rear of the parking space.

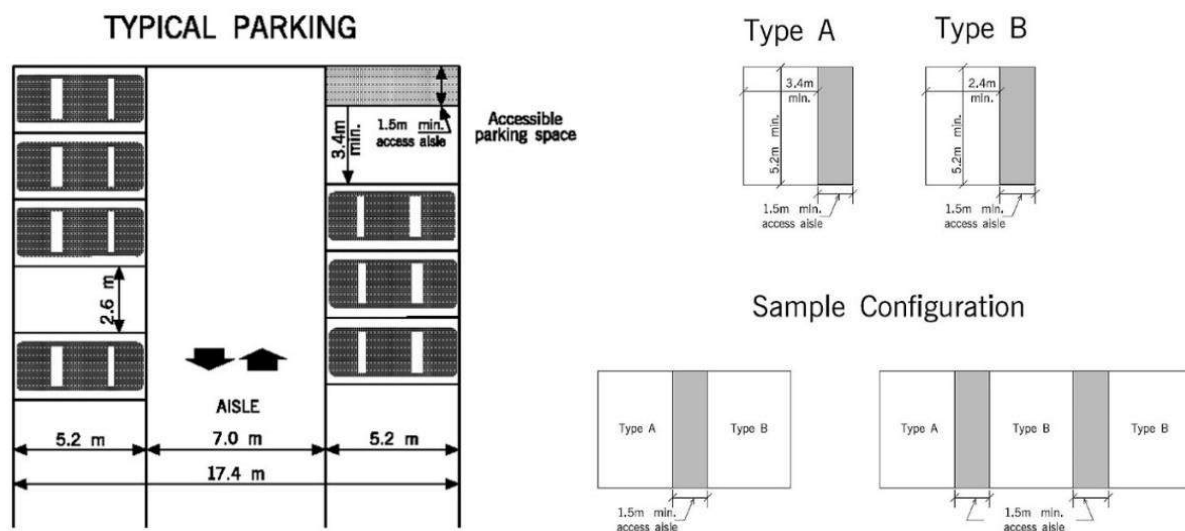
² Width shall be increased to 2.9.0 metres where the length of both sides of the parking space abuts a building, structure or part thereof, except for a building, structure or part thereof, that extends 1.0 m or less into the front and/or rear of the parking space.

³ A 1.5 m wide access aisle abutting the entire length of the accessible parking spaces need to be maintained.

The Zoning by-law requires that all parking spaces be provided, maintained and be clearly identified and marked by permanent lines and markings painted on the paved surface on the same lot for which the parking and loading spaces are required.

Illustrations of the parking space dimensions requirements, which are taken from the Mississauga website are shown in Exhibit 3-21.

Exhibit 3-21 Parking Dimensions



3.11 CASH-IN-LIEU OF PARKING

Mississauga's Corporate Policy and Procedure regarding Payment-In-Lieu (PIL) of Parking Program (effective April 2016) "permits a building owner or tenant to make an application to the City to provide payment-in-lieu of parking, exempting the owner or tenant from providing or maintaining parking facilities in accordance with the applicable zoning By-law."

The policy states that "Monies accepted through the PIL program will be placed in the respective PIL reserve accounts and will be used for the acquisition, establishment and/or maintenance of municipal parking facilities in the area from which funds were collected."

The PIL program is applicable in all areas of the City where municipal parking is provided. There are two evaluations schemes for PIL applications. Under Evaluation Part A, an application for PIL is evaluated based on criteria related to the appropriateness of the proposed development and the adequacy of the existing public parking supply to offset the proposed on-site parking deficiency. Under Evaluation Part B, the City may request PIL where limited or no municipal parking facilities are available. In this case, the evaluation will have regard for the City's interest in providing municipal parking, the viability of the site and its surrounding area during the interim before municipal parking becomes available, and the timing and adequacy of the future municipal parking supply to address the public parking needs created by the application of PIL. The Planning and Building Department and its Commissioner are responsible for processing PIL applications, preparing the terms and conditions of PIL approval, and executing agreements for PIL of 10 parking spaces for less. Authority from Council is required for the execution of agreements for PIL of more than 10 parking spaces. For applications that are not supported by the Planning and Building Department, a report from the Commissioner is prepared for consideration by the Planning and Development Committee and Council.

PIL payments up to \$15,000 are paid in one lump sum prior to the execution of the PIL agreement. For larger payments, requests for instalment payments would be considered. PIL contributions are tracked by property in the City's Mississauga Approvals Express (MAX) system. Funds collected are placed in the respective PIL reserve accounts for use in the areas from which they were collected.

The cost of parking is estimated using formulas that consider construction cost of a surface or structured parking space, the size of a surface or structured parking space including provisions for driveways, aisles, and columns and ramps, estimated land value within the subject area, and number of parking spaces for which PIL is sought. Exhibit 3-22 summarizes the developer/proponent contribution of the PIL of parking.

Exhibit 3-22 Current PIL Contributions

Development related to PIL application:		Developer/proponent contribution:
Change in land use or conversion of an existing building/structure or part thereof	Category 1: Up to 50 sq.m. GFA	12.5% of the estimated cost of parking
	Category 2: Up to 200 sq.m. GFA	25% of the estimated cost of parking
	Category 3: Over 200 sq.m. GFA	50% of the estimated cost of parking
New development, redevelopment, and addition to existing building/structure		50% of the estimated cost of parking

Note: The estimated cost of parking is based on the Planning Act Processing Fees and Charges By-law, and Surface Parking Formula and Structured Parking Formula contained in Appendix A of the Corporate Policy

3.11.1 EXCERPT FROM FEES AND CHARGES BY-LAW

Mississauga's General Fees and Charges By-law contains standard fees for services provided by the municipality and is updated regularly. The current by-law 211-16 (amended by 289-16) came into effect on January 1, 2017. The current fees for the review and processing of some parking related matters are summarized in Exhibit 3-23.

Exhibit 3-23 PIL Administration Fees

Legal Services	Fee
Payment in Lieu of Offstreet Parking PIL Agreements Review and registration of documents	\$710 plus disbursements
Applications for Site Plan and Rezoning Review and registration of documents satisfying land conditions identified in application Review and registration of Development Agreements arising from rezoning applications including "H" designations	\$710 plus disbursements per agreement
Basic Documents and Agreements Preparation, review and/or registration of documents or agreements including, but not limited to, Off Site Parking Agreements, Shared Use Agreements, etc.	\$710 to \$2940 plus disbursements per Document or Agreement depending on the complexity or time spent as determined by the City Solicitor, Legal Services
Committee of Adjustment Review and registration of documents to satisfy Committee conditions including, but not limited to, Off Site Parking, etc.	\$710.00 plus disbursements

3.12 ON-STREET PARKING

On-street parking is regulated through Traffic By-law 555-00. According to information posted on the City's website, parking on City streets is limited to three hours, unless otherwise posted.

The City of Mississauga provides paid on-street parking in the downtown area. Metered parking is also provided in Port Credit, along Lakeshore Road and in the blocks between Stavebank Road and Hurontario Street, as shown in Exhibit 3-24.

Exhibit 3-24 Downtown metered and non-metered parking

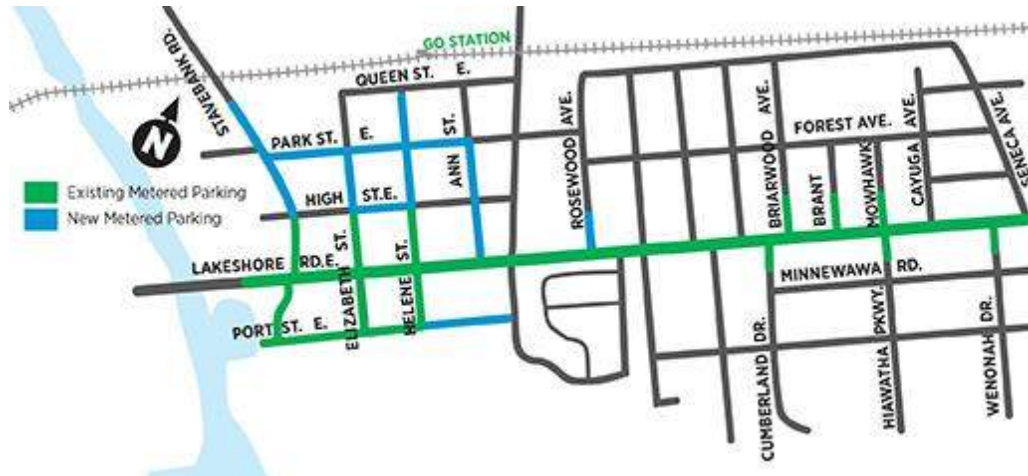


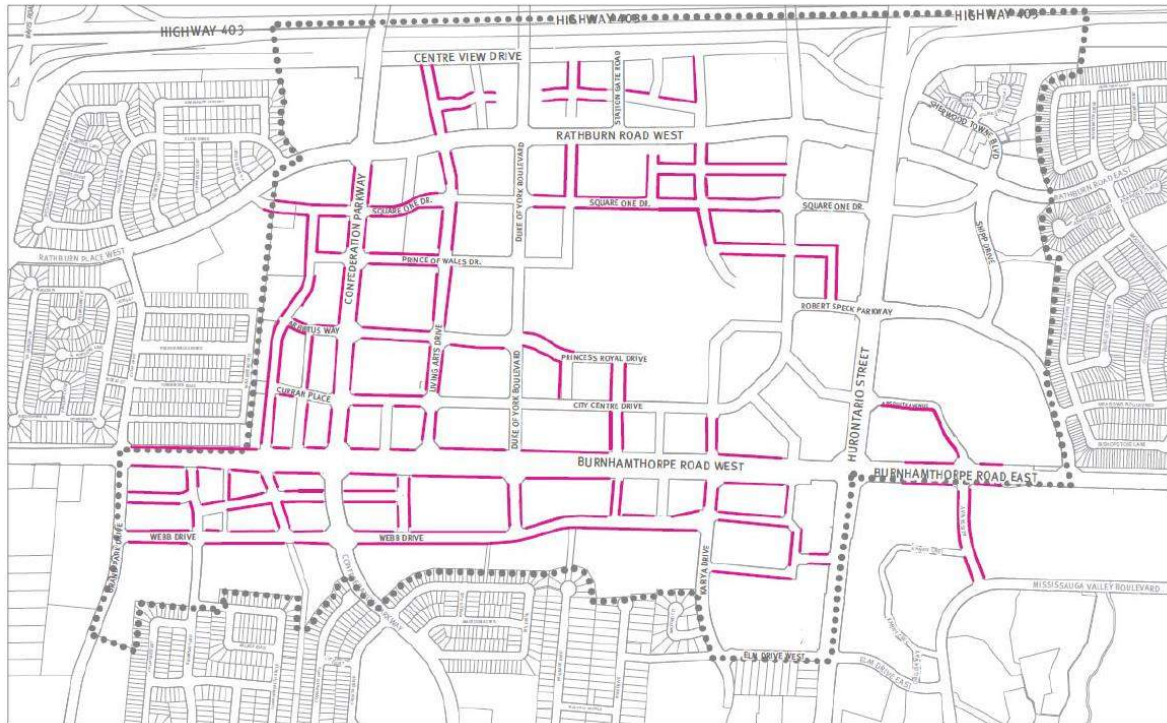
Exhibit 3-25 summarizes the current on-street parking fees and hours of operation.

Exhibit 3-25 Mississauga current on-street parking fees

Timing and Location	Fees
Downtown	
On-street parking Monday-Friday, 8 a.m. to 6 p.m. Saturday-Sunday, 10 a.m. to 6 p.m.	\$1.00 per hour (2 hour maximum)
Overnight on-street parking Sunday-Thursday, 6 p.m. to 8 a.m. Friday-Saturday 6 p.m. to 10 a.m.	\$5.00 Maximum rate (incremental payment available) The overnight maximum parking rate can be purchased starting at 5:30 p.m.
Port Credit	
On-street parking Monday-Saturday, 10 a.m. to 9 p.m.	\$1.50 for the 1 st hour \$1.50 for the 2 nd hour \$2.00 for the 3 rd hour (3 hour maximum and incremental payment available)

Appendix G within the Downtown Mississauga Movement Plan identifies a potential on-street parking supply of approximately 1,600 spaces within the Downtown, as shown Exhibit 3-26.

Exhibit 3-26 On street parking allocations in the downtown



These spaces should be used to provide short-term parking and service needs for adjacent land uses. In order to increase space turnover and discourage long-term usage during peak periods, managing the costs can directly affect the time of day and duration persons use on-street parking⁴.

⁴ Steer Davies Gleave, Downtown Mississauga Movement Plan Appendix G – Off- and On-Street Parking, 2014.
<http://www.mississauga.ca/portal/residents/paidparking> and <http://www.mississauga.ca/portal/residents/parkingbylaw>

3.13 PARKING PERMITS

3.13.1 TEMPORARY PARKING PERMITS

Mississauga's temporary parking permit allows parking on the un-signed portion of a City street beyond the Parking By-law limits. Parking is allowed between 8 a.m. and midnight beyond the three-hour limit for statutory holidays. Additionally, four types of temporary parking permits are offered by the City, as outlined in Exhibit 3-27.

Exhibit 3-27 Parking Permits

Type	Validity (from date of issue)	Number of Vehicles	Reasons	Approval time	Fee
Short Term Temporary Residential *	1 - 5 days	Maximum of 5	Overnight guests, driveway repairs, funerals, parties. License plate numbers for each vehicle required.	Same day where prohibited parking signs are not present.	No Fee (5 days, 14 times per year)
Long Term Residential	More than 5 days	Maximum of 5	For extended visitor stays, driveway repairs, renovations, etc. License plate numbers for each vehicle required.	1-3 days Depending on parking signs or if an inspection of the proposed area is required.	\$62.00 + HST (\$70.06)
Blanket Commercial	Any	No maximum	For large commercial renovations, parking lot resurfacing, underground garage sweeping, parking lot resurfacing.	1-3 days Area is subject to inspection.	\$124.00 + HST (\$140.12)
Blanket Residential	Greater than 5 days	No maximum	For large residential renovations, etc.	Within 2 weeks Area is subject to inspection.	\$62.00 + HST (\$70.06). (5 days, 14 times per year)

Note: *Maximum of 14 per calendar year for a municipal address.

Temporary parking is not available to heavy vehicles 3,000 kg or more, vehicles without license plates or with expired license plate stickers, trailers that are not attached to motor vehicles, vehicles displaying "For Sale" signs or are not mechanically functional, school buses and commercial coaches⁵.

⁵ <http://www.mississauga.ca/portal/residents/parkingconsiderations>

3.13.2 INDUSTRIAL PARKING PERMITS

The City operates an Industrial On-Street Permit Parking Program. Permits are granted on a first-come, first-serve basis. Monthly permits are 25 dollars each, and yearly permits are \$250^{6,7}. As of April 2015, permit parking is offered at the following locations, listed in Exhibit 3-28.

Exhibit 3-28 Industrial Parking Permits

Highway	Side	Between	Times of Day
Brunel Road	North	A point 260 meters (853 feet) east of Whittle Road to a point 90 meters (295 feet) easterly thereof.	Anytime
Brunel Road	South	A point 295 meters (968 feet) east of Whittle Road to a point 60 meters (197 feet) easterly thereof.	Anytime
Century Avenue	West	A point 315 meters east of the North leg of Argentina Rd to a point 75 meters southerly thereof	Anytime
Commerce Boulevard	East	A point 25 meters north of Citation Place to a point 75 meters northerly thereof	Anytime
Explorer Drive	South	Explorer Drive from a point 70 meters east of Satellite Drive to a point 175 meters easterly thereof	Anytime
Shuttle Drive	West	Explorer Drive and Matheson Boulevard East	Anytime
Shuttle Drive	East	Explorer Drive and Matheson Boulevard East	Anytime
Skymark Avenue	North	A point 115 meters east of Orbiter	Anytime

⁶ http://www7.mississauga.ca/documents/FormsOnline/Paid_Parking_Industrial_On_Street_Parking_Permit_Application_2661.pdf

⁷ http://www7.mississauga.ca/documents/FormsOnline/Paid_Parking_Industrial_On_Street_Parking_Permit_Application_2661.pdf

3.13.3 OVERNIGHT RESIDENTIAL PARKING PERMITS

Overnight Permits are available for purchase as an alternate to nightly parking fees at the City Centre (Sheridan College) surface parking lots, where paid parking is in effect. The monthly overnight permit can be purchased for \$65 per month, and is valid only for Sheridan College HMC surface lots during the following times:

- Monday to Thursday 6 pm until 7 am, and
- Friday from 6 pm until Monday at 4 am⁸.

3.13.4 DAILY PERMITS

Public Daytime Parking Permits are available for purchase as an alternative to daily parking fees at City Centre municipal parking facilities where paid parking is in effect. The permit can be purchased for \$65 a month, and is valid at the following locations at the following times:

- Civic Centre, Central Library and Living Arts Centre Garages, Monday to Friday 7 am to 6 pm.
- Sheridan College Hazel McCallion Campus Surface Lots, Monday to Sunday 7 am to 11:59 pm⁹.

In addition to the aforementioned parking permits, Bulk Parking for Living Arts Centre (LAC), City and Sheridan College clients is available for purchase as an alternate to daily parking fees at City Centre parking facilities and Sheridan College surface lots where paid parking is in effect. This program offers a discounted daily rate of \$3 per visit¹⁰.

Finally, another alternative to paying for daily parking is the Multi Visit Card program. A Multi Visit Card is a pre-paid, reloadable card that can be loaded with a balance of up to 250 visits. The card is tapped on a Pay and Display machine within municipal parking garages to obtain an all-day parking receipt. The receipt is valid in Celebration Square North (Civic Centre underground), Celebration Square South (Central Library underground) and Living Arts Centre parking garages. The receipt is not valid for parking on-street.¹¹

⁸ http://www7.mississauga.ca/documents/FormsOnline/Paid_Parking_Public_Overnight_Parking_Permit_Purchase_2601.pdf

⁹ http://www7.mississauga.ca/documents/FormsOnline/Paid_Parking_Public_Daytime_Permit_and_Card_Purchase_2570.pdf

¹⁰ http://www7.mississauga.ca/documents/FormsOnline/Paid_Parking_Bulk_Purchase_2571.pdf

¹¹ http://www7.mississauga.ca/documents/FormsOnline/Paid_Parking_Public_Multi_Visit_Card_Purchase_2683.pdf

3.14 WATERFRONT PARKS STRATEGY

Mississauga City Council approved a *Waterfront Parks Strategy* in March 2008. The strategy includes a comprehensive long-term plan for the development of the City's waterfront parks. The plan provides guidelines to improve the connectivity between parks and the City, to promote sustainable elements in the parks; and to promote a stronger relationship between the parks and their existing natural systems.

The long-term plan also outlines specific guidelines addressing parking development. The main recommendation is a reduction in existing and proposed parking facilities to combat the encroachment of cars onto lands intended for cultural and recreational use. The reduction is intended to support the overall strategy of encouraging the use of transit, walking and cycling.

- Screen parking lots with vegetation to minimize visual impact and help run-off water absorption.

Exhibit 3-29 shows a rendering of typical parking areas as proposed in the *Waterfront Park Strategy*.

Exhibit 3-29 Rendering of Parking Area



Source: *Waterfront Parks Strategy, City of Mississauga, 2008*

The 2008 *Waterfront Parks Strategy* also includes plans to:¹²

- Promote Sustainable Best Practices that are “green.” Such technologies include alternative energy services and permeable parking areas with bioswales.
- Decrease reliance on vehicular parking while ensuring that parks are sustainable, well connected, and accessible by pedestrians, cyclists, transit, and vehicles. The Strategy recommends locating new and redeveloped parking near vehicular entrances and as close to the park edge as possible.
- Use permeable pavements to increase infiltration and improve storm water run-off. Both will help to reduce urban heat island effects.
- Incorporate transit loops to accommodate City buses. The design of the loops will allow them to function even if a parking area is removed.
- Give preference to fuel-efficient vehicles and registered carpoolers. Short-term parking should be reserved for nearby picnic for drop-offs. Bike parking areas should be provided in areas close to park activities.
- Provide overflow parking areas for special events and large gatherings. Overflow parking areas should be visibly distinct from conventional lots, such as paving the surface with reinforced turf.
- Implement well-lit waiting areas convenient to parking areas and transit loops. Provide directional information signage and emergency kiosks for the waiting areas.

The City is currently updating the 2008 *Waterfront Parks Strategy*. The new study is not yet complete.

3.15 RECENT AND ONGOING STUDIES

In addition to the PMPIS, the City has recently completed the Dundas Connects Master Plan, is currently updating the Transportation Master Plan (TMP) and developing the Lakeshore Connecting Communities.

3.15.1 DUNDAS CONNECTS MASTER PLAN

The *Dundas Connects Master Plan* was completed in March 2018. The purpose of the plan was to integrate transportation and land use planning along the Dundas Street Corridor, and implement best practices to address current and future demand. The study area included the entire Dundas Street Corridor from Mississauga’s border with Oakville in the west to the City of Toronto’s Kipling Station in the east. The area included was 4 km wide and 19.5 km long. It includes Character Areas identified in the MOP and discussed in the Section 3.1.1.

¹² Waterfront Parks Strategy, City of Mississauga, 2008

Major recommendations include:

- Mixed use, transit-supportive intensification in seven broader Focus Areas along Dundas Street.
- Implementing BRT along Dundas Street.
- Creating a complete street for all users.

Key recommendations relating to parking include:

- Considering alternative standards for parking provision along the Dundas Street Corridor and within major transit station areas. Reduced parking standards will help incentivize transit-supportive redevelopment and will help encourage active transportation.
- Maintaining the plan's alignment with mixed-use, transit-supportive development through intensification as identified in the City's Affordable Housing Strategy.¹³ The approach includes pre-zoning lands for intensification to reduce the cost of the development approvals process and reducing the required parking ratios to lower the construction cost of new development (For example, underground parking).
- Introducing public and or private plazas be near transit facilities along Dundas Street, including wayfinding to trails and major open spaces. These spaces are prime locations for bicycle parking and bicycle-share facilities.
- Considering the use of zoning amendments to reduce minimum parking requirements along the Dundas Street corridor.

3.15.2 *TRANSPORTATION MASTER PLAN*

A TMP process is also concurrently underway. This process will provide a strategic, long-term planning framework for citywide transportation decision-making.

The PMPIS recommends that the TMP should further reinforce the precinct-based approach to parking outlined in the plan.

3.15.3 *LAKESHORE CONNECTING COMMUNITIES*

Lakeshore Connecting Communities is a master plan study that looks at how best to connect the communities of Clarkson, Port Credit, and Lakeview while preserving and enhancing the unique character and sense of place of each community. The plan will build on recent planning studies to develop a design for the Lakeshore Road corridor from building face to building face. The objective is to develop a system that supports all modes of transportation, connects people to places, and moves goods to market. The master plan study will also evaluate rapid transit alternatives east of Hurontario Street and a rapid transit extension into the Port Credit area.

The master plan study will deliver a transportation study and conceptual design for Lakeshore Road between Southdown Road and the east City limit, and for Royal Windsor Drive between Southdown Road and the west City limit.

¹³ Making Room for the Middle - A Housing Strategy for Mississauga, City of Mississauga, 2017

The study is undertaking detailed transportation modelling to ensure that the study understands the impact and recommends mitigation regarding any negative impacts of proposed improvements to transit and active transportation on motorists and parking.

In July 2018, the Lakeshore Connecting Communities study team presented the transit recommendations for the Lakeshore study area, as shown in Exhibit 3-30, at the final open houses. If adopted, this strategy and plan would significantly increase transit service to the area starting with conventional or enhanced bus service and progressing to streetcar service over time as growth increases.

The study's proposals will encourage mix use developments and more dense developments and will provide people using the Lakeshore corridor convenient connections to other transit facilities. The proposals, shown in Exhibit 3-31, are expected to reduce the demand for parking along the corridor by providing transit stops that are within an 800m walking distance.

3.15.4 *PMPIS CONSISTENCY WITH RECENT AND ON-GOING CITY PLANS AND STRATEGIES*

The policies and recommendations proposed in the PMPIS are consistent with the parking principles and framework outlined in the above summaries of current and on-going plans and strategies. The PMPIS will complement and add to these plans and strategies to develop the most appropriate parking policies and help to improve the City's transportation network.

Exhibit 3-30 Lakeshore Recommended Phased Approach to Transit



PHASE 1 - Interim* Implement an Express Bus in Curb Lane

- Express stops between Long Branch GO Station and 70 Mississauga Road (proposed future transit terminal)
- Transit priority measures include transit signal priority and far-side bus stops

*Within the next 10 years



PHASE 2 - BY 2041 Express Bus in Median Transit Lanes at East End of Corridor

- Express bus in dedicated median transit lanes from East Avenue to Etobicoke Creek. The express bus continues in mixed traffic from East Avenue to 70 Mississauga Road
- Supports efficient movement of people between Lakeview Waterfront Future Development and Long Branch GO Station, which has two-way, all-day service on the Lakeshore West GO line



PHASE 3 - BEYOND 2041 Protection for Extension of Streetcar

- Protect for the extension of the TTC streetcar into Mississauga from the Long Branch GO Station, subject to discussions with the City of Toronto

Source: Lakeshore Connecting Communities Public Open House 3, City of Mississauga, 2018

Exhibit 3-31 Lakeshore Potential Transit Coverage

- Existing Local Bus Stop
- Future Rapid Transit Station/Stop
- Existing 400 m walk to transit stop
- Future 800 m walk to transit stop



Source: Lakeshore Connecting Communities Public Open House 2, City of Mississauga, 2017

4 OPPORTUNITIES AND GAPS IN CURRENT POLICIES

This section examines the City's policy directions, procedures, and recommendations and then uses the investigation to identify important opportunities and gaps. Section 4.1 discusses opportunities and Section 4.2 discusses gaps. The two Sections provide a macro-level overview of the City's key parking policies and how the policies relate to the City's multi-modal vision.

4.1 OPPORTUNITIES

- The current MOP City Structure document (see Section 3.1.1) notes that parking policies for different areas of the City should vary to consider local characteristics and local planning visions. The need for a set of parking policies that addresses different parking needs provides an excellent framework for the PMPIS.
- Several planning and transportation studies have adopted the City Structure and recommended improvements to transit.
- The City's current planning and parking policies have begun to address some of the changing parking needs and demands of various parts of the City.
- The City's *Official Plan* (see Section 3.1) and *Strategic Plan* (see Section 3.2) have embraced the vision for a multi-modal city.

Recent and on-going planning studies have adopted a multi-modal approach and are encouraging and planning for various modes of travel. Some planning studies have identified a need to update the Zoning By-law and reduce parking requirements in some locations.

4.2 GAPS

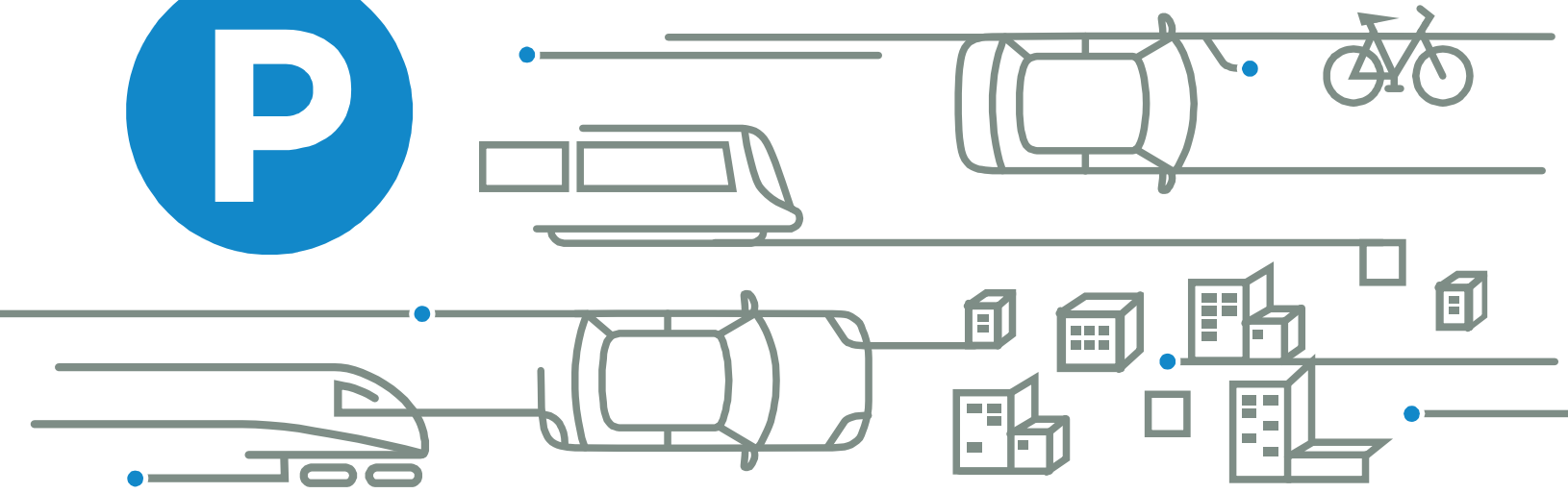
- The policies related to parking have not formally acknowledged that one size does not fit all throughout the City except in the Downtown areas and Port Credit.
- Several of the policies have approached parking on an ad hoc basis and not all the relevant criteria are being applied evenly.
- Many planning and transportation studies have embraced and applied the seven policy areas in the City Structure, however, the parking policies have not done the same.
- Currently, little coordination exists among transit availability (current and future); TDM programs/measures and parking policies.
- Little clarity exists as to why different parking policies are selected for different areas of the City.
- Current parking policies are fragmented and left alone would not adequately achieve the new multi-modal vision of the City.
- There is a need to have an overarching parking vision with an area-specific focus to address local area needs but be compatible with broader city building objectives.
- Current policies do not adequately address new trends in parking and transportation management such as technology, AVs, shared vehicles, and parking management measures.

5 MOVING FORWARD

The parking policies developed in the PMPIS aim to address the parking policy opportunities and gaps identified in Sections 4.1 and 4.2. The PMPIS develops a parking vision and appropriate framework that recognizes that different areas of the City must be treated differently. This is because different areas have different local characteristics including different parking demand and parking supply requirements. The plan builds on the opportunities created by current parking policies and on current non-parking policies such as transit and TDM. It considers parking trends, best practices and relevant benchmarking from elsewhere, but focuses on made in Mississauga solutions.

The PMPIS builds a policy framework that addresses the need for different parking policies in very different parts of the City, examines a range of policy solutions for responding to parking issues and the implications of parking trends, and recommends a set of solutions tailored to the different city areas.

The PMPIS also includes an implementation plan that recognizes relevant legislative and organizational requirements and identifies a framework for implementation of the recommended parking policies.



PARKING MATTERS



APPENDIX 1-3 PARKING POLICY FRAMEWORK

Mississauga Parking Master Plan and
Implementation Strategy (PMPIS)

1 PARKING POLICY FRAMEWORK

The PMPIS parking policy framework was developed to ensure a consistent and focused approach to making decisions about parking provision and management. *Existing Policy and Best Practices Review* notes sets out several approaches to parking policy development. The PMPIS study adopts a hybrid framework which combines *Reforming Parking Policies to Support Smart Growth* and Litman's parking management principles. Litman defines parking management as “the overall practice of developing, implementing, and monitoring policies and programs that result in the more efficient use of parking resources.”¹

The resulting policy framework is comprised of the following components:

- Parking Vision Statement
- Parking Goals
- Parking Management Principles
- Implementation Plan

This parking policy framework is used to address three fundamental issues in Mississauga:

- Mississauga has a wide range of travel and parking needs.
- These needs vary from place to place in the municipality.
- The policy framework must be flexible enough to cater for both current and future needs.

The proposed parking policy framework has two distinct advantages over the City's existing approach:

- The City will continue to maintain policy flexibility in implementation and can ensure that each area's parking provision and management solution are consistent with the MOP's multi-modal vision and land use priorities and the TMP's precinct approach. The various geographical/land use areas for which different policies are developed are known as precincts in the TMP and in the PMPIS framework.
- The policy framework delivers policy outcomes that are transparent, consistent, robust, practical, inclusive, and fair.

The following sections describe each component of the policy framework and make specific recommendations. Section 1.1 discusses the Vision Statement; Section 1.2 examines goal setting; Section 1.3 discusses parking management principles and strategies; Section 1.4 comments on implementation; Section 1.5 outlines the geographical approach adopted by the PMPIS, and Section 1.6 provides a summary.

¹ Parking Management Strategies, Evaluation, and Planning, Victoria Transport Policy Institute, 2016

1.1 VISION STATEMENT

The Parking Vision Statement should state the City's view of Mississauga in the future and defines the City's beliefs about the overarching principles that parking policy should adopt to achieve that view. The Vision Statement should be aligned with the principles, goals and objectives of the City's Strategic Plan and MOP.

1.2 GOAL SETTING

Parking goals should support the Parking Vision Statement by emphasizing the intended results for each precinct. Mississauga's diverse range of travel and parking needs requires goals and policies that are appropriate for each community and conform to MOP policies for each precinct.

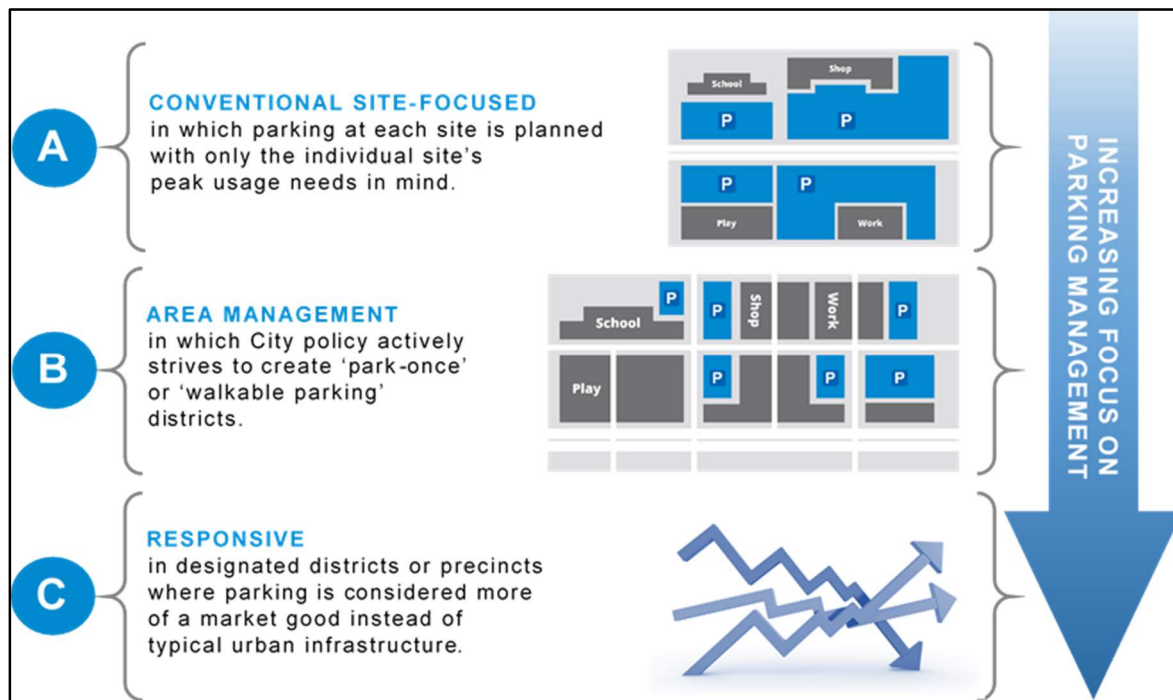
The *Existing Policy and Best Practices Review* report prepared by WSP for this study found a wide range of approaches to municipal parking policy across Canada and across the world. Given the importance of parking to the local economy in Mississauga, the policy framework should be clear, simple, readily understood by the whole community, and the flexible enough to address different local needs.

Barter developed three approaches to parking policy development:

- Conventional site-focused
- Area management
- Responsive

Exhibit 1-1 shows Barter's three approaches.

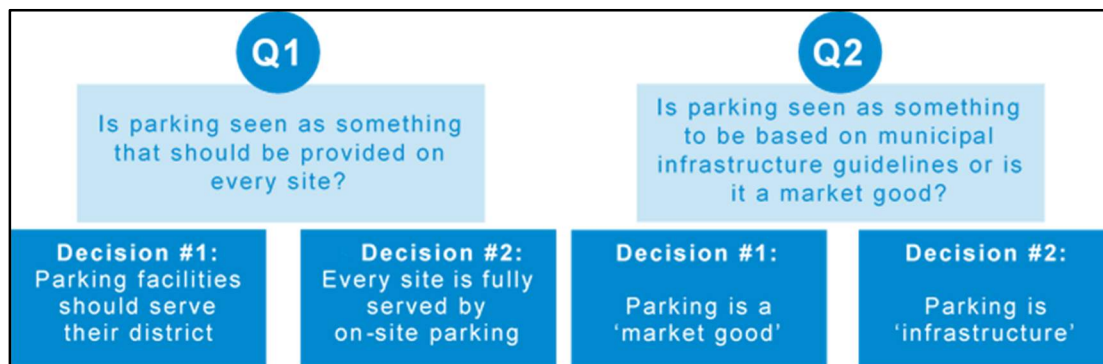
Exhibit 1-1 – Parking Policy Approaches



Source: *A Parking Policy Typology for Clearer Thinking on Parking Reform*, Barter, 2014

The three approaches are based on the questions presented in Exhibit 1-2.

Exhibit 1-2 – Parking Policy Questions



Source: *A Parking Policy Typology for Clearer Thinking on Parking Reform*, Barter, 2014

One of the key strengths of the framework adopted for PMPIS is that the choice of the most appropriate approach can vary by area. This helps the City to adapt to evolving parking and access issues and allows the City to match its chosen parking approach to the City's long-term vision for a given area. Exhibit 1-3 – Policy Approach Considerations shows the main considerations when selecting the most appropriate policy approaches.

Exhibit 1-3 – Policy Approach Considerations

		<i>Is parking seen as something that should be provided on every site?</i>	
		<i>'Parking facilities should serve their district'</i>	<i>'Every site should be fully served by on-site parking'</i>
<i>Is parking seen as something to be based on infrastructure guidelines or is it a market good?</i>	<i>Parking is a 'market good'</i>	RESPONSIVE APPROACHES Example: Downtown public parking parkades with sufficient demand to exist as a commercial enterprise	- NO CASES - Parking Policy that is both site-focussed and market driven
	<i>Parking is 'infrastructure'</i>	'AREA MANAGEMENT' APPROACHES Example: Park-once High Street districts, TPA municipal parking	CONVENTIONAL, SITE-FOCUSED APPROACHES Example: Suburban-style sites with segregated land uses and mandated minimum parking requirements

Source: *A Parking Policy Typology for Clearer Thinking on Parking Reform*, Barter, 2014

As Mississauga transitions from a suburban built form to a more urban built form, it will be increasingly necessary to shift the policy focus from Conventional Site-Focused Approaches to Area Management Approaches and Responsive Approaches in different areas of the municipality. The rate of change will vary for different areas. This flexibility will help the City to shape the form, location, and amount of parking in each area over time.

1.3 PARKING MANAGEMENT PRINCIPLES AND STRATEGIES

This section discusses the parking management principles and strategies that will be considered in the development of policies for managing parking and achieving the desired parking outcome for each precinct.

As previously mentioned, Litman defines parking management as “the overall practice of developing, implementing, and monitoring policies and programs that result in the more efficient use of parking resources.”¹ He goes on to identify the following benefits of parking management:

- Reduced development costs and increased affordability.
- More compact, multi-modal community planning (smart growth).
- Encouragement of alternative modes and reductions in motor vehicle use (reducing traffic congestion, accidents, and pollution).
- Improved user options and quality of service, particularly for non-drivers.
- Improved design flexibility, creating more functional and attractive communities.
- Ability to accommodate new uses and respond to new demands.
- Reduced impervious surface and related environmental and aesthetic benefits.

The *Existing Policy and Best Practices Review* identified 10 clear and concise Parking Management Principles. The principles align well with Mississauga's existing policies and future directions. Application of the principles should result in appropriate parking management strategies for each precinct:

- **Consumer Choice:** People should have viable parking and travel alternatives.
- **User Information:** Motorists should have information on parking and travel alternatives.
- **Sharing:** Parking facilities should serve multiple users and destinations, thereby contributing to the efficient use of land.
- **Efficient Utilization:** Parking facilities should be sized and managed so that spaces are occupied frequently.
- **Flexibility:** Parking plans should accommodate uncertainty and change.
- **Prioritization:** The most desirable spaces should be managed to favour higher-priority uses.
- **Pricing:** When and where appropriate, users should pay directly for the parking facilities they use.
- **Peak Management:** Special efforts should be made to deal with peak demand.
- **Quality vs Quantity:** The quality of parking facilities (aesthetics, security, accessibility, and user information) should be considered as important as the quantity supplied.
- **Comprehensive Analysis:** All significant costs and benefits should be considered in the planning and management of parking.²

Litman also provides an extensive list of various Parking Management Strategies to manage different parking challenges. These challenges already exist in Mississauga and will continue to exist.

Exhibit 1-4 shows Litman's strategies. The application of the strategies will vary by parking precinct as reflected in the policy priorities within MOP.

² Parking Management Strategies, Evaluation, and Planning, Victoria Transport Policy Institute, 2016

Exhibit 1-4 – Parking Management Strategies

Strategy	Description
Parking Regulations	Regulations favor higher-value uses such as service vehicles, deliveries, customers, quick errands, and people with special needs.
More Accurate and Flexible Standards	Adjust parking standards to more accurately reflect demand in a particular situation.
Parking Maximums	Establish maximum parking standards.
Remote Parking	Provide off-site or urban fringe parking facilities.
Smart Growth	Encourage more compact, mixed, multi-modal development to allow more parking sharing and use of alternative modes.
Walking and Cycling Improvements	Improve walking and cycling conditions to expand the range of destinations serviced by a parking facility.
Increase Capacity of Existing Facilities	Increase parking supply by using otherwise wasted space, smaller stalls, car stackers and valet parking.
Mobility Management	Encourage more efficient travel patterns, including changes in mode, timing, destination and vehicle trip frequency.
Parking Pricing	Charge motorists directly and efficiently for using parking facilities.
Improve Pricing Methods	Use better charging techniques to make pricing more convenient and cost effective.
Financial Incentives	Provide financial incentives to shift mode such as parking cash out.
Unbundle Parking	Rent or sell parking facilities separately from building space.
Parking Tax Reform	Change tax policies to support parking management objectives.
Bicycle Facilities	Provide bicycle storage and changing facilities.
Improve Information and Marketing	Provide convenient and accurate information on parking availability and price, using maps, signs, brochures and the Internet.
Improve Enforcement	Insure that regulation enforcement is efficient, considerate and fair.
Transport Management Assoc.	Establish member-controlled organizations that provide transport and parking management services in a particular area.
Overflow Parking Plans	Establish plans to manage occasional peak parking demands.
Address Spillover Problems	Use management, enforcement and pricing to address spillover problems.

Source: *Parking Management*, Victoria Transport Policy Institute, 2016

1.4 IMPLEMENTATION

It is important to note that implementation at this stage refers to Planning Framework and the grouping the strategies using a precinct-based approach and Conventional/Site-Based, Area Management or Responsive measures to achieve the desired goals.

1.5 APPLYING THE PLANNING FRAMEWORK

The planning framework provides the opportunities needed to develop appropriate policies for city areas that have similar characteristics and objectives.

The planning and parking literature refers to the use of geographic areas for delineating policy as a policy area approach. Jurisdictions use many different names for their policy areas including Community, Planning Districts, Zones, Areas, and Precincts. For the PMPIS, we have selected the term “precincts.”

The precincts are identified geographically using the City Structure identified in MOP Schedules 2 and 9.

The precincts are selected by considering the various factors that typically affect parking demand and supply and identifying geographical areas that have parking demand and supply factors in common. The set of factors is then used to set appropriate goals, objectives, and strategies for each precinct.

1.6 SUMMARY

This brief highlights the main points about the parking policy framework.

1.6.1 SUMMARY OF PARKING POLICY FRAMEWORK

The policy framework should include:

- Parking Vision Statement
- Parking Goals
- Parking Management Principles
- Implementation Plan

Parking Vision Statement

- The Parking Vision Statement should articulate the importance of parking policy to the City and the City's adoption of a strategic approach to parking management now and into the future.

Parking Goals

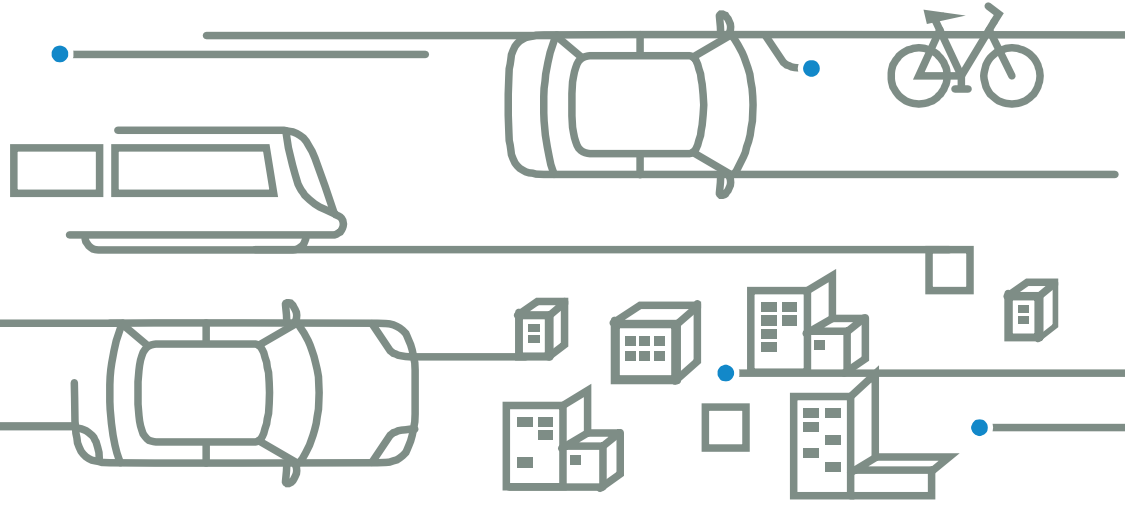
- The parking goals should support the parking vision. The goals specify the intended results of the parking policy for the City and for the precincts.

Parking Management Principles

- The framework should be based on 10 parking management principles selected to achieve the desired parking outcomes.

Implementation Plan

- An implementation plan should explain how the City's overall parking vision and various precinct goals will be achieved.



PARKING MATTERS



APPENDIX 1-4 BEST PRACTICES REVIEW

Mississauga Parking Master Plan and
Implementation Strategy (PMPIS)

MISSISSAUGA PARKING MASTER PLAN AND IMPLEMENTATION STRATEGY (PMPIS) BEST PRACTICES REVIEW

City of Mississauga

Project no: 161-14575-00
Date: May 2017
Version 2.0



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Introduction

1

1.0 Purpose

The City is seeking a strategic approach to parking in Mississauga, through development of a Parking Master Plan and Implementation Strategy (PMPIS). The approach is intended to improve the efficiency and effectiveness of current and future resources dedicated to parking, and also to use parking as a tool to realize the development objectives of the City's planning framework. Parking is an important intersection between transportation and land use, and needs to be addressed proactively.

An important component of the PMPIS is a benchmarking exercise that illustrates and highlights current parking practices in Mississauga and seeks to contrast these practices with other comparable jurisdictions in the GTHA and elsewhere.

The following best practice review is intended to help inform policy discussions and decisions that will help guide the final PMPIS.

The best practice review begins with an overview of existing policies related to parking in Mississauga, followed by a review of best practices from comparator municipalities.



Best Practices Review

2

This chapter is concerned with parking best practices in Canada and from around the world. It does this by reviewing:

- The role and value of parking and parking policy in the transportation system
- What a strategic vision for parking entails
- The benefits of adopting parking management principles
- Individual best practices that have been implemented
- Some initial thoughts on the application of a number of these ideas to Mississauga.

Parking management principles are also explored as a method for sharpening the focus on parking as part of a broader transportation system with significant known impacts on land use.

2.1 The Role of Parking in a Vehicular-Based Surface Transportation System

Parking is considered one the three essential components of a surface, vehicular-based transportation system (Vuchic 2000):

1. Vehicles
2. Rights-of-way
3. Terminal Facilities

Parking is intended to provide the required space ('terminal facilities' or 'end of trip facilities') to store a vehicle at the start and end of each journey.

In recent years there have been concerted efforts within both the transportation and land use planning professions to encourage clearer thinking about approaches of parking, particularly in urban areas where space is at a premium and capital intensive engineering solutions and alternative uses are often contemplated.



Figure 4 - 1 Parking Stacker, an example of a space-saving ‘Terminal Facility’

Source: HONGBO Co. Ltd. ([http://hbc-enc.com/wp-content/uploads/data/HBC-APS\(2015\)-eng.pdf](http://hbc-enc.com/wp-content/uploads/data/HBC-APS(2015)-eng.pdf))

Arguments have been made that the absence of a widely-understood typology of parking policy approaches is responsible for confusion and conflicting objectives within urban policy (eg: Barter 2014).

2.2 Parking Policy Typologies

To better define the intended purpose of parking policy for a given area, Barter (2014) created a parking policy typology based on two essential criteria:

Table 4-1 Two essential criteria to determine parking policy

Criteria 1	<i>Is parking seen as something that should be provided on every site?</i>
Criteria 2	<i>Is parking seen as something to be based on infrastructure guidelines or is it a market good?</i>

These respective answer to these criteria creates three broad paradigms based on two criteria that can be represented in a matrix that gives rise to three broad approaches:

- Conventional-site focused approaches
- Area management approaches
- Responsive approaches

Table 4-2 Three broad paradigms based on two criteria (Barter 2014)

		<i>Is parking seen as something that should be provided on every site?</i>	
		<i>'Parking facilities should serve their district'</i>	<i>'Every site should be fully served by on-site parking'</i>
<i>Is parking seen as something to be based on infrastructure guidelines or is it a market good?</i>	<i>Parking is a 'market good'</i>	RESPONSIVE APPROACHES Example: Downtown public parking garage	- NO CASES - Parking Policy that is both site-focussed and market driven
	<i>Parking is 'infrastructure'</i>	'AREA MANAGEMENT' APPROACHES Example: Park-once High Street districts, TPA municipal parking,	CONVENTIONAL, SITE-FOCUSSED APPROACHES Example: Minimum parking requirements, Public Washrooms regulations

Conventional site-focussed approaches are where parking is generally thought of as being on-site infrastructure, like restrooms which are mandated for buildings in an almost identical way. Parking requirements are the policy mechanism to ensure sufficient parking and no spillover.

Area management approaches are where parking is still considered infrastructure but parking requirements are relaxed, usually because of space restraints, cost and alternatives. In this scenario, public parking is emphasised. Area management is part of the parking management policy objective advocated by Metrolinx in the Mobility Hub Guidelines (see section 4.2)

Responsive approaches are the circumstance where parking is seen more of a 'market good' and less as 'infrastructure'. Here is natural to think of parking in this circumstance as being commercially managed real-estate.

It is notable that there are no cases where parking is a market good and is site-focussed. Niagara Falls ON could be considered one such example where this has been attempted, but it is not considered the basis for a comprehensive municipal parking policy.

The parking policy classification approach set out here supports the idea that the dimensions are theoretically independent. However adapting and changing parking norms in Mississauga will necessarily be strategic and require a progressive plan. An illustrative route from a site-based over-supply parking is infrastructure position to that with parking supply provided on an area-basis, with supply managed and charges applied is shown in Figure 4-2.

Adapted from Barter (2014)

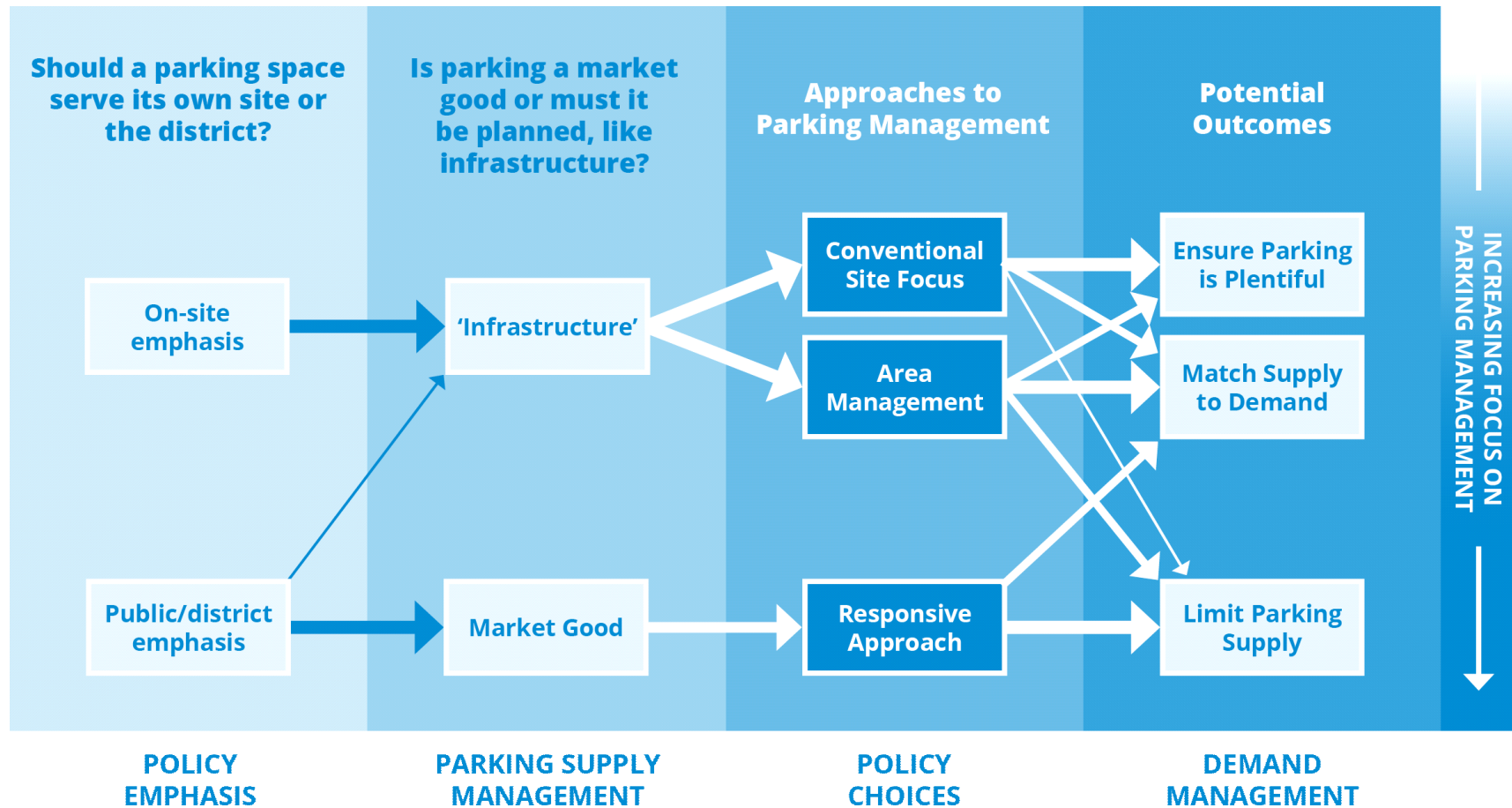


Figure 4 - 2 The route from a conventional site provision approach to an area-based approach

2.3 Parking Visions and Mandate

The following **parking management principles** from Todd Litman (2012) are considered to have applicability in Mississauga in that they provide clear and concise principles that align well with Mississauga's existing policies:

1. **Consumer choice** People should have viable parking and travel options.
2. **User information** Motorists should have information on their parking and travel options.
3. **Sharing** Parking facilities should serve multiple users and destinations.
4. **Efficient utilization** Parking facilities should be sized and managed so spaces are frequently occupied.
5. **Flexibility** Parking plans should accommodate uncertainty and change.
6. **Prioritization** The most desirable spaces should be managed to favour higher-priority uses.
7. **Pricing** As much as possible, users should pay directly for the parking facilities they use.
8. **Peak management** Special efforts should be made to deal with peak-demand.
9. **Quality vs. quantity** Parking facility quality should be considered as important as quantity, including aesthetics, security, accessibility and user information.
10. **Comprehensive analysis** All significant costs and benefits should be considered in parking planning.

Some distinct advantages of adopting parking management principles in Mississauga include:

1. Recognition that parking is a strategic asset for managing both transportation and land use outcomes in Mississauga
2. Acknowledgement that effective management of parking is important to the health of the local economy and the community
3. Acceptance of the importance of and need for a long-term plan to manage parking in Mississauga

2.4 The Value of Parking

The value of the space that parking provides can be defined and measured in variety of ways: practically, socially, financially and economically. In an everyday practical sense, the benefit of parking to the end user is ubiquitous and easily recognised in almost any setting. This section is concerned with explaining the less obvious aspects of value of parking: its social and economic value and its relevance to Mississauga.

Official Plan Vision

The vision for Mississauga is that it will be a beautiful sustainable city that protects its natural and cultural heritage resources, particularly the Lake Ontario waterfront, Credit River and other valley corridors, and its established, stable neighbourhoods. The City will plan for a strong, diversified economy supported by a range of mobility options and a variety of housing and community infrastructure to create distinct, complete communities. To achieve this vision the City will revitalize its infrastructure, conserve the environment and promote community participation and collaboration in its planning process

Strategic Plan Vision

Mississauga will inspire the world as a dynamic and beautiful global city for creativity and innovation, with vibrant, safe and connected communities; where we celebrate the rich diversity of our cultures, our historic villages, Lake Ontario and the Credit River valley. A place where people choose to be.

2.4.1 Social Value (*Parking As A Service*)

The social value of parking is typically measured from the value that a car offers a user. In essence a parking facility provides an opportunity for those that have access to a vehicle and wish to access the destination by car the ability to do so. By using the car to travel the user can take advantage of the time savings and other comfort and utility benefits that the car offers. They can only do this because they have somewhere to leave the car at the destination (the 'terminal facility' as noted in section 4.1) while they do not require it. If there is nowhere to legitimately and safely leave the vehicle while its users undertake the purpose of their trip, then it must be parked in a more distant location not as close to the destination as required. Thus the car trip is likely to take longer and is less comfortable or convenient.

In economic terms therefore, a parking lot at the destination has social value as it saves people time by allowing them to travel more quickly to and from their destination. In financial terms, people are often prepared to pay for parking because they recognise the private benefit (referred to in economics as '*utility*') it provides them, through saving time or improving their own comfort. In this regard parking facilities can be seen as an equivalent in providing user time savings similar to a new highway that potentially reduces congestion (Potter 2016).

Providing parking at or close to a destination is therefore commonly seen by commercial establishments as a key aspect of supporting trade. By contributing to reducing the travel time to and from their premises, they can extend the reach of their business.

Negative social impacts of parking must also be considered. While parking can underpin economic well-being it also affects the form and design of a City. Parking promotes car use and car access into those areas in which it is provided. Attracting and serving vehicles in urban areas creates non-permeable urban spaces, pollution, noise and personal risk to pedestrians and cyclists.

In looking at a higher objective of creating economic success in urban areas and setting parking policy, it is often necessary to recognise that serving car users may improve their accessibility and use of the city but that this may be at the expense of the amenity of others. Car accessibility may make urban areas less attractive both as a destination and as somewhere that people wish to spend extended amounts of time. This may prove more restrictive to trade than the uplift provided by good access for car users.

In addition, the amount of land that parking occupies or 'consumes' may not offer the best service to the residents or community; access to parking facilities by high numbers of cars may impair the mobility of those choosing to walk or cycle and general livability of that neighbourhood. Figure 4-1 highlights the opportunity cost of land for parking in terms of land consumption by estimating the amount of space required per parking space. On a per space basis, full size suburban off street parking can consume up to 55 m² (600 square feet) per space once landscaping, driveways and access lanes are taken into consideration. On-street parking, on the other hand, can be 2.5 times more efficient than off-street parking. This is particularly relevant for the Mississauga context, as large amounts of existing parking is located off street.

Finally, the annualized costs of providing parking represents a significant cost to the community, particularly if it is offered for free. According to Litman (2005), this can range from \$250 to \$2,250 per space provided per annum, depending on the type and location of the space. If no corresponding revenue is generated for those spaces, then the ongoing costs of providing this parking as a service must be subsidised by users and non-users alike.

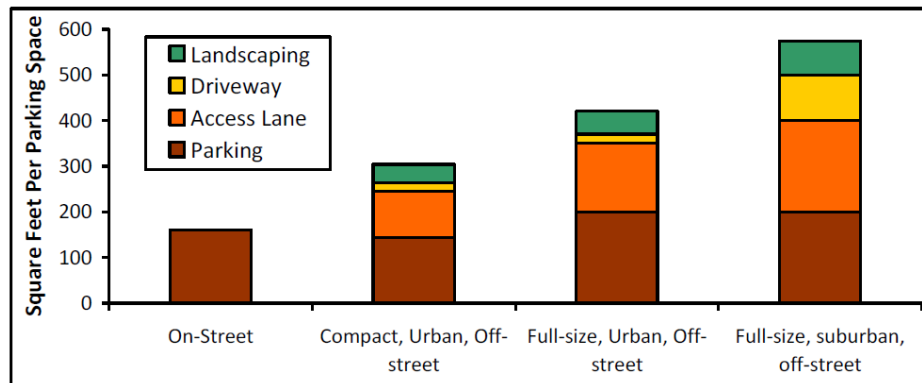


Figure 4 - 3 Square feet per parking space by facility type (Source: Litman 2012)

2.4.2 Financial Value (Parking As Revenue)

Parking value is more readily defined and quantified based on the revenues it may earn, particularly in the commercial context. These revenues are a function of the willingness to pay for the time saving and other utility benefits afforded by the parking facility at that location and time. While much parking is charged based on the duration of stay, the benefits accruing to the user are largely appreciated in the time saving of the journeys to and from that parking spot. In Mississauga for example, while an hour's stay may be priced at \$1/hour and an all day stay at \$6, the time saving offered by being able to drive right into the Downtown rather than walk most of the way would be considered equivalent for both trips. According to this definition of value, if that time saving is considered to be worth more than \$6, then driving is likely to be the prevalent mode, which is the case at present.

What is likely to be different, but not necessarily the case, is that a shorter trip to that destination has less utility to the visitor than a longer trip. So if the cost of making the trip outweighs the utility gained from the activity at the destination, then the trip won't occur. More likely is that the trip can be fulfilled in another way, such as going to a different destination where the cost of parking is less. In this case, parking demand is lost since users switch to save money. If there was no other choice, faced with paying a higher charge to park or walk, many users would pay the higher cost up and until the point that the journey is not worth making or the cost of paying to park the car at the destination is higher than the value they ascribe to the benefits of using a car rather than an alternative mode. In a modern retail context, an alternative mode includes an alternative method of fulfilment, such as online shopping. Large commercial establishments understand that factors such as these are likely to influence the future demand for parking.

The duration of parking does not provide any value to the user. It incurs a cost to the provider and wider society because for the duration of time that the parking space is occupied it reduces the opportunity to provide service and similar benefits to other users. The user expects to pay less for shorter durations of stay primarily because of their mindset and established thinking. In reality their willingness to pay for a short duration may be no different to a long stay as the benefit derived is equal in both cases. What may limit the charge potential of shorter trips is the overall value of making the trip at all, such that if the trip is not quick, easy and inexpensive, it doesn't happen. The need is either not worth fulfilling, or fulfilled in a lower cost way.

2.4.3 Parking as a Value Proposition

In summary, the value proposition offered by parking can be thought of as being the relative advantage that driving to a location has over other options. Other options may include using parking lots that are

further away or completing the trip by other modes. Parking value only applies to those that have access to a car for that trip.

The approach helps to better contrast situations in which businesses value parking against circumstances in which parking is not always a primary consideration.

Table 4-3 Contrasting Value Propositions for Parking

Parking's ability to provide competitive edge	Parking is not always a primary consideration
<p>The ability to provide a competitive edge helps to understanding why parking is important to businesses in this context, particularly those located downtown. If parking is not available, visitors and potential customers may be faced with a more time-consuming trip.</p> <p>They have to park further away and walk or use a slower alternative mode of transport. Similarly if the monetary cost of parking downtown increases, this too makes the trip more costly.</p> <p>The benefit (utility) achieved by the activity at the destination is largely fixed; as the time or cost of making the trip to the destination increase the potential that the trip is not worth making, or can be fulfilled more efficiently by another destination or method, increases, resulting in the business potentially being lost at that destination.</p>	<p>In this case, the benefit (utility) of going to a specific destination outstrips any marginal increases in cost associated with the travel to that destination. When reviewing successful urban areas with paid parking, the combined effects of the quality of the offer and the proximity of the destination dominate where people choose to go.</p> <p>Parking and mode of travel have been found to be secondary and subsidiary considerations (see for example Mingardo, 2012; Koppelman 1978, Shobeirinnejad et al, 2013). Free parking, or ample parking, are not necessarily in themselves attractive to shoppers, nor will they alone draw users away from a destination of choice.</p>

Following this approach, parking can only be considered relevant to those that have access to a car and where the choice of that mode offers the greatest time savings. Where transit or other modes are only marginally less desirable (either by providing equivalent journey times or offering other utility benefits such as comfort, enjoyment or the ability to do other things while travelling) then the actual value of parking on the quality of the offer and proximity of the destination is likely to become more marginal. Moreover by providing parking, and generating car traffic and associated congestion, the parking itself may contribute to reducing the amenity of the destination and the speed or safety of alternative modes.

To better highlight this point, consider a 2015 study in Brisbane, Australia (2016 population 1.16 million) that analysed the gap between perceptions of restaurateurs and customers' actual transport choices as well as their differing points of view on the importance of supplied parking (Yen, Burke et al 2015) . The study asked customers and restaurateurs to rank parking supply. Rankings ranged from 1 (always available) to 10 (never available). Of customers who drive to the restaurant precincts, 26 per cent ranked parking availability lower than 5. This suggested that just over one quarter of customers think they will find parking most of the time. By contrast, 85.7 per cent of the restaurateur respondents ranked parking availability higher than 6. This suggested that they believe parking is often not available for their customers.

Figures 4-4 and 4-5 show the difference between the customers' actual travel mode share and the restaurants' perception of mode share. Restaurateurs overestimated by more than double the actual importance of customers who came by car. They neglected the contributions of customers who travelled by public transport (by bus and train).

The restaurateurs' estimates of walking and cycling customers were close to their actual mode shares. Customers who travel by car also brought in less revenue than the restaurateurs think. Based on the sample of 100 restaurants, customers who drove provided less than 20 per cent of revenue for the restaurants they were frequenting. The biggest portion of restaurant income (66 per cent) came from customers who walked (25 per cent) or took public transport (19 per cent for bus, 16 per cent for train and 6 per cent for ferry). 6 per cent for ferry).

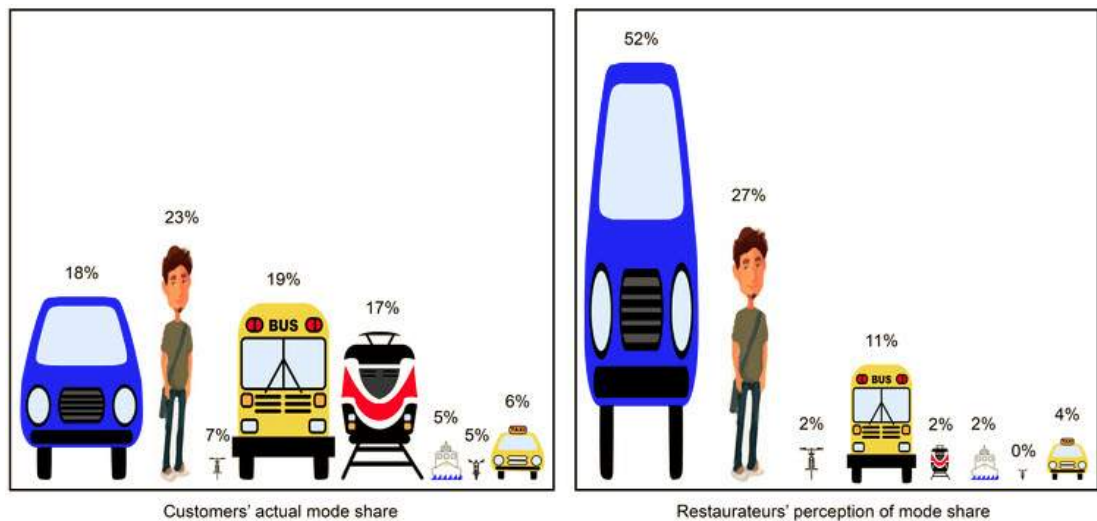


Figure 4 - 4 Customers actual and perceived mode share

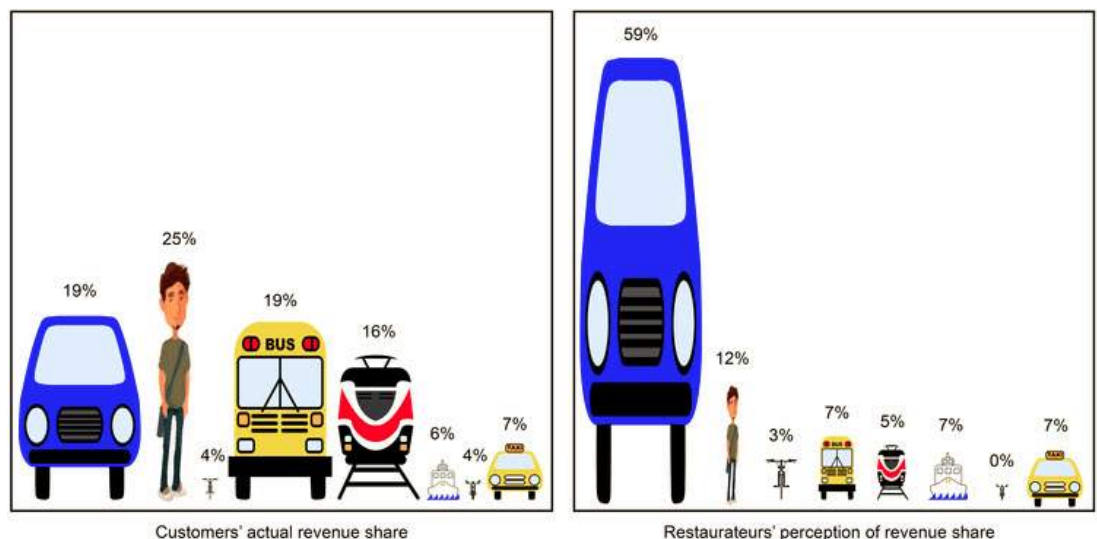


Figure 4 - 5 Customers actual and perceived revenue share

Relevance to Mississauga

The following points summarise the relevance of the value of adopting a considered approach to parking in the Mississauga context and provide points for consideration in the development of the PMPIS:

- The relative advantage of the car and the attractiveness of the destination is a relevant consideration in determining preference for car travel and demand for parking versus other modes
- As more of the visitors or potential customers to the downtown have good alternatives to car, the relative value of using a car for the journey, and by association, the value of parking, diminishes
- As the benefit provided by a destination increases relative to the benefit (utility) that is gained from any other method of fulfilling the need, the willingness to pay to make the trip increases
- When using a car still remains the best option for users, this willingness to pay can translate into higher parking charges without loss in trip-making or visitor numbers
- As new mobility options are introduced, there will be a need to implement appropriate parking management and transportation demand management practices in high use areas, such as downtown. This is likely to require trade-offs (i.e. prioritizing one or more modes over other modes)
- The City should recognize that its transportation and land use policies have a substantial impact on shaping mode choice and access priorities, particularly for accessing important destinations by adopting a principled approach to parking
- At present the City does not currently have a vision for parking. This would help to manage future mobility and access challenges in Mississauga

2.5 Municipal Parking Standards

The following sections include a review of recently adopted progressive parking standards in Canada, the United States and globally.

2.5.1 *Minimums and Maximums*

Regulations related to parking have historically stipulated that a prerequisite for initial site development or expansion is the construction of a certain minimum number of parking spaces. This is commonly referred to as a *minimum parking requirement*, calculated as a minimum number of parking spaces per site under consideration. Parking requirements are typically expressed in terms of a ratio (e.g.: “*1 parking space per dwelling*”) and are defined by a particular proposed site characteristic.

As noted in Section 4.3, conventional post-war planning was largely concerned with minimum parking requirements so as to reduce the potential for spillover of parking into adjacent properties or on to public roadways, but it is widely acknowledged this has encouraged car use as well.

Minimum parking requirements have historically been concerned with providing enough spaces to satisfy the peak demand for free parking. The most vocal critic of these requirements, Prof. Donald Shoup at UCLA in California has demonstrated that these requirements add substantially to development costs, limit development potential and disproportionately impose costs on non-users and the disadvantaged.

There are limited examples of maximum parking requirements in Canadian municipalities. However there are some American examples, including Portland (Oregon). Portland's requirements vary by zone and area of the City, with stricter maximums within ¼ mile of a transit station and 125% of the minimum allowed between ¼ and ½ mile from the transit station.

San Francisco has developed a new ordinance that applies to specific zones within the City that states the number of parking spaces shall be up to a specified number, eliminating the wording of minimums and maximums. For example, hospitals or other inpatient medical facilities has a requirement of up to 8 guest beds (excluding bassinets) or for each 2,400 square feet of gross floor area devoted to sleeping rooms, whichever results in the **lesser** requirements. (San Francisco Planning Code, new ordinance notice – parking and loading). This is a departure from wording in the past that would state whatever is **greater**.

As experience has shown that parking maximums have generally been difficult to implement politically, in recent years, there have been concerted efforts to reduce parking requirements through the collection of more accurate empirical data collection (Willson 2012). As minimums are reduced, developers may elect to provide parking above the minimum where they consider the functionality of the site or the resale of the properties within the site to be compromised if adequate parking is not provided. In effect, as minimums reduce, a market-based parking provision is delivered for sites.

A number of cities have also been successful in abolished parking requirements altogether (Berlin, Hamburg), while others have sought to reduce prevailing requirements in specific districts or neighbourhoods (San Francisco, Frankfurt) mostly through greater consideration of or improvements to non-motorised alternatives, notably transit and active transportation. Application AREA: Corridors/Growth Areas versus City Wide

The previous sections of this chapter have outlined the progressive shift from site-based to area-based approaches. Chapter 1 outlined the applicable provincial policy while Chapter 2 sought to clearly identify City policy and statute as it applies to particular those geographic areas within Mississauga with specific parking policies and provisions. It was clearly identified that there are a combination of provincial based, site based and area based (precinct or corridor based) provisions.

In the short to medium term, in seeking to review all existing provisions at a City-wide level, the City needs be cognisant of the Climate Change Action Plan (2016 – 2020), given that the province has declared its intention to eliminate minimum parking requirements from municipal by-laws for transit corridors and other high-density, highly walkable communities starting as early as 2017/2018 (Section 1.4, Climate Change Action Plan).

The Zoning By-law is a tool to implement the City's land use and development objectives. The Zoning By-law can help to shape development to a desired built form through a combination of controls on land use, massing, etc. Parking standards can be established with a view to promote an urban, compact, mixed-use environment, to support vibrant neighbourhoods, and to facilitate walking and cycling, as well as higher-order transit. This can be accomplished through appropriately reduced parking requirements for developments in areas meant for intensification, including corridors and urban growth areas.

2.5.2 *Comparison to Other Municipal Parking Standards*

Other Downtown Parking Requirements

There are many approaches to addressing downtown parking requirements, as seen in various Canadian municipalities. They are as follows:

- Downtown lands with certain Commercial zoning do not need to provide parking spaces as per the Zoning By-law;
- Revenue sharing agreement is established with Business Improvement Associations (BIA), which provides 10% of all on-street parking revenue collected within BIA areas to the BIA for uses relating to parking/landscaping improvements;
- Variances/reductions for on-site parking requirements are allowed in transit rich in cities such as Toronto and Vaughan
- Parking exemptions for downtown (re)development applications are not governed by specific policies; rather, they are addressed through specific contexts/issues;
- No parking required for commercial uses in the downtown and no visitor parking required for residential uses in the downtown (in Thunder Bay and Barrie for example);
- Heritage By-law allows heritage buildings with reduced parking requirements to carry forward such requirements through grandfathering clauses;
- Parking system for downtown snow removal – City issues snow parking bans through media, which require vehicles to be moved off roads the day following a snowstorm. The City plows its surface parking lots/parkades and allows the public to park vehicles there for free following snowstorms to support the removal of vehicles from streets that need plowing
- Seasonal overnight on-street parking bans to support snow removal;
- Downtown zones and other areas in the core where there is anticipated increased development are not required to provide a specific amount of parking. Rather, market drives provision of parking;
- Zero parking requirement in the Downtown core implemented for decades, however this has led to an over-reliance on municipal off-street parking; and
- In Regina, SK, parking space limits are used for developments in suburban areas in an effort to disincentivize off-street parking in suburban areas. Anything exceeding the maximum number requires a payment of \$7,000 per space
- Recently, municipalities such as Markham, Edmonton and Calgary have begun to adopt parking maximums as an important Transportation Demand Management tool

TOWN OF OAKVILLE

Oakville is keen on promoting and improving its Urban Growth Centres. Oakville's Official Plan outlines various ways in restricting and hiding surface parking and parking in general. For example, it mentions that City Commercial uses located within the Central Business District in Downtown Oakville are exempt from parking requirements.

In terms of the Town's parking rates, within Downtown Oakville, there are no minimum parking requirements for non-residential uses within a Mixed-Use Zone. Lower parking rates are also specified for traditional local communities and urban centres such as Bronte Village, Kerr Village, Palermo Village and Uptown Core.

CITY OF TORONTO

The significant increase in Downtown activity and development over the past three decades in Toronto has not been accompanied by any significant increase in road capacity. Instead, the growth in trips has been successfully handled by improvements to transit services and by an increase in Downtown housing that has put more people within walking and cycling distance of their place of work and other activities. Lower parking requirements in the Downtown, including maximum parking limits for new development, have helped reinforce this pattern of trip growth. The City of Toronto has also repurposed underutilized surface parking to the benefit of Avenue Studies, either by bringing more development or converting it into public space (e.g. parks, seating area, landscaping). The Official Plan has outlined policies aimed to reduce the creation and use of parking.

Examining the specific parking by-laws within the City of Toronto, we see a clear difference between the Urban Centre and the rest of the City. The parking ratios for most land uses are classified by Policy Areas (PA), with the different PA largely corresponding to the urban structures in the Official Plan: PA 1 – Downtown and Central Waterfront; PA 2 – Centers; PA 3 – Avenues on the subway; PA 4: Avenues near frequent bus/streetcar services. The City's parking rates are lower and restricted within its Urban Core and transit corridors compared to the parking rates in the rest of the City.

CITY OF VANCOUVER

Similar to Toronto, the City of Vancouver aims to reduce its reliance on the car and make other modes of transportation accessible to its residents. In the Official Plan, Vancouver has outlined a strategic plan which includes reducing parking requirements for developments located within a close proximity to transit. In the case where parking is needed and/or required, the City highly encourages that the space be utilized or shared by carshare vehicles, carpooling vehicles and low emission/electric vehicles.

The minimum and maximum parking rates for all non-residential uses in Downtown Vancouver are 1 space per 145 m² GFA and 1 space per 115 m² GFA, respectively. As for South East False Creek, the minimum and maximum parking rates are identical to Downtown Vancouver. In addition, it is required that 2% of the spaces are designated as shared vehicle parking spaces. Moreover, the City of Vancouver was capable of lowering and eliminating the parking rates within the downtown core.

How does Mississauga compare?

To assess how the zoning by-law parking standards of the City of Mississauga compare with other municipalities in Canada, a review of other municipalities parking standards was conducted to have a basic understanding of the parking requirement trends related to the primary land uses. The municipalities reviewed include all GTA municipalities (where zoning by-laws are available online), as well as Vancouver, Victoria, and Ottawa. The land use categories reviewed include residential apartment (condominium), office, retail, and industrial uses, in the general and downtown settings. Tables 4-6 to 4-13 compares the minimum parking requirements for each of these categories.

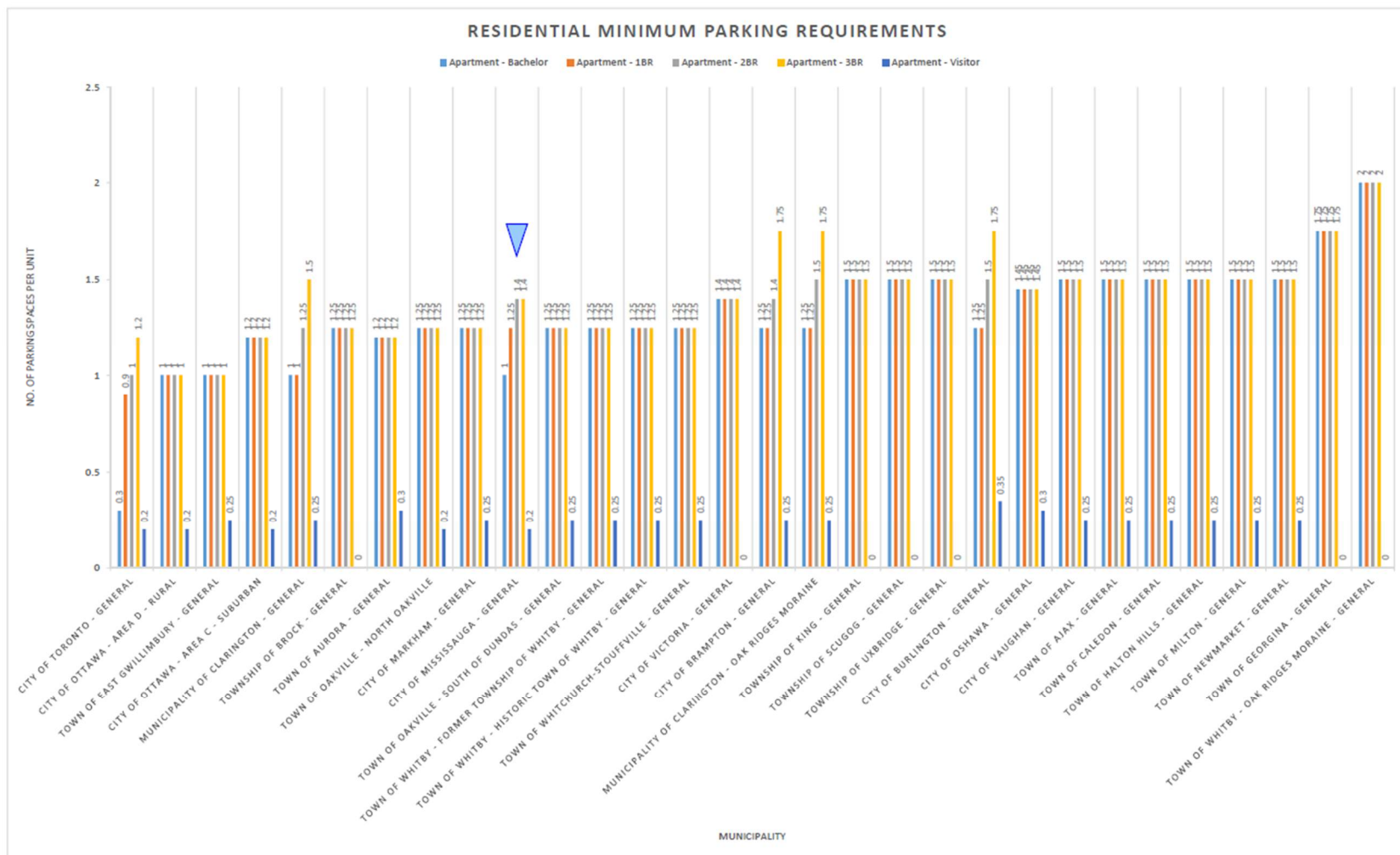


Figure 4 - 6 Residential Minimum Parking Requirements

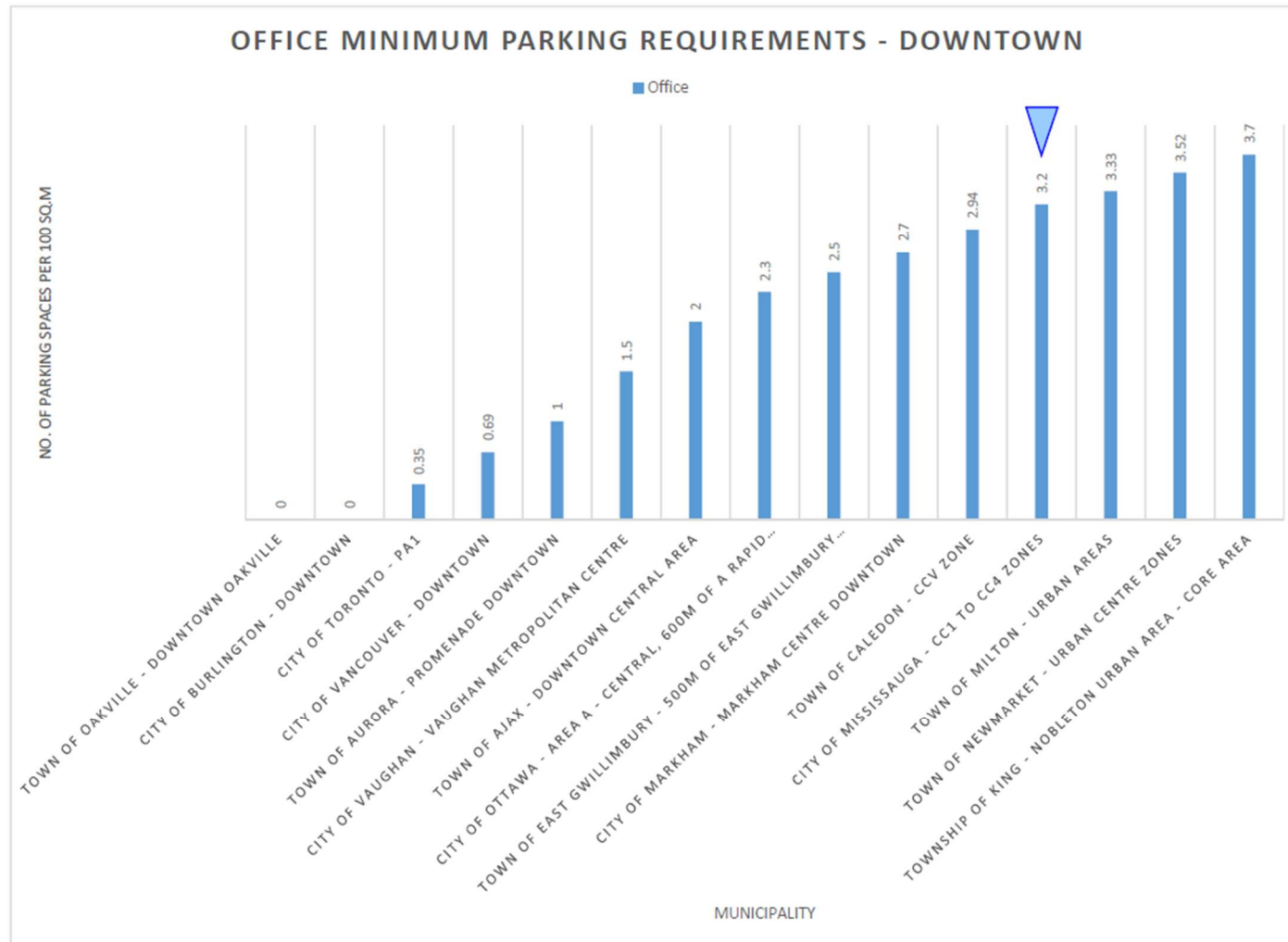


Figure 4 - 7 Office Minimum Parking Requirements - Downtown



Figure 4 - 8 Retail Minimum Parking Requirements

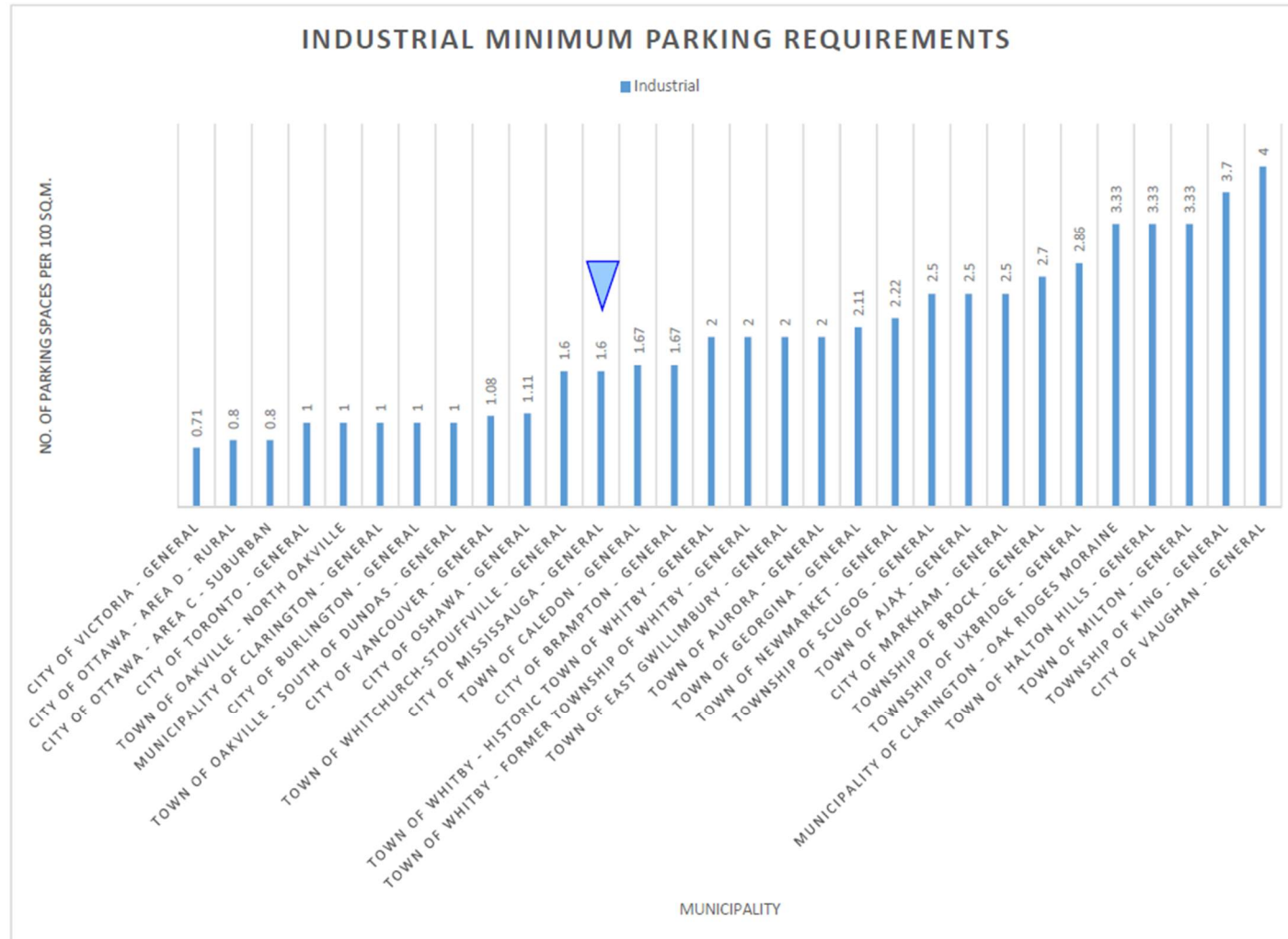


Figure 4 - 9 Industrial Minimum Parking Requirements

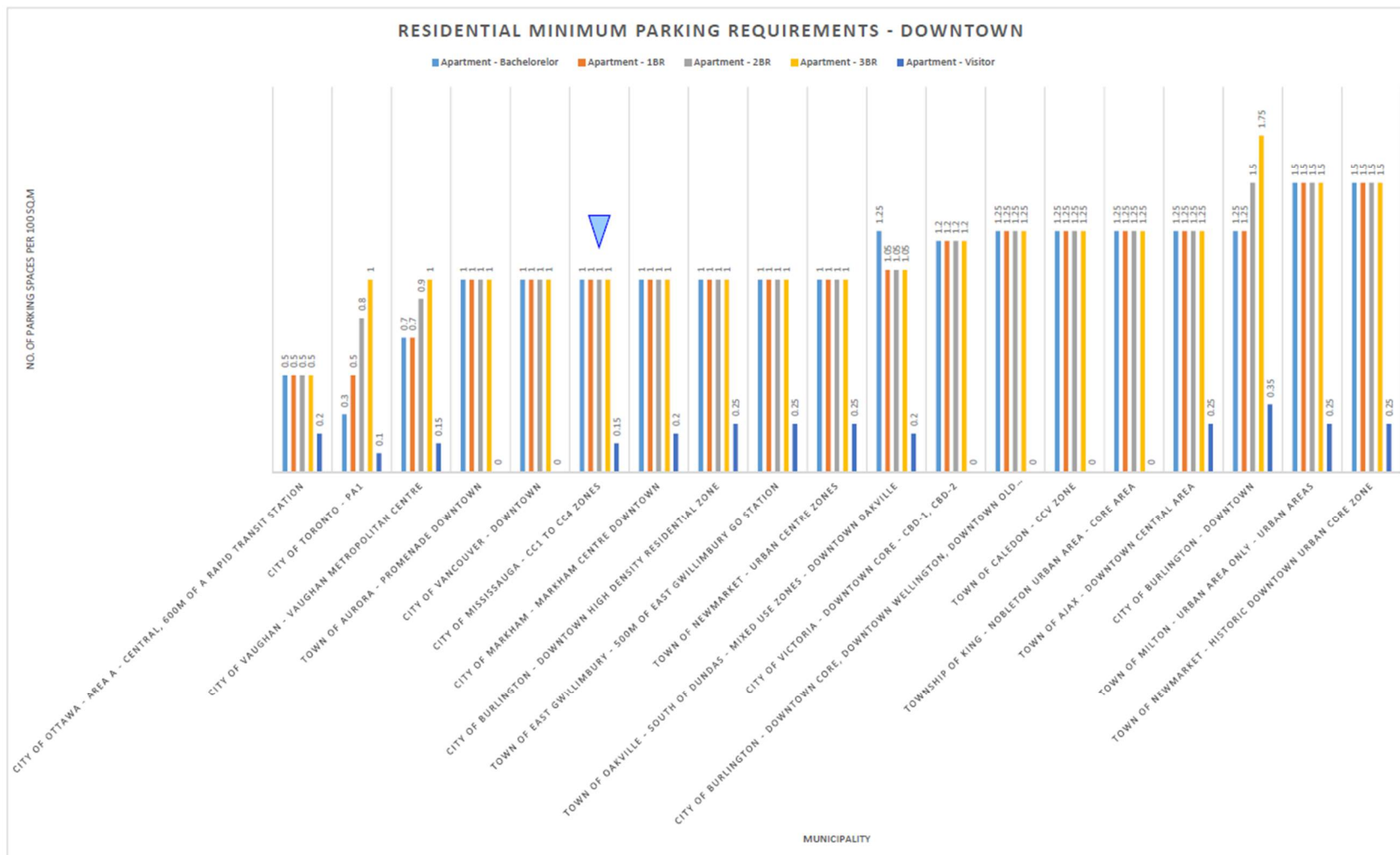


Figure 4 - 10 Residential Minimum Parking Requirements - Downtown

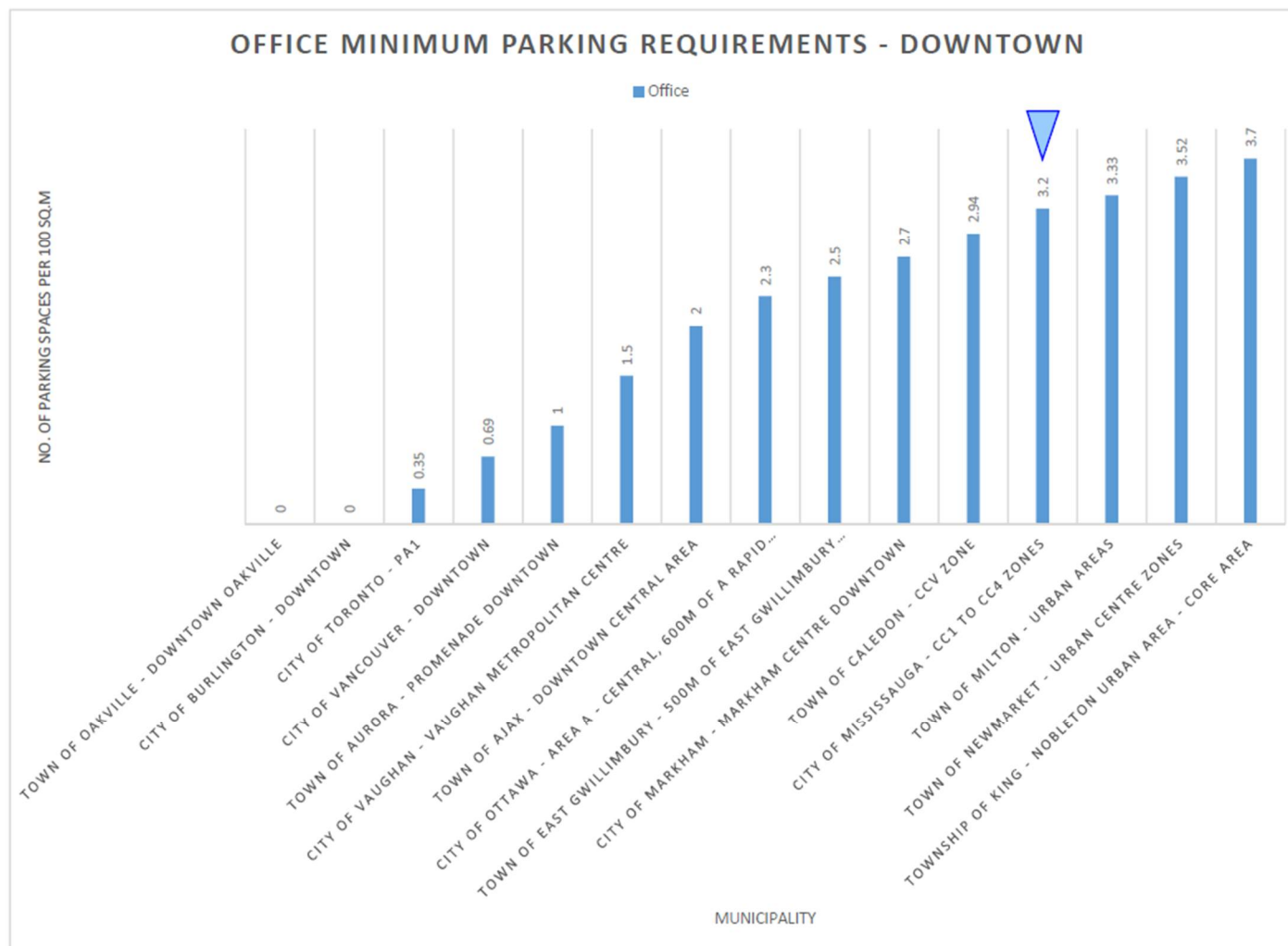


Figure 4 - 11

Office Minimum Parking Requirements - Downtown

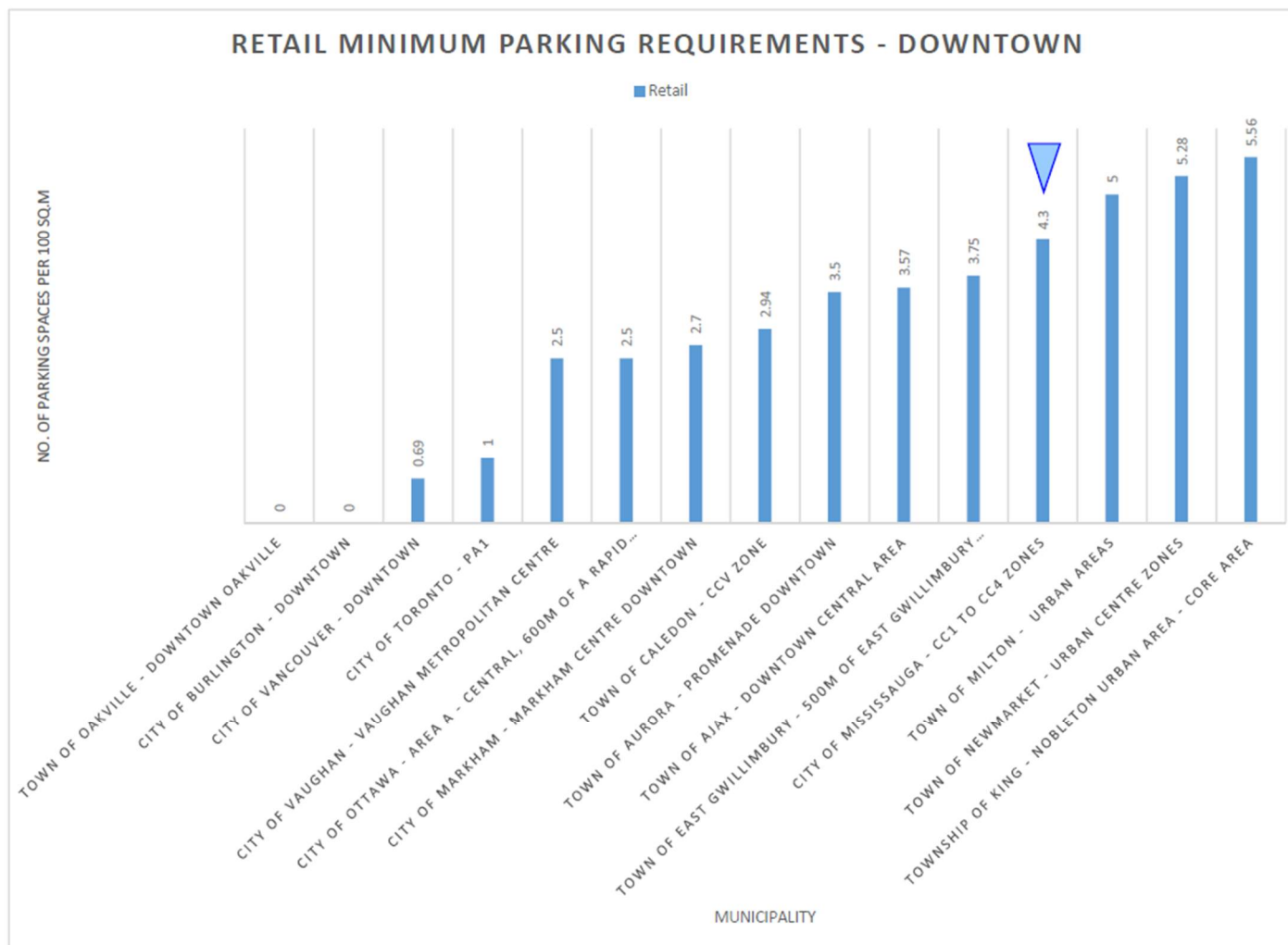


Figure 4 - 12

Retail Minimum Parking Requirements - Downtown

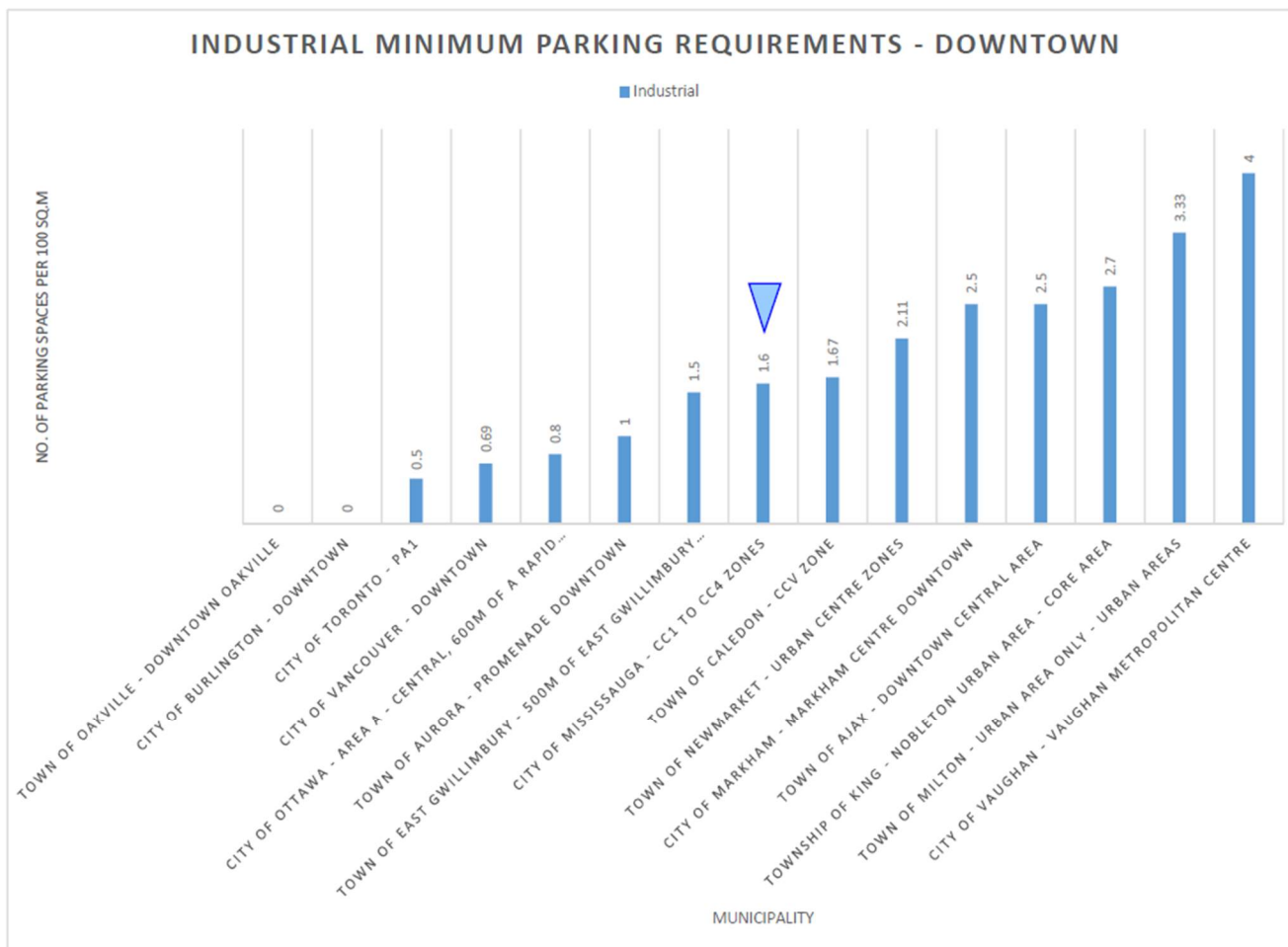


Figure 4 - 13 Industrial Minimum Parking Requirements - Downtown

2.5.3 Bicycle Parking Standards

Bicycle parking standards vary across Canada and in some municipalities they vary according to the location such as whether it is a more urban area. The bicycle parking standards that are shown in the table below provide a cross-section of those that are available as well as ones that apply to entire municipalities or specific areas.

Table 4-4 Bicycle Parking in select Canadian municipalities

Land Use	Oakville (Zoning By-law 2014-014)	Halifax	Vaughan – Metropolitan Centre	Toronto (Zone 1 only)	Vancouver (Parking by-law 6059) Class A (lockers) Class B (racks)
Residential - apartment	1 space /dwelling	0.5 spaces/unit (80% class A; 20% class B)	0.1 per unit or 6 spaces (whatever is greater – short term; .5 per unit with over 10 units – long term		0.75 to 2.25/ unit varies by type of unit Generally – minimum of 6
Retail	Greater of 2 or 1/1000m ² (NFA)	1/300 sq. m. GFA – 20% Class A; 80% Class B	0.15 or 6 (whatever is greater) – short term; 0.1 – long term	Short term: 3 + 0.3 per 100 sq. m. of interior floor space; Long term 0.2 per 100 sq. m. of interior floor space	Min 1/500 m ² GFA Min of 6 spaces (min of 1000m ²)
Business office	Greater of 2 or 1/1000m ² (NFA)	1 / 500 sq. m. GFA – 50% Class A; 50% Class B	0.1 or 6 – whatever is greater – short term; 0.13 long term	Short term 3+0.2 per 100 sq. m. of interior floor space; 0.2 per 100 sq. m. of interior floor space	1/500 m ² GFA Min of 6 spaces (min of 2000m ²)
Medical office	Greater of 2 or 1/1000m ² (NFA)		0.1 or 6 – whatever is greater – short term; 0.1 long term	Short term: 3 +0.15 per 100 sq. m. of interior floor space; Long term: 0.15/ per 100 sq. m. of interior floor space	
Employment uses	2 + 0.25 per 1000m ² (NFA)	1 /1000 sq. m. GFA. 80% Class A; 20% Class B (Min of 2 Class B to a max of 20)			1/1000sq.m or 1/17 employees (whatever is greater) N/A
School, post-secondary	Greater of 3 or 2.0 per 100 m ² (NFA)	1 space for every 250 sq. m. GFA. 20% Class A; 80% Class B		Short term: 3 +0.3 per 100 sq. m. of interior floor space; Long-term: 1/100 sq. m. of interior floor space	0.4 for every 10 students 0.6 for every 10 students

It is noted that the vast majority of medium to large cities in Canada have bicycle parking standards within their zoning by-laws. Mississauga, in contrast, does not currently have bicycle parking requirements.

End of trip facilities, such as showers and locker/change rooms are sometimes included with bicycle parking standards as they can be linked to the number of spaces provided or is based on the gross or net floor area applied to the number of bicycle parking spaces required.

There are two very good and different examples of end of trip facilities that support the provision of bicycle parking. These are Toronto and Vancouver and the rates for facilities are listed below. In some cases the number of showers and change/locker rooms applies separately to male and female facilities.

Table 4-5 City of Vancouver End of Trip Facility (Showers) Requirements

Required Number of Class A Bicycle Spaces	Minimum Number for Each Sex of:		
	Water Closets	Wash Basins	Showers
0-3	0	0	0
4-29	1	1	1
30-64	2	1	2
65-94	3	2	3
130-159	5	3	5
160-194	6	6	6
Over 194	6 plus 1 for each additional 30 bicycle spaces or part thereof	3 plus 1 for each additional 30 bicycle spaces or part thereof	6 plus 1 for each additional 30 bicycle spaces or part thereof

City of Toronto End of Trip Facility (Shower and Change) Requirements

If a building has uses, other than dwelling units, for which a “long-term” bicycle space is required, shower and change facilities must be provided for each gender at the following rate:

- None if less than 5 required “long-term” **bicycle parking spaces**
- 1 for 5 to 60 required “long-term” **bicycle parking spaces**;
- 2 for 61 to 120 required “long-term” **bicycle parking spaces**;
- 3 for 121 to 180 required “long-term” **bicycle parking spaces**; and
- 4 for more than 180 required “long-term” **bicycle parking spaces**

2.5.4 How does Mississauga compare with emerging parking trends

The following table is a scan of parking regulations and practices in the GTHA that determined whether emerging parking trends were or were not being implemented in Mississauga and other GTA municipalities (WSP 2017). The trends were broken down into four categories as detailed in Table 4-6.

LEGEND:

- Municipal policies and/or practices do not align with emerging parking trend
- Municipal policies and/or practices have made progress toward the trend
- Municipal policies and/or practices have responded to and are implementing steps towards the trend

Table 4-6 Emerging Trends in Parking Policy and Practice

[illegible]

2.6 Parking Management Program

The following sections describe some common elements of parking management programs and the principles that underpin these programs.

2.6.1 *Rationing of the Parking Supply*

A primary consideration for effective parking management is the question of how to ration the existing parking supply. There have historically been three general approaches to rationing a given parking supply (Roth 1965):

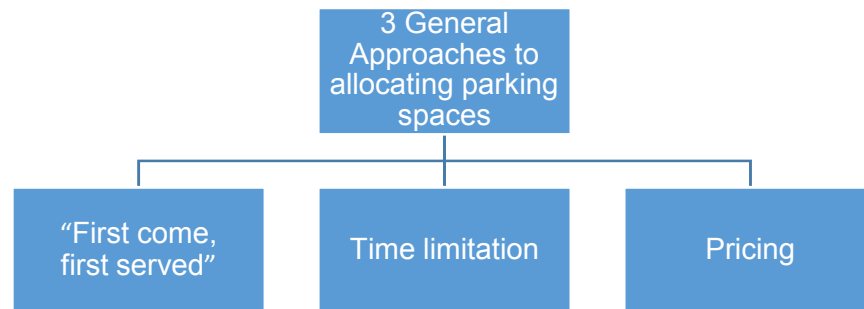


Figure 4 - 14

General approaches to rationing a parking supply

First come first served refers to an approach in which the parking supply is not actively managed. In the absence of any parking management, the parking supply is typically oversubscribed and maintenance is difficult due to lack of funds.

Time limitations is the practice of employing a defined maximum time period to ration parking supply.

Pricing is a market mechanism that rations available supply according to a predetermined price, generally expressed in terms of hours or days.

These methods are particularly relevant for parking facilities that are intended for public use. The methods are frequently combined in parking management; that is, they are mutually inclusive (the use of one method does not necessarily preclude the use of another method). For example, a parking facility may be subject to both a two hour time limit and a price per hour.

2.6.2 *Pricing*

In Section 4.2 we described a key aspect of the value of parking derives from the time saving it provides users by allowing them to use their car to access their destination. That utility can be quickly eroded in situations where the demand for parking exceeds supply.

In a 'first come first serve scenario' where supply is exhausted, users must either park elsewhere (which is further from their destination and so involves a longer distance walking and thus increases journey time) or wait until a parking bay at their destination parking lot is vacated by an existing user. In this scenario, pricing represents an opportunity to ration the parking supply in a more effective manner. Pricing can be 'flat fee' (same price all day irrespective of demand) or 'dynamic' (price fluctuates with demand).

2.6.2.1 Dynamic Pricing Considerations

The objective of dynamic pricing is to achieve a level of service for the user that ensures there is always a parking spot available for their use at their chosen destination. This is achieved by setting and adjusting the tariff of the parking to manage demand at that location so that the parking facility retains one or more parking spots available for users at all times⁹. This is considered a market based approach to parking.

The prevailing approach is to set a desirable occupancy rate for a parking facility at around 85-90%. This level is considered the optimal balance between ensuring that those wishing to visit shops and businesses can find somewhere to park while maximising the remaining use of the facility for those that are already in town doing business. At times and locations that demand is high, the price to park is increased and where there is high availability, the price is reduced.

Relevance to Mississauga

- The proven advantages of dynamic pricing demonstrates that it has a role to improve how existing resources are used in a wide variety of situations. It is driven by a measure of parking availability and thus can support Official Plan and Strategic Plan themes as outlined in Section 2.3, such as sustainability and a global city. A key advantage of dynamic pricing is that it presents a mechanism that is independent from any political or revenue raising process. Once the dynamic pricing method and rules by which the tariff will be set have been agreed, and the level of service for users established, it is user demand that sets the parking tariff.
- Where a municipality faces scrutiny to justify parking charges, dynamic pricing enables the politics and budget deficit concerns to be separated from the prevailing tariff (Shoup 2005). Notwithstanding the challenges associated with a market based model such as this, the benefits offered by dynamic pricing demonstrate that it has potential future application in Mississauga.

Practices of Other Municipalities

SAN FRANCISCO

One of the best known adopters of dynamic pricing has been San Francisco. Here the parking tariff was adjusted once approximately every two months. The adjustment was in response to measuring occupancy for the preceding period. Where occupancy was seen on average to be above 80% for a given location and time period, the hourly parking tariff was adjusted upwards. This would manage down and redistribute demand by location and time of day. If the average occupancy was lower than 60% the tariff was reduced. Where parking had an average occupancy between 60-80%, no change was made.

⁹ Also known as performance pricing

Table 4-7 SF Park Performance Pricing Tariff Change Regime

Average Occupancy in preceding period				
	<30%	<60%	60-80%	>80%
On Street	-50c	-25c	No change	+25c
Off Street	-50c			+50c

For off-street monitoring, gate counters provide a ready method to capture occupancy. For on-street parking occupancy San Francisco used parking in-highway bay sensors to identify and record when bays were in use.

The principles of performance pricing have been adopted in other cities also. Los Angeles, Seattle, Washington DC and more recently Boston have introduced areas of the city applying the principles of performance pricing.



Time Period	Price per hour
Midnight - 9am	3.00
9am - Noon	4.00
Noon - 3pm	4.50
3pm - 6pm	3.50
6pm - Midnight	1.00

Weekend off-peak discounts: 5.00 off total, 3.00 off total, 2.00 off total, 1.00 off total

Flat rates: 20.00

Turn Left

SF Park Rates in off street car parks operate the same tariff periods and are amended every two months based on previous demand

CALGARY, AB

Calgary has also begun dynamic pricing using observed occupancies. Approved by the City Council on 1 July 2013, prices were adjusted across 27 paid parking areas on the 1 January 2014 and again in 2015 (Calgary Parking Authority. 2015). The approach is similar to the other programmes: in Calgary prices go up or down 25 cents in each area where occupancy is above 80% or below 50% respectively. They use four time bands during the week covering the period from 09:00 to 18:00 (09:00-11:00; 11:00-13:30; 13:30-15:30; 15:30-18:00). One time period covers the whole of Saturday (09:00-18:00). There is no charge in the evenings, Sundays or Bank Holidays.

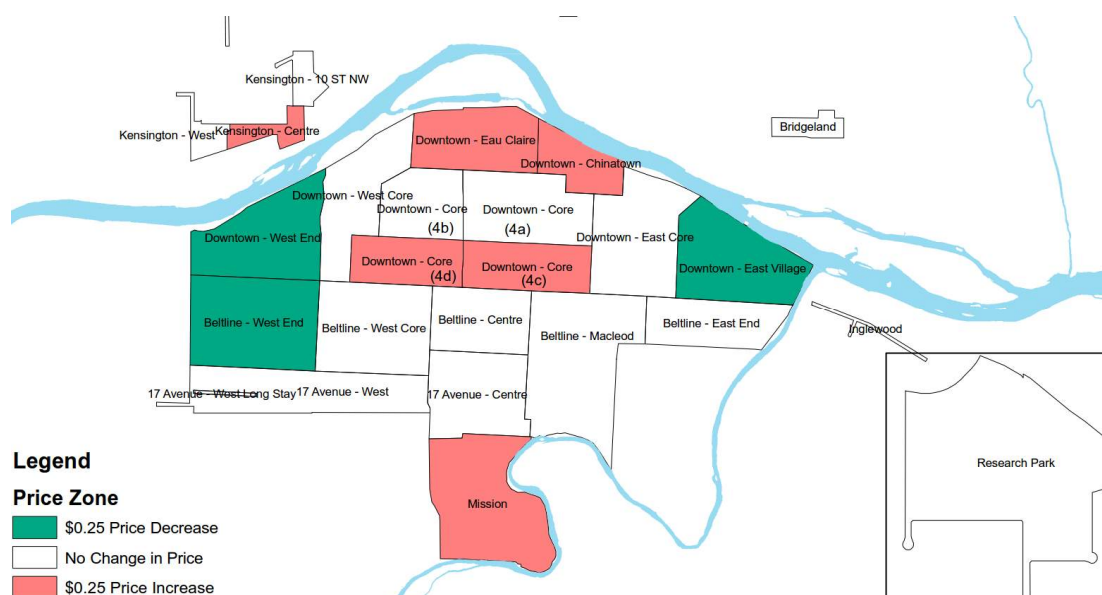


Figure 4 - 15 Calgary Dynamic Pricing Changes for 2015 11am to 1:30pm

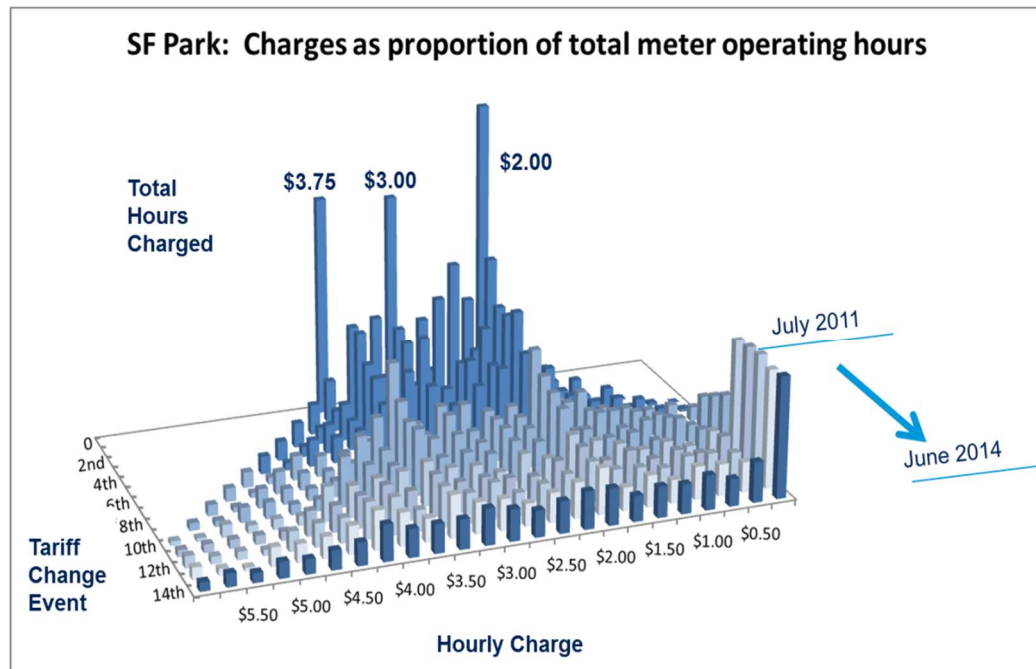
The City Council use data from their ParkPlus system to determine the average occupancy. This data is derived from parking payments that are made at on-street machines or via mobile phone technologies. Payment at on-street machines is pre-determined by the user, and thus may not accurately reflect actual length of stay. However mobile technology users pay only for the period used, texting or using their app to both start and end their period of parking. This makes the mobile payment data a reliable and fairly precise occupancy data source for all compliant parking acts.

Thus it is a very accessible, data rich system. However such an approach may need some adjustment factors to be determined and applied where there is poor compliance (under-reporting of occupancy) or the proportion of pre-paid parking is significant (potential for over-reporting occupancy where parking is paid for but not fully utilised). Furthermore this approach may need considerable amendment and supplementary data collection methods in areas where there was considerable use of legitimate unpaid parking, such as Blue Badge or residential permits. Auckland in New Zealand has adopted the approach as a cornerstone of its parking strategy for instance.

The tariff is set based on a set of rules that ensures the most efficient use and options are available to users. Those on a budget can find places to park where there is low demand and, as a result of the dynamic pricing, lower prices; those who have high access needs, high values of time and a willingness to pay, can find somewhere to park where and when they need to. While dynamic pricing can support travel demand management, it does not restrict supply. Thus those that have good personal cause to park in areas of high demand can continue to do so. Dynamic pricing does not ensure a minimum level of revenue for a local area. If demand is low, all parking areas could tend to the minimum and overall parking revenues could reduce. The San Francisco trial resulted in a significant number of parking hours in residential areas that were previously operating at a standard \$2/hour rate reducing to no more than 25 cents/hour.

In both San Francisco and Los Angeles, the average hourly rate charged in the performance pricing areas has gone down (4% in SFPark, 11% in LA). While other factors led to increased revenue overall, performance pricing itself in San Francisco “appears to have had a modest impact on revenue” (SFMTA 2014). In Los Angeles meter revenue went up by 2½% (Ghent 2015). However it should be noted that whether overall revenue goes up or down is largely a function of the starting point; both San Francisco and Los Angeles were already charging for parking in the areas that performance pricing was introduced.

The SFPark mandate included maximum and minimum tariff safeguards, and such an approach could be adopted to ensure revenues were in the worst case retained at levels sufficient to cover costs. Use of a maximum, while not desirable, may have political appeal and prove necessary to gain initial approval.



SF Park: While some time periods have become \$6 per hour, far more metered hours have reduced to the minimum hourly rate of 25 cents.

Figure 4 - 16 SF Park Historical Hourly Price Rates

Experience suggests that public reaction to dynamic pricing is key to successful implementation. None of the trial areas appear to have faced any substantial resistance. Indeed, with reference to Los Angeles, “the level of awareness of the public, and complaints, is significant in its absence” (Ghent 2015).

2.6.3 Supply management

Supply management refers to identifying, acquiring, and managing parking supply within the City limits. Supply management supports both the efficient utilization and peak management principles of parking management (refer section 4.1). Clearly identifiable and strategic goals for parking supply management lead to priorities for the allocation of the public parking supply, including both on- and off-street parking. When considering possible adjustments to the allocation of the public parking supply, the priorities and related benefits should be considered.

Considerations

Elements for consideration include parking maximums (refer section 4.41) and area wide parking caps; parking management districts throughout the City; efficiency-based standards; and off-site parking where appropriate. On-street parking tends to be the most desirable public parking facility therefore it is helpful to appropriately manage on-street parking for maximum use. Priorities for parking within the City are:

- *On-street parking on commercial streets.* These are the most convenient parking spaces and should be managed for maximum turnover to serve short stops by limiting time typically to less than 2 hours, or applying short-term pricing.
- *Off-street public parking facilities and on-street parking outside the commercial streets.* These are less convenient parking spaces and should be managed for longer stops, including parking by residents, employees, and long-term visitors.

- *Off-street private parking facilities.* These are often the most convenient parking spaces for a particular site, but may also be convenient for other nearby users. They tend to be used to serve other nearby facilities with different parking demand peaks. For example, if a theatre has a peak demand on Saturday night and a church has peak demand on Sunday morning, they can efficiently share parking, if located near to each other (usually within a block or so).

2.6.4 Transit Incentives

Transit incentives refer to increase transit use by creating various incentives to use public transportation for commuting and other trips, including:

- encouraging employers to provide discounted transit passes to employees, shuttles between the workplace and transit stations and free taxi rides home in case of emergency for employees who take transit to work;
- providing incentives to developers during the site plan review process such as reduced development charges or parking requirements for incorporating transit stops into designs and providing transit passes to new residents;
- working with transit agencies to change bus stop locations and route schedules, where needed, to better serve high-employment areas;
- encouraging school boards and schools to undertake school-based TDM approaches which support the use of public transit, active transportation and carpooling by students and staff.

Common factors to be considered when addressing transit incentives and parking with the City, include Transportation Demand Management and its relation to parking reduction for new and existing development, park and ride share programs implemented at transit hubs within the City, and prioritized transit lanes on major arterial roadways that suspend on-street parking during peak AM and PM hours.

Mississauga and York Region

A number of transit incentives are currently in place in respect to the City's transit authority, MiWay. When using a Presto pass, if 12 trips are accumulated within a seven day period, any trips above 12 are free provided they are also used within the same seven day period. Moreover, MiWay provides a discounted travel option when transferring to and from GO Transit within a two hour window and free when transferring to Brampton, Burlington Durham, Hamilton, Oakville and York Region transit. Both the above examples and current fare system, when combined with appropriate TDM measures, demonstrate that there is scope reduce parking requirements provided patrons are not required to pay for additional fares.

Practices of Other Municipalities:

CITY OF VANCOUVER

Provisions within the zoning by-law that allow minimum parking requirements for secured market rental housing to be reduced by 10%, if the following conditions are satisfied:

- The location is within two blocks of a rapid transit station, or within two blocks of the intersection of two distinct bus routes that run north to south and east to west, and within the Metro Core; and
- Each dwelling unit at the property will have one or more zone transit passes for the greater of the life of the building or 60 years.

→ The Ministry also has released supportive guidelines for TDM in conjunction with transit¹⁰.

2.6.5 *Payment in-Lieu of Parking*

The Institute of Transportation Engineers defines payment in-lieu of parking program as follows:

'It may be in the best interests of a city to develop public parking in a densely developed activity center, rather than have each property owner provide parking for each building. With the high cost of parking structures and the competing demands on city resources, a number of cities have asked developers to contribute to the costs of developing municipal parking facilities in lieu of providing the totally required amount of parking for their development site' (Transportation Planning Handbook, 4th Edition, p. 83)

A payment in-lieu scheme requires three elements to operate effectively:

1. A policy that lays out and adopts a consistent approach to payment in-lieu
2. A formalised stipulation on the part of the body administering and collecting the funds nominating what financial contribution is appropriate on a per space basis
3. A decision mechanism on the part of the municipality in each instance where it is contemplated (usually as part of a development application).

Cash-in-Lieu Options

Municipalities in Ontario and elsewhere in Canada adopt a wide range of approaches to cash-in-lieu of parking options. These include the following¹¹:

- **City of Barrie:** Increased its cash-in-lieu fees from \$2,500 to \$15,000 per space to reflect 50% of construction costs of a parking structure space. The fees will be reviewed every five years and the income resulting from the fees is intended to fund the construction of parking structures once parking occupancy rates approach 85% of the parking supply;
- **City of Cambridge:** Cash-in-lieu fees apply to commercial developments in the downtown core areas (Cambridge has three core areas – Galt, Preston, and Hespeler). However, the cash-in-lieu option generally is not applied, as zoning does not require parking in the majority of the core areas. Further, the outer limits of the core area are permitted a 25% reduction in parking requirements. The City uses fixed fees for cash-in-lieu: \$10,000 per space. The cash-in-lieu option is administered by the Planning Services Department and it is not regularly reviewed. The City's Zoning By-law is under review and the cash-in-lieu option will be reviewed at this time;
- **City of Hamilton:** Hamilton has a cash-in-lieu option, but it has not been exercised since 2004, and there have only been 10 applications since 1989. Most developers/builders go through Committee of Adjustment or rezoning applications to ask for variances (likely because costs are less). The City generally quotes approximately \$10,000 per parking space, and charges the applicant half of the quote. Payments can be made in instalments. Cash-in-lieu funds are accumulated in a reserve fund, which can be used anywhere in the City (not just the area where the development has occurred). Cash-in-lieu option is rarely used in the downtown core;
- **City of Ottawa:** The City is currently in the midst of repealing its Cash-in-Lieu of Parking By-law (May 31, 2013 Staff Report to Planning Committee and Council). The report notes that it is more common in Ottawa (and Ontario municipalities in general) for reductions in parking to be achieved through

¹⁰ See <http://www.mto.gov.on.ca/english/transit/supportive-guideline/ridership-strategies.shtml#transportation-demand-management>

¹¹ Not all participating municipalities use cash-in-lieu options

minor variances granted by Committee of Adjustment or Zoning By-law Amendments, than through cash-in lieu of parking options. The goal of the existing cash-in-lieu option is not to increase the number of parking spaces, but rather to support alternative forms of transportation (by making it more challenging to park, the City encourages the use of alternative modes of transportation). Cash-in-lieu applications can be approved by staff. Approvals are based on (1) the application's appropriateness/surrounding context (can surrounding area support the on-site parking deficiency); (2) do site constraints legitimately limit the ability to provide parking; (3) the use of the property is not considered over the development of the site; (4) no negative impact on liveability of adjacent residential areas; and (5) application is in line with other planning objectives. Fees have not changed since 1986 and are detailed in the calculations table below. Parking studies are required if an application requests a reduction of more than 10 spaces. Cash-in-lieu applications are very rare in the downtown area; and

- **City of Regina:** Cash-in-lieu provisions are included in the Zoning By-law (Chapter 14; Section 3.15), which permit Council to, at its own discretion, waive all or part of the parking requirements in the (1) Downtown Zone in exchange for payment-in-lieu calculated on the basis of \$7,000 per waived space; and (2) the Dewdney Avenue Warehouse Zone in exchange for a payment-in-lieu calculated on the basis of \$2,500 per waived space. The City is reconsidering its program and may base it around provisions for 'office zones' in suburban areas and the fees for wishing to add additional spaces (a fixed fee of \$7,000 per added space). The intent of this is to promote greater density within suburban development and it recognizes developers will also be expected to contribute to downtown amenities (funds would be directed to improvements within the Downtown Core area). The cash-in-lieu provisions have been incorporated into considerations of implementing Office Zones.

Table 4-8 provides an overview of the general intent of the above five municipalities' cash-in-lieu of parking calculations, as well other municipalities that use cash-in-lieu options. The table does not delve into calculation formulae, but our team has considered municipalities' cash-in-lieu fee formulae and will continue to do so as this Study moves forward.

Table 4-8 Overview of current Canadian approaches to cash-in-lieu

How does Mississauga compare?		
At present, the City of Mississauga allows four policy options to cash-in-lieu or parking options:		
<ol style="list-style-type: none"> 1. If the GFA equals or is less than 50m² the total amount is 12.5% of the estimated cost for parking 2. If the GFA equals or exceed 50m² and is equal to or is less than 200m² the total amount is 25% of the estimated cost for parking 3. If the GFA equals or exceed 200m² the total amount is 50% of the estimated cost for parking 4. For new development, redevelopment or additions to existing structures, 50% of the estimate cost for parking must be adopted. 		
Municipality	Policy Approach	Source
Ontario Municipalities		

Municipality	Policy Approach		Source
1. Mississauga, ON	Change in Land Use or conversion	Cash-in-lieu	City of Mississauga, Development Approval Cost Guideline, 2012
	GFA equals or is less than 50m ²	Formula – 12.5% of estimated cost of parking spaces	
	GFA equals or exceeds 50m ² but equals or exceeds 200m ²	Formula – 25% of estimated cost of parking spaces	
	GFA equals or exceeds 200m ²	Formula – 50% of estimated cost of parking spaces	
	New Development, redevelopment & additions to existing structures	Formula – 50% of estimated cost of parking spaces	
2. Brampton, ON	Formula based – 50% of estimated cost to provide parking spaces		City of Brampton, Downtown Parking Strategy, 2009
3. Richmond Hill, ON	Formula based – 50% of cost of land and construction cost. Construction cost varies with grade level type of parking structure		City of Richmond Hill, Richmond Hill Parking Strategy, 2010
4. Barrie, ON	Recently increased to \$15,000 per space to reflect 50% of construction cost of a parking structure space		City of Barrie, Parking Services & Rate Review Report, February, 2012; Questionnaire
5. Hamilton, ON	No fixed value. Calculation is based on combination of fair market land value and cost of construction a parking space. In general, parking spaces are quoted at approximately \$10, 000 per space, and the City charges the applicant half of that quote.		Questionnaire
6. Ottawa, ON	Fees are based on 1986 costs of providing a space after an amortization period of 35 years.		Questionnaire
	Short-term space outside former City of Ottawa	\$2,600	
	Long-term space outside Central Area	\$4,700	
	Long-term space inside Central Area	\$9,700	
	Application fee	\$2,500	
7. Milton, ON	Flat rate - \$7,728 per space increases 3% annual		Town of Milton, Development Agreement Fees, 2013
8. Cambridge, ON	Flat rate	\$10,000 per space	Questionnaire Response
Out of Province Municipalities			
9. Canmore, AB	Flat rate - \$40,000 per ranking space. Based on 80% of \$50,000 construction cost estimated by Town.		Town of Canmore, Cash-

Municipality	Policy Approach	Source
		in-lieu Policy, 2008
10. Regina, SK	<p>Downtown Zone: payment-in-lieu is calculated on the basis of \$7,000 per waived space.</p> <p>Dewdney Avenue Warehouse Zone” payment-in-lieu is calculated on the basis of \$2,500 per waived space.</p> <p>The City is reconsidering its program and may base it around provisions for ‘office zones’ in suburban area and the fees for adding additional spaces (a fixed fee of \$7,000 per added space).</p>	Questionnaire
11. Vernon, BC	Flat rate - \$10,000 per space in-lieu of up to 50% of the required parking supply.	City of Vernon, Parking Implementation Strategy, 2012

2.7 On-Street Parking Policies

2.7.1 Application

In areas where the roadway is sufficiently wide to accommodate both traffic flow and parking, it is often cost-effective to utilize on-street parking. Additionally, on-street parking uses less land per space than off-street, since it does not require access lanes. By comparison, as noted in section 4.4.1, an off-street space typically requires 25% more land to serve a single destination, compared to the land required for an on-street space. On-street parking also creates a buffer between street traffic and pedestrians, and assists with traffic calming by reducing vehicle travel speeds. It is widely acknowledged that streets with on-street parking tend to have lower travel speeds and that on-street parking is generally an effective traffic calming tool in helping to create places that are safer, more walkable, require less parking, and have more vitality.

There are a number of competing uses for the limited supply of on-street parking available within the Study Area, including high turn-over parking, accessible parking, construction and temporary use rental parking, on-street loading, and short-term licensed parking. These potential uses for on-street parking need to be prioritized, and the conditions for permitting each use should be defined to support the implementation of on-street parking related policies. Consistent with **efficient utilization** and **prioritization** parking management principles, the following are recommended priorities for the use of on-street parking in the Study Area:

- **High-demand, short-duration, high-turnover parking** is considered vital to the economic well-being of businesses in the Study Area. On-street parking provides highly visible parking opportunities in close proximity to destinations. This type of parking is highly desirable for businesses as it can attract potential customers by allowing them to make convenience stops. Generally, the available on-street parking supply in the Study Area should be prioritized for short-duration, high-turnover parking in high-demand commercial areas.
- **Accessible parking** should to be provided in accordance with the City’s minimum requirements for barrier-free parking. Since this type of parking is for the use of persons with limited mobility, accessible parking should be placed in highly accessible and convenient locations that are in very close proximity to desirable locations. On-street accessible parking should be located in high-

demand locations, and cater to short-duration and high-turnover demands (i.e. not reserved). This is likely second in priority to the provision of regular high-turnover parking on-street.

- **Construction and temporary use rental parking** is often necessary when a site cannot accommodate sufficient parking. Construction and temporary use rental parking should have priority in locations immediately adjacent to a construction site to provide convenient access to equipment and material storage. In addition to the convenience benefits, the use of on-street spaces adjacent to construction activity would mitigate potential safety hazards for those who would park at the location under normal circumstances. Contractors should encourage workers to use nearby off-street parking or transit, where possible. Permits for construction and temporary use rental parking should be issued on the basis of an approved Construction Traffic Management Plan. Recognizing the value of on-street parking, the permits should be priced so that the provision of construction and temporary use rental parking is at minimum revenue neutral.
- **Loading** is necessary for the economic vitality of the Study Area and needs to be accommodated close to businesses for practical reasons. There are very few opportunities for off-street loading in many instances within the Study Area due to site constraints and other factors. If loading is not specifically accommodated, loading activities are likely to occur on the travelled portion of the roadway, impacting traffic flow, or on the boulevard, impacting the pedestrian environment and experience. A viable alternative to off-street loading is to continue to provide on-street loading. On-street loading is an efficient way to accommodate loading activities, since loading spaces are not provided and reserved for each business, but rather used on a shared basis. On-street loading spaces also double as pick-up and drop-off facilities when not being used for loading.
- **Short-term licensed parking (including sidewalk extensions)** is desirable for attracting visitors, tourists, and economic activity to the Study Area, and is expected to generate significant economic benefit for businesses. Short-term licensed parking (including sidewalk extensions) should be prioritized in areas where alternative off-street parking opportunities may exist that can compensate, at least in part, for the loss of on-street parking. Recognizing the priority of high-turnover on-street parking in high-demand areas, short-term licensed parking may not be desirable in the busiest locations where parking demands are very high. The rates for the short-term licensing of parking including sidewalk extensions should be annually reviewed. Recognizing the value of on-street parking, the short-term licensing of parking should be at minimum revenue neutral.

2.7.2 Traffic By-Law

The City of Mississauga Traffic By-Law 555-00 governs the rules of on-street parking in all respects: including parking restrictions and enforcement, heavy vehicle parking, meter parking, sidewalk and boulevard parking.

The time limit of parking on city streets is currently set to 3 hours, unless otherwise stated. The City of Mississauga, can, however, put away signs prohibiting parking and stopping, and temporarily waive the 3 hours limit during parking maintenance activities or through special considerations. (See Traffic by-law 555-00 s. 4 (6)). Accessible parking for disabled persons occurs via special designated on-street parking space where no other persons are authorized to park unless they possessed a valid Disabled Persons Parking Permit issued by the Ministry of Transportation displayed in or on the vehicle. The maximum parking time limit in this case is 24 hours. This permit also waives the fees for on-street meter parking during regular hours (see s.51 (1-3)).

Heavy vehicles are not allowed to park on any street of a residential neighbourhood for the sake of safety, protection of road pavement, aesthetics, and the flow of traffic. Any vehicle other than a school bus having a weight of more than 3000 kg is defined as a heavy vehicle (see s.1).

Anyone who parks at metered parking must pay a fee during its hours of operation for a specified period and rate, and must not park longer than the maximum allowed time. Further, the vehicle must be parked

completely in the space designated, and in the case where the vehicle length required two spaces, the person shall pay the fee for both parking meters (see s.21 (1-5)). No other than Canadian and U.S coins are accepted.

The by-law prohibits anyone to park a vehicle on a paved or grassed boulevard, the portion of land between the sidewalk and the road. Requests to permit parking on the lower driveway boulevard can be obtained through the City's Resident Parking Petition Package. If there are no sidewalks, the boulevard is the piece of land between the property line and the road. Vehicles are not allowed to park on sidewalks, or stationed in a way so as to obstruct pedestrian flow.

In order to protect traffic and pedestrian flows, and ensure a safe sightline, the by-law further forbids anyone to park where parking is prohibited unless authorized.

A person may park in a permit parking for a fixed period of time if the vehicle is parked entirely within the designated parking space with the permit issued by the City of Mississauga clearly displayed either on the visor or on the dashboard (see s.9).

Practices of Other Municipalities:

The City of Barrie Traffic by-law 80-138 defines heavy vehicles with a different term: "Large Motor Vehicle", and with a more lenient gross weight threshold of 4500 kg. It also noted that no heavy vehicles should park on any streets in a residential neighbourhood, but reserved an exception where it is used for delivery or for providing services (see s. 4(14)). In the City of Kitchener, the threshold is 4600 kg. The City of London's threshold is even higher at 5000 kg. The City of Barrie Traffic by-law also sets forth the method of on-street parking in a more specific term: vehicles must be parked on the right side, in the direction of vehicle flow, no more than 0.15m away from the curb measuring from the right front and rear wheels. Section 4(13) forbids anyone to park on-street so as to hinder traffic flow, or for longer than the time period prescribed. Mississauga and Kitchener require the driver to pay the fee for both parking meters the case where the vehicle length required two spaces, but did not mention a maximum limit. Barrie went further and stated that vehicles that are greater than 6.5 meters are not entitled to on-street meter parking (see s.5 (6)).

The City of London Traffic By-law PS-111 also allows vehicles to occupy more than one parking space (s. 39(2)), but forbids anyone to park more than one vehicle in a parking space. This includes miniature vehicles. However, exceptions are given to motorcycles with the maximum number limited to 3 (s.40 (3)). Mississauga, Kitchener, and Barrie do not have such a consideration.

Discussion:

Although many municipalities are more lax on heavy vehicle parking regulations, the City of Mississauga is based around a larger population centre which necessitates greater level of safety considerations for its residents. However, it may set it higher in less crowded neighbourhoods to facilitate service provision, where the risk of a conflict with a heavy vehicle is lower. It appears that the City of Barrie set out more specific and stricter restrictions on the method of on-street parking such as the minimum parking distance from the curb, and the maximum vehicle length. While the City of Mississauga does not have to restrict the minutia such as the "distance from the curb", it would need to require drivers to exercise due diligence or reasonable discretion depending on the context, e.g. the width of the street, the flow of traffic, and etc; so as to not impede vehicular or pedestrian flow. Otherwise, it is considered that strict and specific restrictions work best in local settings.

A common cause of by-law infractions is that many people are unaware of the regulations. It is not reasonable to assume that everyone knows that parking on city streets is limited to 3 hours. People who came to Mississauga from elsewhere may have been subjected to different regulations, as in the case of Kitchener, where downtown on-street parking are limited to 2 hours, not 3. It is therefore a better practice to have more informative signs near on-street parking spaces detailing the hour and day limits than having these signs only placed near major entrances to the city.

By-law infractions could also be willful and deliberate for reasons such as personal convenience. Hard methods such as towing and heavy fines can generate considerable revenues, but may not be expedient because it would induce an aversion or contempt of authority. The City of Barrie allows a grace period of 15 minutes after the parking meter time expired, during which the driver will receive no penalties (s.5 (22)). The purpose of this is to motivate people to willingly comply so that the City does not have to expend too much time on monitoring activities. The unending war on drivers was said to be causing “huge” damages to local businesses, which could offset the revenues generated through fines (Osborne, 2015). The City should also consider revising its existing by-laws to ensure that they are fair and reasonable and do not gratuitously impose restrictions on drivers.



Relevance for Mississauga

In a review of select Canadian cities as shown in Table 4-6 **Error! Reference source not found.**, parking is regulated in a separate parking by-law, a separate traffic by-law or a combined traffic and parking by-law. Edmonton, Regina, Vancouver and Victoria are similar to Mississauga in that parking is regulated through a traffic bylaw.

A concern may be that parking issues may not be efficiently addressed if parking is not regulated through a separate parking by-law administered by those directly responsible in the municipality for parking operations and planning. Over half of the select cities shown (11), many with larger parking operations and traffic volumes than Mississauga have parking regulated within a traffic by-law or a combined traffic and parking bylaw. Of the select 20 cities, 9 cities regulate parking through a separate parking by-law. With many aspects of parking requiring the coordination of other departments, divisions or sections or even external organizations (i.e. Region of Peel transportation), a best practice is to establish good internal coordination and communication processes between traffic and parking functions.

This issue may be explored in greater depth among peer municipalities as part of sessions at the Ontario Traffic Council (OTC) of which Mississauga is an active member.

Table 4-9 Comparison of By-law Types in Regulating Parking - Select Canadian Cities

Feb. 2017 Best Practices Review – Select Canadian Cities – Comparison of By-law Types in regulation Parking					
Ref. #	Canadian City	Traffic By-law	Traffic & Parking By-law	Parking By-law	By-law Number
1	Mississauga	✓			555-00
2	Brampton		✓		93-93
3	Burlington			✓	39-2016
4	Calgary			✓	41M2002
5	Edmonton	✓			5590
6	Hamilton			✓	01-218
7	Kingston			✓	2010-128
8	Kitchener		✓		2007-138
9	London		✓		PS-111
10	Montreal		✓		98-049
11	Newmarket			✓	1993-62
12	Ottawa		✓		2003-530
13	Regina	✓			9900
14	Thunder Bay			✓	CHAPTERS 983 & 989
15	Toronto		✓		CHAPTER 950
16	Vancouver	✓			2849
17	Vaughan			✓	1-96
18	Victoria	✓			09-079
19	Windsor			✓	9023
20	Winnipeg			✓	86-2016
	TOTAL	5	6	9	
		25%	30%	45%	

2.7.3 Holiday Exceptions

In Mississauga, parking restrictions and fees are waived on certain statutory holidays each year. This is designed to accommodate shopping, and public events and assemblies at the request of Council.

On holidays, vehicles may be parked on streets beyond the three hours limit between the period 8 a.m. to 12 p.m. There are 11 recognized statutory holidays:

1. New Year's Day,
2. Family Day,
3. Good Friday,
4. Easter Sunday,
5. Victoria Day,
6. Canada Day,
7. Civic Holiday,
8. Labour Day,
9. Thanksgiving Day,
10. Christmas Day,
11. Boxing Day

Practices of Other Municipalities

This practice appears to be relatively consistent across Ontario municipalities. In the City of Kitchener, drivers are not required to pay a fee for on-street metered parking on holidays (City of Kitchener by-law # 2007-138, s. 6.1 (a)). In addition, it allows vehicles to park beyond the three-hour limit from April 1 to November 30 between the periods of 6 a.m. to 11 p.m. The City of Barrie not only waived the fees for

metered parking on holidays but all other restrictions including time limits (City of Barrie by-law 80-138, s. 5(18)) The City of London likewise put off all restrictions for on-street meter parking during Sunday and holidays (City of London by-law PS-111, s. 51).

Relevance to Mississauga

Although there are exceptions to time limits, it does not appear that the City has not implemented free metered parking on holidays as have many less populated municipalities. However, it is still possible to ensure free parking without compromising equal opportunity for all by setting a time limit so that each person would not use up the entire time between 8 a.m and 12 p.m. In considering how to ration the parking supply as outlined in 4.6.1, the City may wish to consider retaining and not waiving parking rules or fees even during holidays to maintain social order and fairer access to parking.

Holiday activities often occur in downtown areas; however, in such areas where cars are not the most suitable mode of transportation because of the convergence of heavy pedestrian, public transit, and private vehicle flows on limited street spaces, it is worthwhile considering reallocating parking spaces for bike lanes and other active transportation options. This also reduces stresses and delays on transit movements, and increase their efficiency. Reclaiming parking spaces would also help to reduce the number of vehicles on the road, especially when private vehicle demands continue to grow and cause congestion. Increasing the number of flexible spaces available for deliveries and servicing is another idea worthy of consideration.

2.7.4 Metered Parking

On-street metered parking refers to on-street paid or metered parking. It supports the **consumer choice**, **efficient utilization**, **flexibility**, **pricing**, **peak management** and **prioritization** parking management principles. The City recently approved a \$2.00 per hour rate in the City Centre with a two hour time limit during regular business hours from 8:00 AM to 9:00 PM Monday to Friday and 10:00 AM to 6:00 PM Saturday and Sunday. An overnight on-street parking rate of \$5.00 was recently introduced.

Considerations

Relevant considerations include the duration of time and pricing, the appropriate technology used to collect the parking fees and enforce the specific time limit, and enforcement tools used ensure patrons are following the specific bylaws. In some cases, on-street parking that is not conveniently located in a business area can be used for employee permit parking at a monthly rate that might be less than the standard rate charged in off-street lots.

Practices of Other Municipalities:

Municipalities' approaches to on-street metered parking options include the following:

- **City of Toronto:** the Board of Directors of the Toronto Parking Authority (TPA) sets the rates for city-wide off-street parking. The TPA recommends appropriate rates for on-street metered parking spaces with final approval subject to the approval of Local Councillors and Council as a whole. Throughout the City, metered spaces are either \$1.50, \$2.25, \$3.00 or \$4.00 per hour depending on the area with rate being clearly posted on the machine or meter.

- **City of Vancouver:** All parking meters within the city limited are in effect from 9:00AM to 10:00 PM every day including holidays. Meters typically outline various fares based on time limit, time of day, and location. The Rogers Arena and British Columbia Place operate solar-powered parking stations oppose to coin metering.
- **Town of Oakville:** Various types of metered parking provisions exist within the city limits and range from on-street parking meters and pay and display machines.

Discussion

Within the City of Mississauga, Traffic By-Law 555-00 states that the basic premise for paid parking is based on a requirement that makes it an offence to park without paying a fee:

"notwithstanding any other provisions of this by-law, where parking meters are authorized, no person shall park a vehicle in a parking space governed by a parking meter without paying a fee, by depositing in the parking meter the amount prescribed."

Policies and guidelines specific to parking should encourage the use and implementation of on-street and metered parking. On-street metered parking provisions currently exist within the City of Mississauga. Revisiting and readdressing provisions towards on-street metered parking in terms of pricing, technology and time are necessary. No vehicle may park at a meter without having paid a fee during the hours of operation noted on the meter.

Ostensibly, the purpose of Section 21(2) is to prevent motorists from abusing parking privileges and to ensure that parking spaces are available for use by all patrons. Moreover, during the hours and on the days of the week specified on the meter, a vehicle parked in a metered space when the time indicator shows that the time has expired may be served with a parking infraction notice. Note that under Section 51(3) of By-law 555-00, a vehicle displaying a valid disabled person's permit may park in a metered space free of charge.

2.7.5 On-Street Parking time limits

On-street parking limits are a way of rationing the supply of on street parking to manage overall demand. They appear in a variety of contexts and are often combined with paid parking. They are closely related to *spillover problems*, which are defined as the '*undesirable use of offsite parking facilities*', typically 'spilling over' onto the street (Litman 2012). One of the most common examples cited is when business customers and employees park on the streets to the detriment of other residents or businesses.

Consequently, the rationing of on street parking utilising parking time limits varies considerably between residential neighbourhood and commercial areas. Major activity centres, transit interchanges or institutions (hospitals in particular) are some of the most problematic examples.

Another common consideration in Canada for time limits are the use of winter parking restrictions pertaining to on-street overnight parking. This refers to the restriction of parking in residential areas to allow for winter snow clearance. During summer months, overnight on-street parking is not encouraged but varies widely

Mississauga

There are four types of on-street parking permits issued by the City of Mississauga: Short-term temporary residential, long-term residential, blanket commercial, and blanket residential. The purpose of an on-street parking permit is to allow a vehicle to be parked longer than the set limit of 3 hours.

All on-street parking permits are approved by the City if no prohibited parking signs are present in the area parked. If signs are present, the site has to be inspected by Parking Enforcement and Traffic Operations before approval can be granted.

Short-term temporary residential parking permit is valid for parking of up to five vehicles for a period of up to 5 days from the date it was issued, whereas the long-term permit is valid for more than 5 days but requires longer time to approve, typically 1 to 3 days. While there are no charges for short-term permits, long-term permits cost about \$62.00 plus tax. Each residential address can apply for no more than 14 short-term temporary residential parking permit a year.

Blanket permits are long-term permits without limits on the number of vehicles parked. Blanket residential permit is similar to long-term residential parking permit, except that it has no vehicle limits and takes longer to approve, typically within 2 weeks. Blanket commercial parking permit has neither limits on the number of vehicles nor the number of days parked, and can be applied by paying twice the amount of a blanket residential permit or \$124.00 plus taxes.

Vehicles whose weight equals to or greater than 3000kg are not eligible for on-street parking permits, nor any vehicles having no license plates with currently valid stickers, nor any vehicles for sale, nor any non-functional vehicles. Also, permits cannot be obtained for individual trailers, school buses and commercial coaches.

A person may park in a permit parking for a fixed period if the vehicle is parked entirely within the designated parking space with the permit issued by the City of Mississauga clearly displayed either on the visor or on the dashboard.

Practices of Other Municipalities

Other municipalities' approaches to on-street parking options include the following:

- City of Toronto: Within the city temporary parking permits are available for residents and their visitors. In designated areas throughout the City, residents can purchase overnight passes for \$10.62 per month for a first vehicle, \$26.56 per month for a second vehicle and \$37.19 per month for a resident who has no access to on-site parking. HST is extra in each case.
- City of Ottawa: In predominantly residential areas, overnight on-street parking may be permitted on a cost-recovery basis. This policy is similar to the \$50 monthly rate (excluding taxes) charged in Ottawa. Such a rate may deter the number of people who wish to use the street, and may encourage residents to use their garages, alternative parking provisions, or reconsider the need for car ownership.
- The City of London issues free non-commercial overnight parking passes during the weekend between Labour Day and Victoria Day, which allow vehicles to be parked on unposted streets for more than the 12 hours maximum limit. Each vehicle license plate may apply for no more than 15 passes during the same period. As with Mississauga, the City of London does not allow any vehicles having no license plates with currently valid stickers, nor individual trailers, nor any non-functional vehicles.
- The City of Barrie sells Downtown and Waterfront parking permits for residents. There are three types of Downtown passes: Yellow, Green, and Blue, each valid for specified streets and areas for parking. Yellow Pass costs \$60.00 a month, 576.00 a year plus taxes. Green and Blue passes are \$75 and \$85 a month respectively; annual passes are not available. Regarding Waterfront passes, those who wish to park along Lakeshore Drive between Simcoe St and Minet's Point Rd must purchase a Resident Parking Pass from the City.
- The City of Kitchener has 390 on-street parking for two-hours without fees, but there are no permits for them. A monthly permit is available only for off-street parking lots.

2.7.6 *Prohibited Parking*

There are locations in Mississauga where parking is prohibited for reasons such as safety, traffic flows, and aesthetics. Collisions are more likely to occur when the vehicles are parked on-street in residential neighbourhoods, obstructing the flow of traffic of narrow lanes.

Considerations

The traffic by-law does not permit any vehicles to be parked or stopped across from or adjacent to school property between the hours of 8 a.m. – 4 p.m., Monday to Friday, September 1st to June 30th when authorized signs are displayed, nor on any street where signs placed prohibit the parking of any vehicles. If prohibited parking or stopping signs are present, no vehicle can be parked unless permission from Parking Enforcement and Traffic Operations is granted.

The by-law further stated that no vehicles should be parked on a street that is equal to or less than 6 metres in width, in a way that would impede vehicular flow, or encroach any sidewalk or crosswalk. Vehicles must be parked 1 metre away from an entrance of a roadway leading to a private road or driveway, 3 metres away from a fire hydrant measured from the edge of the road, 90 metres away from an over- or underpass, 6 metres away from the entrance of a hotel, theatre or public hall. Furthermore, vehicles should be 5 metres away from the lateral lines to an intersection, 15 metres away from the railway, and not stationed in a way that could hinder parked vehicles from leaving the street.

Heavy vehicles are prohibited from parking in a residential zone. All vehicles are currently prohibited from parking on a street within 3 metres of a fire hydrant or for longer than 3 hours unless permitted by signs, permits, or by the City through an agreement. The vehicles must be licensed, functional, not for sale, not for repairing/washing, and in good condition (not leaking).

Practices of Other Municipalities

Most municipalities reviewed are broadly consistent with the Mississauga approach to regulating prohibited parking. The City of London has a comprehensive prohibited parking regulations that encompass unsigned areas, signed areas, specified streets, transit stops, taxi stands, and loading zones. It is very detailed in that it enumerates a number of unsigned locations and provides specified time and distance requirements. For example, vehicles are prohibited to park within 6 metres of the closest intersection crosswalk, and within 15 metres of any signalized intersections. It further forbids parking on any street for over 12 hours or between 3 a.m. and 5 a.m.

The City of Kitchener does not allow parking in a “no parking zone”, but reserve a few exceptions where there may be potential conflicts with other vehicles, or where the driver is following the directions of a police officer or the guidance of a traffic control signal/device. In addition to not allowing to park in a school zone, the City does not allow parking on the side of the street adjoining a park or playground. The City further prohibits parking within 15 metres of a dead end, which is not mentioned in the other bylaws.

The City of Barrie also prohibits parking in posted and unposted places. It issues temporary ‘No Parking’ signs on streets for public assemblies and parades or because of special circumstances such as fire. Again, Mississauga and most other municipalities have detailed and generally consistent prohibited parking regulations. There are few slight variations in time and distance limits. For example, the City of London prohibits parking within 2 metres of a fire hydrant, whereas it is 3 metres in the City of Barrie. The City of Kitchener forbids parking between 2:30a.m and 6:00a.m., instead of 3 a.m. and 5 a.m. as in the City of London.

Discussion

Regulation is difficult in suburban areas where on-street parking is often allowed without some forms of Controlled Parking Zone in place. Yet it is generally considered good practice to reduce restrictions for

on-street parking where possible. It could be easily argued that the City of Kitchener is not effectively using its limited urban spaces, having more than 10 times as much off-street parking lots as on-street parking spaces in the downtown area. On-street parking is not only a low-cost alternative to off-street parking but also a means to minimize the space that would have been taken for off-street parking lot which require access lanes. It is also seen as a buffer for sidewalks to protect pedestrians from the vehicles.

To anticipate future demands for on-street parking, it is best to keep an accurate inventory of parking spaces. This is consistent with both the user information and comprehensive analysis parking management principles. The database could also be used in conjunction with TDM technology to coordinate and guide drivers to vacant parking spaces without causing traffic delay. A successful example of this application is found in Seattle, Washington.

2.7.7 *Sidewalk and Boulevard Parking*

Sidewalk and boulevard parking refers to zoning regulations that permit long-term shared parking agreements (day-time and night-time sharing) or off-street caveated parking. In the case of boulevards, they can be leased for parking. If restaurants or cafes choose to use parking space(s) for patio construction during the summer season, an option is to do so by paying \$5/day per space, plus the \$100 cost of a permit.

Elements to be considered when addressing sidewalk and boulevard parking include the provisions and distinctions between a sidewalk and boulevard in terms of motor vehicles parking. Another consideration is the determination of an appropriate fee towards allowing temporary parking or usage of the sidewalk and boulevard for parking. An opportunity cost approach is generally considered a good starting point, i.e.: 'What is an appropriate fee to charge if the area in question cannot be used as public space or paid parking?' (compare one potential use against another).

Practices of Other Municipalities

Where permitted by other municipalities, applications for sidewalk extensions for the purposes of restaurant patios and cafes and the like are generally considered on the individual merits of the application and, if approved, are licensed for a nominal fee (e.g., \$100 application fee, plus \$5 per day for each occupied on-street parking space). This approach suggests there is recognition of the economic benefits associated with such expansions and an expectation that there is a relatively minor reduction in parking-related revenues (approvals are for the summer months only). Also implicit may be an expectation that displaced parking demand can be accommodated in an alternative location. Other approaches include:

- City of Toronto: The boulevard is outlined as part of the highway that is not used or intended to be used for motor vehicle travel. As outlined, in Toronto Municipal Code Chapter 918 "No person shall park any motor vehicle on any boulevard unless parking is authorized under this chapter or under any other Municipal Code chapter or by-law except for the parking of a motor vehicle within the confines of that portion of the boulevard within a private driveway, provided that no motor vehicle may be parked in the driveway less than 0.3 metre from the back edge of the sidewalk, or where no sidewalk exists, not less than 2.0 metres from the face of the curb or edge of the roadway."
- City of Vancouver: Street and Traffic By-law No. 2849 outlines that 'an owner, registered owner, lessee or operator of a vehicle must not cause, allow or permit that vehicle to stop in front of or within 1.5 metres of the nearest side of a private road, boulevard crossing or sidewalk crossing;"

Discussion

The City of Mississauga currently requires that no person may park a vehicle on the paved or grass portion of the City boulevard. The boulevard is defined as the portion of the driveway between the

property line or sidewalk and the road. Moreover, no person may park a vehicle in such a way as to partially obstruct or block the sidewalk from pedestrian traffic.

The City may also wish to consider a fee for applications for sidewalk extensions that is fair in terms of recognizing lost parking revenue, while also acknowledging economic and tourism objectives in Mississauga.

Given expectations that such uses are primarily seasonal, it is reasonable to expect that applications for sidewalk extensions should be reviewed and approved annually. In this way, there could be consideration of changes in parking demands on a year-to-year basis that could, in turn, be reflected in updated fees.

2.7.8 Heavy Vehicles

'Heavy Vehicle' generally refers to a commercial motor vehicle having a registered gross weight in excess of 3,000 kg, however this does not include a passenger vehicle, emergency vehicle, any vehicle owned and operated by the Transit Commission, a privately-owned commercial motor vehicle making a delivery to or a collection from a bona fide destination which cannot be reached via a highway upon which heavy vehicles are not prohibited by this by-law and taking the most direct route to such a destination from a highway or part of a highway upon which heavy vehicles are not prohibited by this by-law.

Considerations

Elements to consider when addressing heavy vehicle parking within the City of Mississauga include the particular specifications of heavy vehicles and the load classification. Moreover, outlining the issues of signage and road specification are important to note when limiting and outlining allotted heavy vehicle parking within the City limit.

Practices of Other Municipalities

Municipalities' approaches to on-street metered parking options include the following:

- **City of Toronto:** The city maintains that no heavy vehicle may move, drive, park or operate on the highways set out in schedule 950-1329. The schedule is typically restrictive of localized residential areas.
- **City of Kitchener:** The City maintains that unless authorized via displayed signage, no person shall drive, move or operate a heavy truck on municipality highways except those outlined in Schedule 23. Moreover, unless otherwise permitted by bylaw Number 2007-138 no person shall at any time part a vehicle on any highway is such vehicle is a heavy truck. Provisions within the City of Kitchener clearly outline the most appropriate use for truck usage and parking throughout both residential and commercial areas.
- **City of London:** The City maintains that various streets and parts of the urban area are limited to heavy trucks noted by signage in Schedule 14.

Relevance to Mississauga

Through its Traffic By-law 555-000, the City of Mississauga currently regulates that “No person shall park, stop or stand a heavy truck on any highway in a residential zone”. The purpose of this section of the Traffic By-law is to maintain the safe and clear flow of traffic, to prevent damage to paved road surfaces and to maintain the aesthetic aspects of neighbourhood communities. Moreover, a heavy vehicle is defined in the Traffic By-law under Section 1 as a vehicle, including a bus but not including a school bus, as defined under the Highway Traffic Act, having a gross vehicle weight of 3,000 kilograms (3 tonnes) or greater.

2.8 Parking Technologies and Influences

2.8.1 Smart Parking

This section describes existing and emerging technologies that offer greater user knowledge of the availability and choices they have for parking.

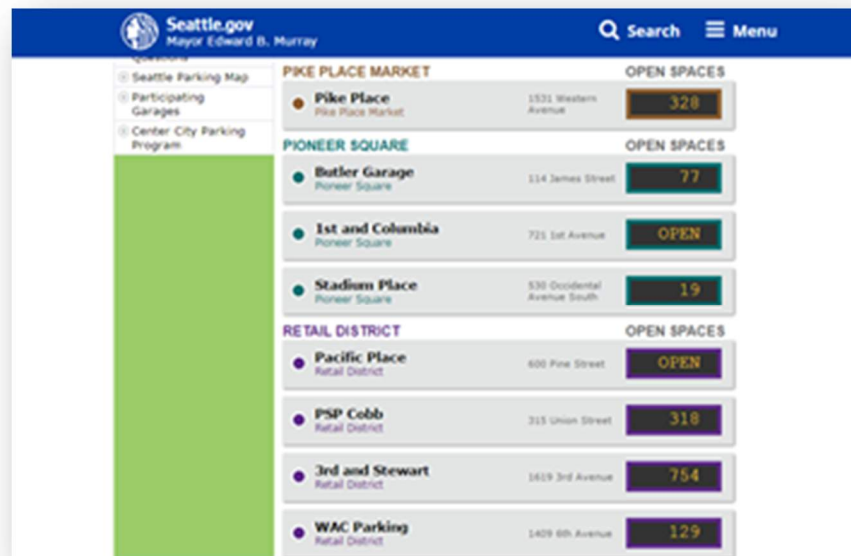
Practices of Other Municipalities

At the more elementary level, the variable message sign may be considered part of this knowledge sharing system. A Variable Message Sign uses count devices at the lot or facility entry and exits to inform users at key decision points on the availability of parking at different lots in real time. VMS offers to reduce lost time by users arriving at lots that are full and thereby assist distribute demand to those lots that have availability.



Mississauga Square One presents parking spaces in fixed message boards

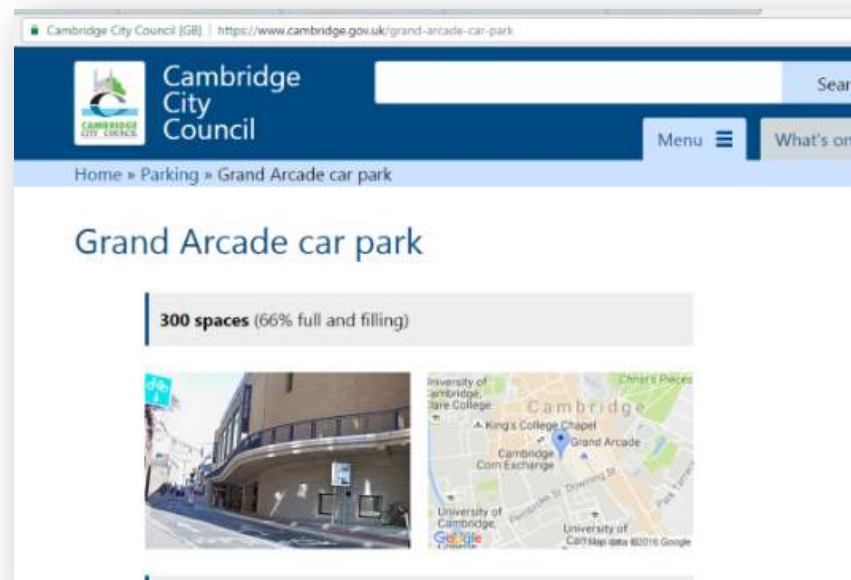
Seattle's e-park presents a live message board of parking availability across the city.

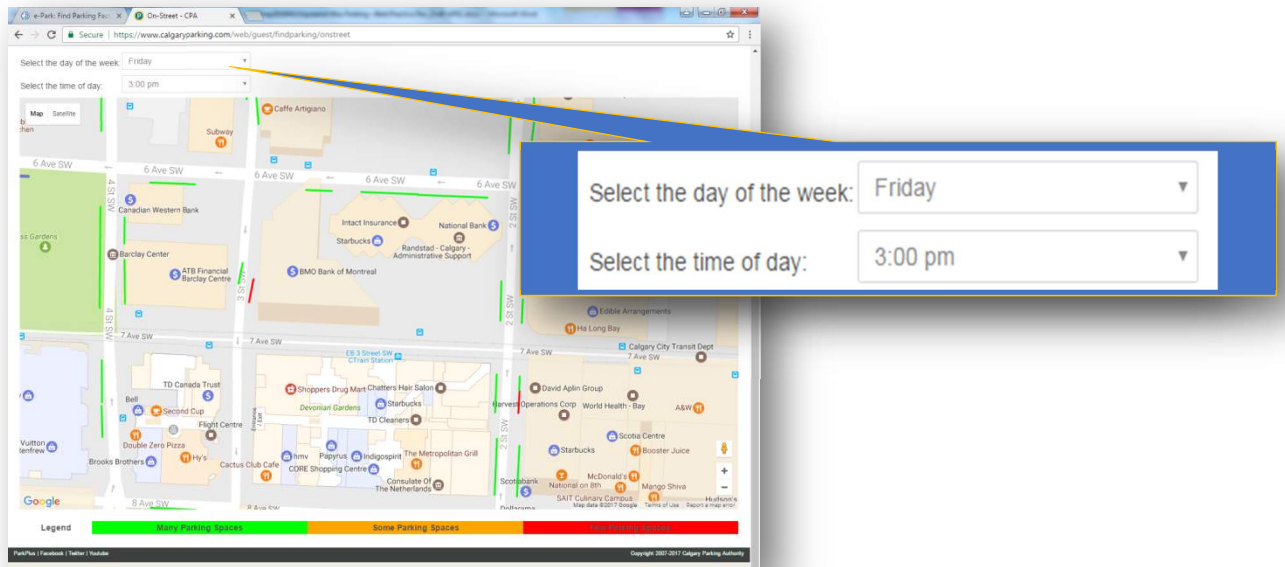


In addition, this information can be provided on a website and mobile app. For off street car parks the logging of information on occupancy is much less expensive to capture.

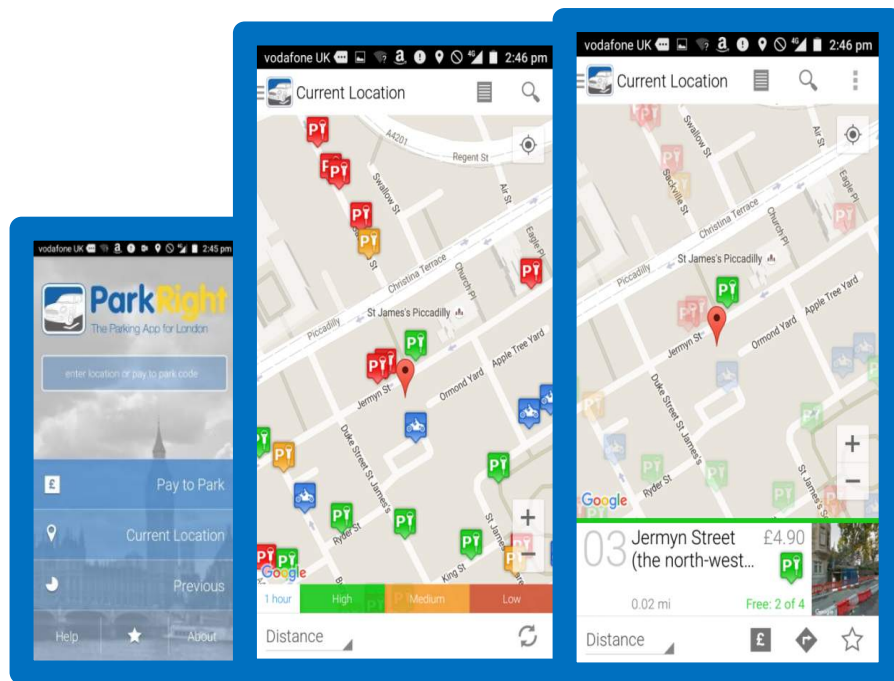
Some cities are providing information on the availability, or likely availability of parking, **on-street** for different times and days. Calgary provides this data based on historical records.

Cambridge City Council, UK, provides live data on car park occupancy via their website





Seattle – Likely availability of on-street parking for Friday afternoon based on historical data



Westminster ParkRight app provides users with real-time data on the likely availability of on-street parking at local level.

Figure 4 - 17 Real time parking availability examples

Phase 1 of the Westminster Bay Sensor Programme was completed in October 2014, covering more than 3,000 paid-for and disabled bays across the West End of London. On the first full day of analysis sensors recorded over 11,000 parking events. The data from the sensors is available as real-time data on likely availability of a parking spot at street level. Westminster provide the ParkRight app for users to locate available parking and pay for their sessions.

The live feed for on-street parking in San Francisco has been discontinued since the end of 2013 once sensors came to the end of their useful life. SF still provide garage occupancy data in real time and provide tariff information for the on-street locations.

Discussion

There is some doubt that providing users with real-time information delivers the levels of benefits that may be expected. It is evident that some users will travel to a preferred parking location irrespective of signs indicating that it is full while other locations carry spaces. These users will queue to enter facility based on an expectation that this wait will not be particularly long.

In Westminster UK, analysis has shown that even at times of high occupancy there has not been an improvement in the equilibrium of occupancy across neighbouring streets and the variance in occupancy between different streets has not reduced (Fitsall & Potter 2016). Westminster does not adjust tariffs in response to historic demand.

Information to those seeking parking appears most effective within extensive areas of parking where there are local alternatives that are similar or progressive in their proximity to the destination. This may be most relevant to message signs at the entry points or on the circulatory highway around the parking provided at a large shopping mall.

It appears that the principal use of the Westminster ParkRight app is to pay for the parking session, rather than locate a parking spot.

2.8.2 Mobile Payment

The technologies used for locating a parking spot are frequently linked to those that are changing the way users can pay for parking. The key trend is that payment for parking will be via mobile devices, it is unlikely to use ticketing and payment will be cashless.

Considerations

Most major cities are now adopting pay by phone accounts for parking to some extent. This includes payment by apps on mobile devices (which now make up a greater share of use). Users are billed against a credit or debit card or against a personal account that holds credit. A third party operator provides the service for a limited fee which may be absorbed by the operator or passed onto users. Vehicle parking time is purchased against the Vehicle licence plate which is passed to the enforcement team.

The system removes the requirement for cash. Furthermore, by creating a back-office accounting process it enables the tariffs unbounded by the denomination of coinage or user familiarity. Tariffs may be set as fractional cents per minute if required, can be differentiated by time of day and location, could be linked to the parked vehicle type (allowing different charge rates based on vehicle size, emissions or other consideration) and can readily be linked in to a process of reward and rebates based on account holders' activity or other specifications (such as being registered as a resident in the area or applying a retrospective limit on parking charges incurred within a given period).

The initial account set-up is considered a barrier to users and there is some reticence for the public to switch to the system.

Compared to standard meters or pay and display, pay by phone/app offers significant user advantages. It can still operate the pre-pay model but will send text messages to users reminding them when their paid duration is due to end and, subject to the restrictions in force, offer time extensions to be purchased by mobile device. In this way the system has the functionality to address the pre-determination difficulty for those uncertain of their duration of stay: There is no requirement to return to vehicle to feed the meter.

Practices of Other Municipalities

WESTMINSTER, LONDON, UK

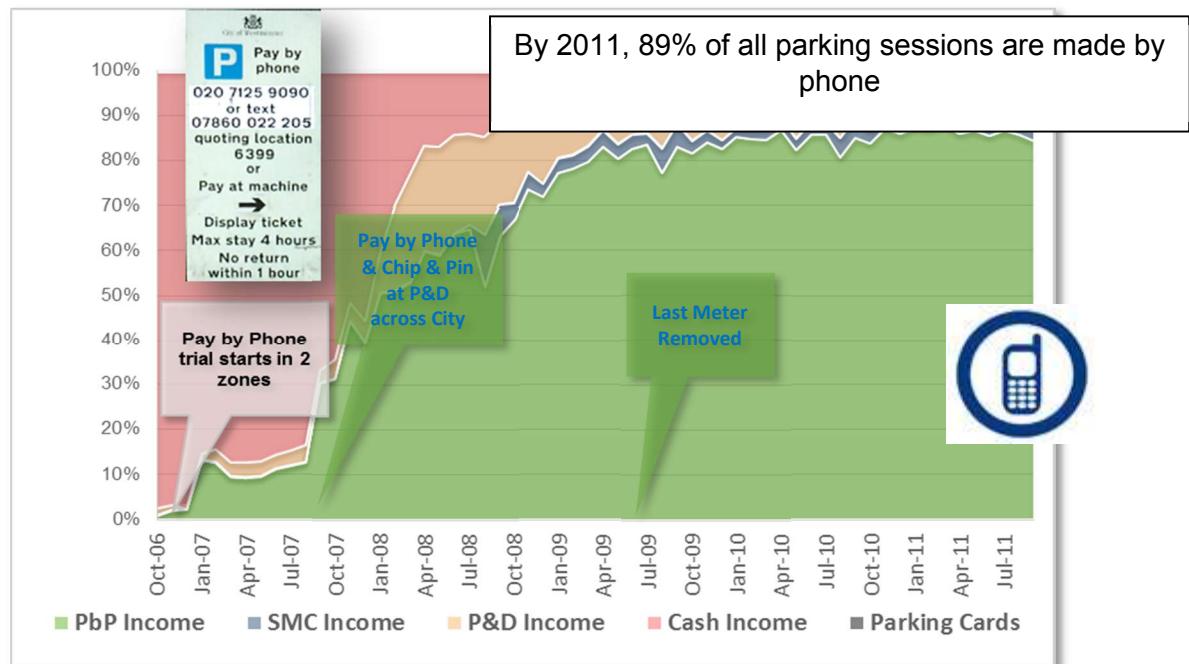


Figure 4 - 18 Timeline of Cashless Parking by Westminster City Council

In 2006 cash was the only means of payment for on-street parking in Westminster. A pay by phone pilot was initiated in October 2006 in 2 zones as a complimentary payment method and from October the following year rolled out across the city. Chip & PIN Pay & Display was also introduced as the cash meters were progressively removed. By May 2009 all means of paying cash for parking had been removed. By July 2011, 89% of all parking transactions were being made by phone which had rise to 95% by 2015. However the removal of the cash option did present some difficulties for specific users requiring the introduction of parking cards (or vouchers as used elsewhere in this note). (Fitsall, The Intelligent Kerbside, 2012).

Within Westminster users are also presented with the epay option which enables them to use cash at local shops. Once parked in any paid-for bay, users go to the nearest epay point retailer. They provide the retailer with the 4 digit location code of their parking bay, their vehicle registration number and the appropriate cash payment. (Parking for Visitors, 2015) The retailer effectively provides the media interface otherwise afforded by the phone account.

CALGARY'S PARKPLUS SYSTEM

Introduced to Calgary in 2007, the ParkPlus system is a proprietary technology developed by the Calgary Parking Authority that allows users to pay for their parking:

- Using a cash, debit or credit card at a ParkPlus pay machine. The user enters the 4-digit zone number in which they are parked, their licence plate and payment for the time required.
- by cell phone with a registered ParkPlus cell phone account. The account must be provided with credit in advance and all the vehicle licence plates associated with that account. Users park, call up the voice activated service or send a text with the zone number and either “Start” or “End”. Users are charged for the period used.
- using the Virtual Pay Machine app. which allows users to pay for their session by mobile device using a credit or debit card.

Accounts are arranged and managed using a separate website. Users can add credit to their account and review all their historical charges for parking.



Figure 4 - 19 Edmonton ePark system, based on CPA ParkPlus technology

Discussion

Back office accounting

The attractiveness for user and operator of pay by phone is the back-office account. The electronic payment processing offers tariff and charging flexibility and for users removes the need to handle what are typically small cash values. The systems described do at this stage still require user intervention to pay for their session or undertake some form of text process to begin and end it.

Seamless Parking

The emerging evidence is that a seamless parking experience is imminent. Pre-booked parking is also available and becoming more prevalent beyond the airport. At the underground Upper Street Car Park in Islington, London, cars that have been pre-booked and paid for their parking via the website are granted access through the barrier using a License Plate Reader (LPR). For those parking within the booked period, there is no further verification or payment, and departure is similarly controlled by LPR.

The retail vision currently sees that parking will become one component in the overall integrated and personalised shopping trip. Festival Place retail centre in Basingstoke, UK has launched the “Festival Rewards” app. For those customers that sign up and input car registration and other personal details there is an ambition to enable parking to be booked in advance, a personal greeting on entry to the car park, remote billing with payment done back office from account, internal direction-finding to a (pre-determined) parking spot inside the car park, a mobile app fed with offers and information while in the centre based on location and activity and the potential for parking fees to be reduced by incentives and purchases. Goods may be delivered to the car or a collection point with parking payment acknowledged and communicated on departure and on-going correspondence and loyalty points/rewards for parking and shopping at that centre between visits (Murphy, 2015).

Various manufacturers are already using and developing installed navigation and communication technology. In the near term it is expected that the dashboard will be the portal for parking. Navigation and parking information will be combined to lead drivers directly to an available parking spot. (ParkMobile, 2015).

There are thus a number of options emerging that will enable users to progressively link actual vehicle location or parking activity to an account for payment that will be passive and invisible to the user in the near future. Users may be required to select a park option, and the on-board navigation will confirm parking legitimacy in that location for that vehicle and commence the charging process. For more users it will become common for parking charges to be consolidated and reported by way of a monthly invoice, with payment debited directly from an associated source account. BMW are one of a number of car manufacturers who envisage the in-car navigation process to include parking location selection and payment as an automated process for the user. This will make paying for parking a background activity, reducing the inconvenience of the transaction.

Based on attitudes to other remotely collected charges, it is also likely that it will reduce the impact of the payment by not only separating the action from the cost, but by consolidating the individual costs into one larger electronic monthly payment. (Thaler, 1999). An interesting avenue with this vehicle-specific connectivity is the opportunity for municipalities to develop progressively more specific regulations for parking; users will only be informed of those applying to their vehicle. In simple terms users may be told by the on-board system whether or not they can park as desired. Indeed it is likely that the system will manage the whole process, and only select a parking location that is legitimate for that vehicle.

Thus the key conclusion is that on-street furniture and more traditional methods of paying for parking at the point of use could to a significant degree diminish in importance over the next five years. This may have a bearing on the life expectancy of any on-street equipment and the density of deployment, or indeed any decision regarding which payment mechanisms to introduce. The integration of parking availability into the overall system will also limit the value of investing in fixed Variable Message Signs.

2.8.3 *Electric Vehicle Charging Stations*

According to the Ontario Ministry of Transportation, an electric vehicle (EV) is any vehicle that is partially or entirely powered by electricity and plugs in to recharge. EVs build on proven hybrid technology and offer even greater reductions in fuel consumption and emissions than conventional hybrids.

The primary benefit of electric vehicles is to help reduce harmful air pollutants and greenhouse gas emissions. While electric vehicles are a sustainable transportation option, these vehicles still occupy the road network and require a parking space at home and at destinations.

Electric vehicles must be 'refueled' by plugging into the electricity grid through charging stations. Most of the charging will be taken place at home due to its convenience, and at night when the cost of electricity is at the lowest. The time it takes to recharge is hinged on the level, or speed, of charging. Charging requirements are classified into two classes: residential and commercial:

- Residential charging stations range from \$800 - \$1,200 including parts and labour
- Commercial charging stations (Networked) range from \$8,000 - 10,000. These facilities are connected to the internet allowing the owner to control access.
- Commercial charging stations (Non-networked) costing \$2,000 - \$4,000. These facilities cannot be remotely controlled.

The Ontario government released in June 2016 Ontario's Five Year Climate Change Action Plan (2016 – 2020), which includes the following actions that are intended to assist municipalities develop local land use policies to deal with climate change:

- The Ontario government is prepared to empower municipalities through consultation and proposed amendments to the Municipal Act (scheduled to start in 2017/2018).
- The Ontario government will set requirements for all new homes and townhomes with garages to be constructed with a 50-amp, 240 volt receptacle (plug) in the garage for the purpose of charging an electric vehicle. This is scheduled to commence in January 2018.
- Commercial buildings and appropriate workplaces are also required to provide charging infrastructure which is due to start in 2018.
- A commitment to continue the Green Licence Plate Program until 25% of passenger vehicles have green plates.

The WWF-Canada 2014 status update on Electric Vehicles indicates that one electric vehicle was sold for every 224 regular vehicles sold in Canada in 2014. This represents a 31% annual increase in electric vehicle sales. As a result, Ontario is investing close to \$20 million from Ontario's Green Investment fund to construct approximately 500 EV charging stations at over 250 locations by March 31, 2017 according to the Ontario Ministry of Transportation.

According to the Canadian Automobile Association (CAA) EV Charging Station Locator, in Mississauga alone, there are currently about 30 charging locations including shopping centre, GO station, and the Pearson Airport. By comparison, approximately 400 public charging locations are available in Ontario.

Based on the best practices survey of other municipalities, there are three main policy approaches adopted by various municipalities to encourage developers to provide required infrastructure by developers to support electric vehicles, namely the charging stations:

1. Development of regulations to allow electric vehicle infrastructure as a use in all zones except those zoned for residential, resource or critical areas in the Zoning By-law (Squamish, BC, and Washington State);
2. Mandatory EV charging circuits as a certain percentage of parking spaces provided in residential, mixed-use and commercial buildings through the building by-law. (Vancouver, BC). In Vancouver, residential mixed-use buildings that consist more than three dwelling units must incorporate a receptacle for charging electric vehicles in 20 percent of all parking stalls used by owners or occupiers of the dwelling units. Similarly, commercial buildings designated as mixed-use must be designed with a receptacle for charging electric vehicle in 10 percent of all parking stalls; and
3. Accommodation for electric vehicles in residential buildings for excess parking supply at the Site Plan Application stage (Toronto, ON). Recently, Toronto also started requiring new development applications to include provisions of electric charging stations as part of the Travel Demand Management Plan on a site-specific basis.

In addition, municipalities could use their purchasing power to support the electric vehicle market by adding electric vehicles to municipal fleets or hybrid buses to public transport systems. Municipalities could also install charging stations at libraries, parking garages, city halls, or other public buildings. For instance:

- The City of Toronto has 19 Level 2 City owned EV charging stations in place in City properties, available to City vehicles only.

- The City of Vancouver also provided curbside charging stations. One approach was integrating EV charging station with cellular infrastructure. As a trial project, the City of Vancouver and TELUS partnered to install three integrated EV charging station and cellular units in parking lots at three English Bay park locations in 2013. The construction cost and power to the infrastructure is fully funded by TELUS, which recovers EV-related costs through site rent abatement.

2.8.4 *Autonomous Vehicles*

There is an expectation that autonomous vehicle will evolve as technical, political, legislative and public acceptability move on to permit increased use. Most of the automation available today is in what are called Level 2 vehicles (partial automation), such as Tesla's "Autopilot" system. Level 3 (conditional automation) and level 4 (high automation) vehicles are being piloted in many different settings around the world including Japan, US, Singapore, and Dubai.

Various governments are pushing ahead to help create the right conditions for further development and investment to occur in their jurisdictions (Isaac 2017):

- The Australian Government has published *National Guidelines for Automated Vehicle Trials*, which focuses on safety and sets out its expectations for the private industry.
- The US Department of Transportation is funding research for automated vehicle technology "proving grounds."
- Ontario has sought applications for private industry and academic institutions to conduct AV testing.
- In the United Kingdom, the government awarded a £5.5 million grant to a consortium of partners, which include Bosch, Transport Research Laboratory (TRL), Jaguar Land Rover, Direct Line Group, The Flook and the Royal Borough of Greenwich.

There are several key considerations that AVs could have on parking. The first and most immediate is already appearing with the self-parking car. With vehicles able to discharge their passengers before parking, this immediately could improve the density in which cars are stored. This will apply first in terms of the surface area used, reducing the dimensions of the parking bays and aisles. Over time it will also work its way through into the design of parking decks. Those decks used and accessed exclusively by vehicles will require less headroom. They will also require less ventilation, signing or lighting.

The second impact could be on parking distribution. With vehicles able to leave their passengers and go locate their own parking then there will be a greater trend for parking capacity to move out of the higher value locations into areas with lower value land. In city centres with a distinct differentiation between commercial high-end land and lower cost neighbourhoods, it may be reasonable to see a rise in land on the periphery of the CBD being converted into use for parking. (TRB reference).

The third consideration could include the impact on overall private vehicle ownership. If a shared autonomous vehicle model is widely adopted, because the costs and availability of AVs become attractive, then this may result in people reducing private car ownership. Preliminary analysis using a downtown model indicates that under such a scenario a single shared autonomous vehicle could replace between nine and thirteen privately-owned or household-owned vehicles (Fagnant & Kockelman 2016).

The work by Fagnant and Kockelman indicated that miles travelled would increase by up to 10%. In contrast empirical work based on a diary of mileage covered and the trips conveyed by a single uber vehicle indicted that a shared AV model could result in VMT increasing by nearer to 80% (Henao 2017). This increase is a result of some empty miles but also considerable abstraction of demand from non-motorised modes and transit.

Practices of Other Municipalities

The proposal to create a shared AV core area within large urban areas, in which there would be no private vehicle access, presents an outcome in which there could be between 15% and 20% additional developable area compared with a typical central urban layout. This is primarily due to the removal of almost all parking spaces, but also because of roadspace simplification that will save space (WSP|Parsons Brinckerhoff & Farrells, 2016).

Central London has a parking coverage of around 16% and a total of around 6.8 million parking spaces, on and off street. Around 8,000 hectares of central London is used for parking. Based on Communities and Local Government valuations, a 100 hectare AV zone development in the heart of London could generate more than £1.25 billion in recovered land use. Further afield, general figures of 15-30% parking coverage are typical of New York, Paris, Vienna, Boston and Hong Kong.

The reduced requirement for parking has implications at the residential level also. Around 80% of the UK's suburban housing stock has some form of front garden space, of which around a third have been paved to become a parking space; in London, the proportion of front gardens that have become parking spaces is even higher, at around 50%. Repurposing residential on-street parking and residential off-street parking spaces back into gardens or areas of landscaping would not only improve the streetscape, it could provide a key part of improving climate resilience through reducing the impact of rainwater runoff in urban areas.

Discussion

That vehicles will become more automatic and connected is largely unquestioned. The rate and form that change will have and the extent to which it will permit and deliver the changes forecast remains less certain. Much of the changes forecast remains less certain. Much of the benefits in reduced car ownership and release of parking requirements over large downtown areas are reliant on a model of use that has shared AVs. This is very much the core assumption presented in creating AV zones in the core of major cities.

The prevalent model of use therefore will prove key to determining how parking needs change. Without a strong public policy led approach and in contrast the development of personal autonomous cars non-reliant and capable of operating amongst non-automated vehicles, there is every possibility that the current status and other assumed benefits of personal ownership will remain. The intrinsic approach to marketing the car as a reflection of the personality of its user will support this model. Without strong public policy, and indeed with governments considering that the development of technology is something for the commercial sector to lead, then this outcome is more likely.

Changes to parking needs under the primarily personal AV scenario thus take a different turn. The idea that downtown parking will become redundant as AVs take themselves to suburban parking lots is reliant on the cost of making that trip being low, and certainly lower than the cost of parking. But these empty AV miles will occur in the denser parts of the city, where space is already limited and highway capacity already saturated. Empty AVs conveying themselves to lower cost parking will exacerbate current congestion levels, and will do so without the current intolerance of delay that tends to cap the extent that congestion increases: if there is no-one in the vehicle, it does not matter than the average speed of travel is only 5mph. But this will have an adverse effect on those AVs that are occupied. For those people who are trying to move about, the potential congestion caused by vehicles with negligible values of time will be a cause of consternation and social cost.

Moreover, a downtown that has its network consumed by additional traffic will also impact on the reliability of journey time of those AVs that are empty. Thus this may create challenges for an AV planning to collect a user at the right time or called in earlier on account of the user's plans changing.

So the main point of the discussion may be that the congestion caused by additional empty AV miles could be significant and the economic cost substantial. An efficient governmental response may then be to introduce a charge through fuel taxes and/or congestion charging that makes the saving from relocating the AV to a suburban parking lot marginal, since the AV will incur charges on each journey in and out. Combined with the inconvenience of progressively greater unreliability the farther the AV relocates to park, it may be that other than narrower parking aisles and stalls, there will be little change in downtown parking capacity needs.

2.8.5 *Sharing Economy*

The 'sharing economy' is broadly defined as peer-to-peer transaction that permit sharing, borrowing or bartering of underutilized assets in exchange for goods, services, or money. Falling under this umbrella term, it branches out to different forms of sharing like parking. When applied to modern parking management practices, parking space owners are linked to drivers with available private parking spaces. Two general types of parking sharing exist, which are MonkeyParking and Driveway Parking.

MonkeyParking

The mobile application called MonkeyParking was first introduced in 2013 in San Francisco to allow users to auction off any parking spaces to the highest bidder. In addition to auctioning off spaces owned by the user, the mobile application allows users to profit off public city-owned parking spaces. In essence, the mobile app distributes and monetizes "information" on public parking spaces. San Francisco officials claimed MonkeyParking violates the city's Police Code that prohibits individuals or companies from buying, selling, or leasing public on-street parking. Since then, the MonkeyParking and the associated practice of profiting off public parking have been made illegal by Los Angeles, Santa Monica, and Boston.

Driveway Parking

A more common form of sharing economy on parking is driveway parking, which is observed in Canada, UK, and Australia. For instance, mobile applications exist to allow property owners to rent available parking spaces on their private properties by the hour. Examples of these mobile applications include Rover Parking and HonkMobile in City of Toronto. For Rover Parking, the price for parking is set by the user at an upper limit of \$2 an hour to ensure the spaces are competitive when compared with traditional parking spaces. However, this type of sharing economy practice is generally considered illegal by City of Toronto. City's by-law officials indicated that it is acceptable to rent out unused garage space, but renting out spaces on driveway to multiple drivers are not. The reason is that if residents are allowed to rent out driveways to multiple parkers, those vehicles will result in additional traffic in the local neighbourhoods. Furthermore, transient people coming and going presents a risk to the neighbourhood safety and may result in nuisance complaints with the city.

The Sharing Economy Public Design project, a collaboration between MaRS Solutions Lab, the Province of Ontario, and the City of Toronto conducted a comprehensive review on sharing economy to have a better understanding of what role the government should play in. The study recognized that there is a shortage of city-wide parking spaces, while condo buildings often have empty parking spots. This would enable the flexible use of residential condo parking in spaces that are otherwise privately used. This will require appropriate changes to the zoning, condo board and building bylaws.

Apart from Toronto's response to sharing economy, there have been mixed responses on how municipalities deal with driveway parking. To illustrate the variations between some municipalities, the table below highlights some of the practices by municipalities to the leasing of private parking spaces.

Table 4-10 Shared Economy approaches

	Municipalities	Response
Accepted Practice	Borough of Rosemont-la-petite-patrie (Montreal)	Allows residents to rent out their off-street parking facilities including driveways and garages
	City of Sydney	Allows residents free to lease parking spaces from their property using any online resources however the permits cannot be transferred. However, planning conditions and strata by-laws are in place to prevent spaces in some apartment buildings from being leased out to non-residents. This ensures private buildings cannot be used as public car parks and maintains security for other apartment residents.
	City of Melbourne	Allows residents renting out their driveways but cannot be transferred or a sale transaction of resident parking permits. Leasing private parking lots or spaces are not regulated by Council
	United Kingdom	Allow rental of parking spaces without planning permission given no nuisance to neighbours
Prohibited Practice	City of Ottawa	According to the City's zoning by-law, parking spaces must be reserved exclusively for their associated uses
	City of Perth	Retains the legal right preventing the sale, transfer, or sell resident parking permits (Samson, 2014).
	City of Brisbane	

Sharing economy has become an emerging phenomenon which municipalities continue to monitor given the economic and social appeals. It presents the following opportunities and challenges:

- Economically, it can capitalize on underutilized parking facilities and is viewed as an opportunity for growth and development.
 - Socially, it opens up an avenue of extra income for lower income households.
 - A lack of comparable insurance coverage between traditional businesses and sharing economy businesses.
 - Impacts on tax revenues are considered difficult to estimate at this point in time
 - Some of the negative impacts of sharing economy can be mitigated through appropriate regulation and technology. For instance, according to Rover, their mobile app is able to impose limits on the number of vehicles that can be parked at any given time at any single location to reduce the impacts on the local neighbourhood.
 - It could be viewed as disrupting existing markets which in turn create an inequitable gap between laws encountered by traditional operators and their competitors.
 - It can result in the diminishing control of "publicly accessible" parking supply by the City, which in turn lower the ability of the City to influence mode choice of commuters.
- Accordingly, the municipalities have to rethink their regulation in a holistic approach to formulating innovative regulatory regimes addressing competitive fairness and consumer safety while enabling sharing economy to evolve and develop.





2.9 Parking Organizational Model

2.9.1 Strategic Organizational Governance Models

From a best practices review of municipalities in Canada and the USA, the approach has been to first achieve consensus among the various stakeholders on the mission and vision of parking in meeting the City's overall strategic goals before determining the best type of parking organizational and service delivery model. This process will begin soon with the first round of stakeholder consultation as part of the development of the Mississauga Parking Master Plan.

In Canada and the USA there is a wide-range of strategic business models, however, they fall within four (4) main groups, as shown in **Error! Reference source not found.**, from full privatization of parking with a private governance board (column A) to a publicly governed and delivered service (column D) either by a municipal department or section or a special purpose body, such as a parking authority.

Nearly all municipal parking services in Canada fall within public municipal parking (column D) and governed by a municipal Council or a separate board with members appointed by the City Council comprised of elected councillors and citizens. Within the 4 strategic type of parking business models, there are variations primarily adopted in the USA and summarized in 6.

MUNICIPAL PARKING BUSINESS MODELS			
PRIVATE		PUBLIC	
PRIVATE MUNICIPAL PARKING CONTRACT	PUBLIC SECTOR OWNERSHIP AND PRIVATE SECTOR MANAGEMENT	P3 (PUBLIC PRIVATE PARTNERSHIP)	PUBLIC MUNICIPAL PARKING
			
✓ COMPLETE PRIVATIZATION ✓ PRIVATE BOARD OVERSIGHT AND GOVERNANCE ✓ PRIVATE REVENUE RISK	✓ PUBLIC POLICY AND STANDARDS SETTING ✓ PUBLIC ADMINISTRATION ✓ PRIVATE SERVICE DELIVERY ✓ PUBLIC REVENUE RISK ✓ PUBLIC BOARD/ COUNCIL OVERSIGHT AND GOVERNANCE	✓ PUBLIC POLICY AND STANDARDS SETTING ✓ JOINT PUBLIC & PRIVATE ADMIN. ✓ PRIVATE SERVICE DELIVERY ✓ SHARED REVENUE RISK ✓ PUBLIC BOARD/ COUNCIL OVERSIGHT AND GOVERNANCE	✓ COMPLETE PUBLIC SERVICE ✓ PUBLIC BOARD/ COUNCIL OVERSIGHT AND GOVERNANCE
A	B	C	D

Also, Hybrids of A to D Aspects

Figure 4 - 20 Strategic Business Models of Parking

4-21 shows a selection of Canadian and American cities with public pay parking and the type of parking business model, whether the organization is non-tax supported, the three common types of public parking business models that nearly all Canadian municipal parking falls under and if any contract out some of their main services. Montreal is the only public parking service that operates as a Business District in the downtown and is operated and governed by Montreal's Board of Trade. American cities are shown as they are the only examples where a privatization of parking has actually been implemented and many more USA municipalities are considering this option due to severe financial issues and the need to free up cash for other municipal services.

There are five parking authorities in Canada: Calgary, Toronto, Vancouver, Thunder Bay and Winnipeg while the rest of the Canadian cities are sections within a department, division or branch. From this national review, we found one city, London, Ontario, with a standalone separate parking department operating within the upper tier level of Transportation Services and at the same level as public transit (London Transit Commission). As an organization structure, Parking Authorities tend to be most prominent in cities that have a large number of public pay parking spaces (with the exception of Thunder Bay) compared to cities with smaller number of parking spaces and organized as a section within a municipal division or department.

Figure 4-14 provides a description, the main reasons or rationale for the organizational model, examples in Canada or the USA and additional information under the comments column for each of the 5 business models for parking with the two most common, illustrated graphically below:

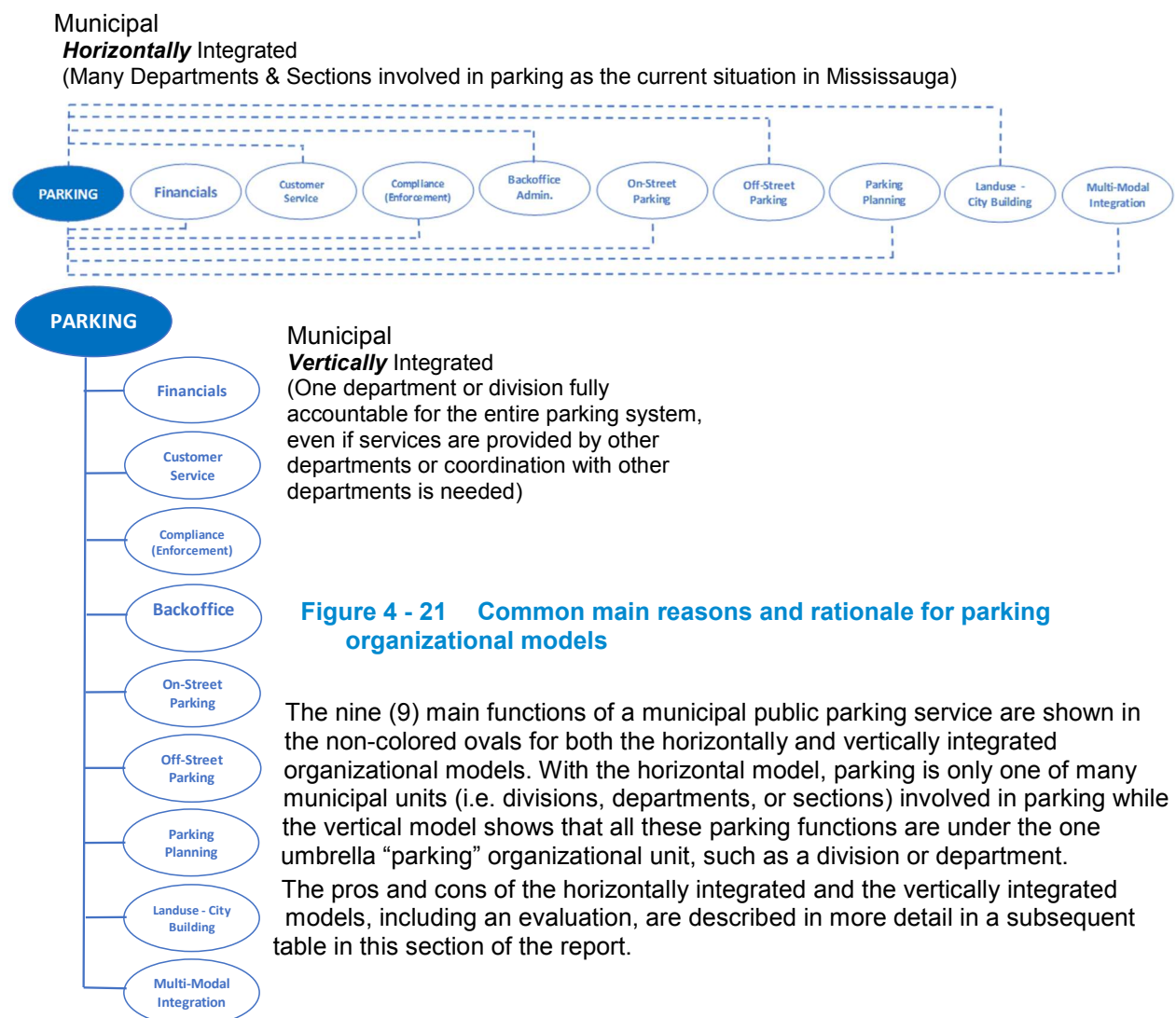


Table 4-11 Best Practices Review - Parking Business Models

Best Practices Review - Canadian & USA Cities - Parking Business Models											
					Governance	Parking Business Model					Primary Contracted Services
						Public			Business District	Privatization (Monetization)	
Ref. #	Canadian City	Population	Total Public Pay Parking Spaces	¹ 100% Non-tax Supported		Parking Dept.	Section Within Dept.	Parking Authority	Separate Organization	Separate Organization	
1	Mississauga	766,000	2,328	⁴ Yes	Council		✓				• Parking equipment, maintenance, repair, transaction processing
2	Burlington	178,000	1,519	Yes	Council		✓				• Enforcement
3	Calgary	1,235,000	17,374	Yes	Board			✓			• None
4	Edmonton	899,500	6,562	Yes	Council		✓				• Enforcement
5	Hamilton	520,000	3,700	Yes	Council		✓				• None
6	London	366,000	2,664	Yes	Council	✓					• Enforcement • Some Off-Street
7	Montreal	1,649,500	22,214	Yes	Board of Trade				✓		• None • Enforcement by Police (civilians)
8	Ottawa	883,400	6,737	Yes	Council		✓				• On-street & Off-street revenue & equipment • Ticket processing
9	Regina	195,000	1,250	Yes	Council		✓				• Enforcement
10	Thunder Bay	109,000	3,178	Yes	Board			✓			• Revenue collection • Some Off-Street
11	² Toronto	2,615,000	53,000	Yes	Board			✓			• Revenue collection
12	Vancouver	605,000	20,930	Yes	Board			✓			• None
13	Winnipeg	727,500	5,971	Yes	Board			✓			• None
14	Windsor	216,500	4,355	Yes	Council		✓				• Enforcement
	U.S.A. City										
15	³ Chicago, Illinois	2,720,500	45,176	Yes	Private Board					✓	• All On-street & 4 large parking garages
16	Indianapolis, Indiana	853,000	3,900	Yes	Private Board					✓	• All On-street
17	Minneapolis, Minnesota	411,000	22,000	Yes	Council		✓				• Off-street facilities • On-street revenue collection
18	Harrisburg, Pennsylvania	49,000	8,983	Yes	Private Board					✓	• All On-street & Off-street

- Notes:
- For municipal parking departments or sections, snow ploughing, lot sweeping, hydro, enforcement, professional services and other services may be performed or covered by other municipal departments with the associated costs not allocated to the parking function.
 - Toronto currently reviewing possibility of contracting out parking enforcement for on-street operations now provided by the Toronto Police Service (civilian officers).
 - Chicago's on-street parking was privatized in 2008, with an original least term of 99 years that was scaled back to 75 years in 2013. The four large Millennium Park parking garages in the downtown were privatized later under a separate agreement.
 - The City issues violation tickets and retains all revenue from them, even for the tickets that are issued by the concessionaire/parking operator."
 - The primary functions of parking operations & enforcement are self funded through fees and fines, but other functions and related costs performed by other depts. are not allocated to the Mississauga parking

Table 4-12 Summary of Most Common Parking Organization Models in Canada & USA

Organizational Model	Description	Main Reasons	Examples in Canada?	Comments
1- Municipal Horizontally Integrated	<ul style="list-style-type: none"> → Various aspects of parking are spread across many departments and sections. → Each section, division or dept. manages one or more parking functions → No one dept. has total responsibility, accountability & full understanding of all functions & interrelationships 	<ul style="list-style-type: none"> → Growth of the municipality resulted in need for a parking function → Usually started in existing public works dept. that was responsible for roads and traffic management → Municipal bylaw enforcement for zoning and animal control already existed and were given added function for parking. → Finance division already responsible for revenue (taxes, permits, etc.), resulting in additional function when pay parking introduced. 	<ul style="list-style-type: none"> → Mississauga → Markham → Vaughan 	<ul style="list-style-type: none"> → Municipality may also outsource operations through contracted management agreement or lease agreement with guaranteed monthly revenue over a 5 year plus contract – very common among Ontario hospitals and commercial building owners and managers. → Mississauga currently contracts out maintenance & repair of its 120 on-street pay & display machines.
2- Municipal Vertically Integrated	<ul style="list-style-type: none"> → One division or section, lead by a department head, is fully responsible for on-street and off-street parking, parking system planning, enforcement and with other parking functions that may or may not be included. 	<ul style="list-style-type: none"> → ‘One stop shop’ for parking services → Full accountability for operations and coordination of and interacting with other municipal depts. and sections on land use and transportation planning, economic development, special events, TDM and active transportation. → Council maintains full control of policies and fee setting. 	<ul style="list-style-type: none"> → Burlington → Edmonton → Hamilton → London → Ottawa → Regina → Windsor 	<ul style="list-style-type: none"> → The “Parking Dept.” under this model may also decide to outsource aspects of parking operations (similar to above comments). → Variations of this model exist depending on size of parking operations, type of services, overall municipal organizational structure & extent of urban development.
3- Parking Authority	<ul style="list-style-type: none"> → Publicly owned and managed organization separate from the municipality with its own Board of Directors and CEO and comprised of citizen appointees and Councillors. → Focused on all aspects for parking operations, with responsibility for parking facility planning, construction, maintenance, ownership, setting fees and fines (independently of the municipal Council). → Prime focus on revenue generation and 100% self-funded often contributing millions of dollars per year in dividends (profit) back to the municipality. 	<ul style="list-style-type: none"> → Most established in the late 1940s and 1950s focused on managing on-street meters to achieve vehicle turnover of spaces and meet greater demand created by increasing car ownership through construction of off-street lots & garages to support local businesses. → Successful in large cities where extensive parking infrastructure required to meet growing demand by providing lots, garages, joint venture agreements with developers for shared parking and expanded on-street payment areas. 	<ul style="list-style-type: none"> → Calgary (estab. 1968) → Toronto (estab. 1952) → Vancouver (estab. 1948) → Winnipeg (estab. 1995) → Thunder Bay (estab. 1979) 	<ul style="list-style-type: none"> → Works with the municipality for zoning parking requirements, Payment-in-Lieu contributions and joint ventures with developers. → Parking authorities may also contract out to a private operator to manage off-street parking facilities. → Council loses control of parking policy approval and rate setting, which become the responsibility of the Parking Authority Board.
4- Business District	<ul style="list-style-type: none"> → Parking is operated & managed by a downtown business improvement group, Chamber of Commerce, Board of Trade or urban renewal agency through an operating agreement with the City. → Smaller cities may not have the parking infrastructure and this provides them with opportunities to establish relationships with the private sector landowners willing to work with the City in providing parking. 	<ul style="list-style-type: none"> → Downtown business community has a vested interest in urban renewal and resurgence and often have skills in strategic planning that may be lacking by traditional municipal structures. → Business are committed to making parking successful in meeting the business community’s concerns on the vitality of commercial streets and the downtown’s attractiveness to residents and tourists. → Encourage parking efficiency and parking infrastructure investment. → Plan parking facilities at strategic locations. 	<ul style="list-style-type: none"> → Montreal (Stationnement de Montreal) → <i>More common in USA:</i> → Boise, Idaho → Tempe, Arizona → Cedar Rapids, Iowa 	<ul style="list-style-type: none"> → Stationnement de Montreal (SDM) → Created in 1995 to optimize paid on and off street parking in the downtown & is subsidiary of the Montreal Board of Trade. → Governance of SDM is by the Board of Trade’s partner, Accesum Inc., which forms the Board of Directors and meets the operating terms set by the City of Montreal under a 30-year agreement. → Privatization generated much higher revenue for the City than originally projected. → The City determines rates, locations and other regulations. → SDM contributes \$50 million per year to the City. → The City is considering changing governance and management arrangements due to new Parking Policy to broaden the mandate of parking, which is supported by the Board of Trade.
















Organizational Model	Description	Main Reasons	Examples in Canada?	Comments
5- Privatization (Also referred to as “asset monetization”)	<ul style="list-style-type: none"> → A way for municipalities having serious financial debt and cash problems to operate, maintain, and plan for the future by outsourcing on-street and off-street parking facilities to a private consortium of investors over a 35 to 50 year plus term in exchange for large upfront cash payment. → Assets remain property of the municipality. → City transfers to the private consortium: (a) operating risk (i.e. management & maintenance costs) and (b) capital expenses for the term of the long term agreement. → Gain extra capital funding from investor for new facilities. → In parking, this is a trend only in USA cities and universities over the last 10 years. → Challenge is on how to develop and implement a long term agreement that is fair to a city and the private consortium. 	<ul style="list-style-type: none"> → Lack of funds to maintain, modernize or upgrade parking infrastructure, such as on-street meters/technologies and parking garages in need of intensive capital refurbishment. → The need for new parking facilities (lots or garages), but shortage of City funds. → A city looks to the future requirements for parking infrastructure refurbishment or replacement (i.e. parking garage) and determines they do not have the finances to undertake such a capital intensive project, so they pursue private sector investors. 	<ul style="list-style-type: none"> → NO <p><i>U.S.A. EXAMPLES:</i></p> <ul style="list-style-type: none"> → Chicago, ILLINOIS → Indianapolis, INDIANA → Minneapolis, MINNESOTA → Harrisburg, PENNSYLVANIA → Ohio State University, Columbus, Ohio <p><i>CHICAGO:</i></p> <ul style="list-style-type: none"> → Leased 36,000 on-street spaces plus 4 large downtown garages (Grant Park/Millennium Park) → City faced serious financial issues in 2008 → Received upfront payment in 2008 of \$1.15 Billion for 75-year lease for on-street metered spaces and \$563 million for 99 year lease for the 4 garages. → Upfront payment used to pay off debt, improving neighbourhood parks, funding programs for low income residents and establishing a long-term reserve fund. 	<ul style="list-style-type: none"> → If municipality is under pressure to reduce costs and to fund growth key questions are: → Is parking a key core service? → Can the capital be better invested elsewhere into core municipal services?

Over the past 9 years since the dramatic financial collapse of world markets in 2008, the Business District model is becoming a popular trend in the USA where business associations or urban development renewal agencies are becoming responsible for operating, managing and governing parking services. The only city in Canada with this model is in Montreal, where the Board of Trade and its 2 partners, Accesum Inc. and the Stationnement de Montreal are responsible for parking since 1995. The privatization or monetization of parking infrastructure assets and services is also a trend in the USA where small and medium size cities are seeking lump sum large payments from investment groups to address debt and cash flow problems. The largest City in North America to monetize their parking, was the City of Chicago under a 75 year lease.

Table 4-8 explains the purpose of each common organization model and provides the pros and cons of each and the resulting questions that must be considered, which will later be addressed through the stakeholder engagement process and a subsequent evaluation of organizational options.

Table 4-13 Pros and Cons of Most Common Parking Organization Models in Canada & USA

Organizational Model	Purpose	Pros	Cons	Resulting Questions
1- Municipal Horizontally Integrated <i>(Many Departments & Sections - Current in Mississauga)</i>	<ul style="list-style-type: none"> To provide a range of parking services comprised of on-street and off-street (paid and unpaid) parking, enforcement, parking planning, customer service, backoffice administration and coordination with City's strategic goals (i.e. landuse planning and multi-modal integration). To balance objective of meeting the service & "City building" needs of the City while being financially self funded (with minimal or no tax support) to the greatest degree possible. 	<ul style="list-style-type: none"> Cost effective as not all costs allocated to parking functions due to functions absorbed by other departments or sections Promotes an environment of teamwork by allowing for input into parking from several departments or sections across the municipality at different hierarchical levels. A satisfactory approach to parking services if the municipality has the objective of limited investment in the development of major off-street parking program. 	<ul style="list-style-type: none"> Accountability for parking may be lost due to no one department or division to manage and coordinate all of the aspects of parking as an integrated overall system that is seamless to the parker. Conflicting objectives that may interfere in achieving City's strategic goals resulting in some issues not receiving proper focus as parking issues becomes more complex. Mixed messages to municipal staff on their role of being focused on revenue generation or meeting service requirements regardless of cost impact on the municipality. 	<ul style="list-style-type: none"> What is the clear role of parking for the community? How can conflicting objectives of revenue vs. service be clarified? To what extent does the City want to expand parking infrastructure in on-street and off-street facilities? What level of investment is appropriate for the municipality to provide off-street parking compared to private sector land developers?
2- Municipal Vertically Integrated <i>(One Dept. or Division fully accountable for parking services)</i>	<ul style="list-style-type: none"> Same as above, but with greater emphasis on parking as a service in "City building" and promoting multi-modes of transportation. To provide parking services to "customers" with an approach that is compliance oriented rather than the traditional punitive method treating parkers as "violators." 	<ul style="list-style-type: none"> Public and elected officials are clearer on where to go for parking services, issues or concerns: "One stop shop." Direct decision-making by Council on policy issues i.e. parking rates and strategic goals Raises profile and advocacy for parking needs in the City Full accountability for operations and coordination of parking within the City Net operating revenue (i.e. annual surplus) may be applied to promoting TDM and active transportation. May continue with other sections of the City in providing parking functions i.e. finance, capital works & transportation planning. 	<ul style="list-style-type: none"> Conflicts will still arise due to the mixed goals of balancing revenue with service ("City building"). Parking revenue growth may be limited in establishing competitive market-based parking fee/rates due to municipal decision-making approval process. Parking dept. or division competes with other City depts. to fund parking program (operating & capital) even though funding source is from parking revenue. 	<ul style="list-style-type: none"> How important to the City is the goal of parking as a revenue generator in being non-taxed supported? What are the City's financial expectations from parking? What are the best ways to resolve the conflicts between revenue and service when they arise?
3- Parking Authority <i>(Special Purpose Body external to municipal organization)</i>	<ul style="list-style-type: none"> To provide, manage and operate on and off-street parking facilities with a prime goal of revenue generation to off-set operating & capital costs and directing surplus revenues (dividends or profits) to a parking capital reserve fund and the municipality under an operating agreement. 	<ul style="list-style-type: none"> A Board, not City Council, focused on parking services and issues resulting in more rapid decision-making in response to changes in the parking marketplace in terms of consumer needs (sharing economy), competitive parking rates, new technologies and expanded parking facilities. Works well in an environment of extensive urban growth where expanded parking infrastructure needed and requiring a strong organization to focus on project implementation. Financially self funded and non-tax supported. Surplus funds placed in reserve fund for refurbishment of existing parking facilities and expansion of new parking facilities 	<ul style="list-style-type: none"> A separate Board makes the decisions on day-to-day operations, including parking rates with no approval by City Council. Other municipal objectives that may negatively impact parking revenue and cost efficiency are given low priority i.e. "City building" and promotion of multi transportation modes. The annual surplus funds (i.e. dividend) contributed to the City may vary as it is tied to parking demand and may not meet the City's annual financial expectations. If financial losses occur, the operating agreement includes provisions that such losses would be covered by the municipality and not the parking authority. 	<ul style="list-style-type: none"> To what extent is City Council's goal to generate sufficient revenue so parking is fully non-tax supported with surplus annual revenues placed in a reserve fund for the expansion of parking services and facilities (and/or contributed to the City)? How will the City (staff and Council) address conflicts that arise between prime objective of revenue at the expense of other City strategic goals of "City building" and achieving a multi-modal approach to transportation? How agreeable is City Council to relinquishing decision-making powers on parking services to a separate Board?
4- Business District <i>(Similar to Parking Authority, but run by local development agency or formal business association)</i>	<ul style="list-style-type: none"> Similar purpose as a Parking Authority with another major goal of planning, managing and delivering parking services that encourage commerce and support the needs of local businesses. 	<ul style="list-style-type: none"> Downtown business community has a vested interest in the economic vitality of the downtown and competitiveness to other commercial areas and therefore committed to making parking services successful. Provides skill sets in business and strategic planning that may be lacking, especially in small and mid-size municipalities. Beneficial in provision of private sector parking facilities by establishing partnerships without intensive capital investments. Financially self supporting without property tax support. 	<ul style="list-style-type: none"> A separate Board, comprised primarily of local business managers and owners makes the decisions on day-to-day operations, including parking rates with no approval by City Council. Other municipal objectives that may negatively impact commerce and the attraction of visitors to shop, work and entertain in the downtown, are given low priority i.e. "City building" and promotion of multi transportation modes. Promotions offered by the business community, such as free parking during different times of the year to encourage commercial activity may be in conflict with City objectives on reducing vehicular traffic. Depending on parking rates, may have insufficient capital to expand parking facilities (i.e. rates may be set below market rates). 	<ul style="list-style-type: none"> How agreeable is City Council to relinquishing decision-making powers on parking services to a separate Board comprised primarily of local business managers and owners? How will the City (staff and Council) address conflicts that arise between the prime objective of meeting local business owner objectives of commerce whom may not be concerned about the City's strategic goals of "City building" and achieving a multi-modal approach to transportation?

Organizational Model	Purpose	Pros	Cons	Resulting Questions
5- Privatization (Also referred to as “asset monetization”) (Private consortium of investors) 	<ul style="list-style-type: none">To obtain a lump sum large upfront payment from a private consortium in exchange for rights to the revenue over 35 (or more) years to operate and manage parking.Immediate funds are needed by the City to address serious financial debt and cash problems.	<p><i>Experience in USA is that privatization has resulted in number of benefits:</i></p> <ul style="list-style-type: none"> Renewed parking facilities previously in disrepair Improved response time to service and maintenance calls. New on and off street technologies previously unaffordable or lack of technical know-how on implementation by City officials Future refurbishment transferred to private sector Lump sum upfront payment used for other municipal funding programs not necessarily related to parking. Better branding, marketing & promotion of parking to customers. Assets remain property of the municipality. 	<ul style="list-style-type: none"> City is out of the parking business with no Council involvement on decisions. Decision-making by a private Board with priority goal of recouping initial investment (i.e. lump sum upfront payment) and generating additional profits for shareholders. Problems in clearly detailing and defining the exact terms, conditions and risk factors in a long term agreement that is fair to a city and the private consortium Under estimated revenue projections resulting in greater profits to consortium Negotiated too long a term i.e. 50 years instead of 35 years 	<ul style="list-style-type: none">How well and high functioning is the parking system in meeting both the public's and City Council's objectives?Does the City want to be in the parking business and if so, to what extent?Is the privatization (monetization) of the City's parking assets a way to meet future financial challenges?If there are budget problems, are there other alternative solutions?How important is parking to the overall municipal infrastructure, community and economic development over the long-term?

2.9.2 Functional Organizational Alternatives

Table 4-9 shows a more detailed comparison of the 5 most common business models in relation to the main functions of parking (i.e. finance, customer service, compliance/enforcement, on and off street operations, etc.). The “Existing Mississauga Parking Services” (status quo) organizational structure is compared to the other models of “City Department,” “Parking Authority,” “Business District,” and “Privatization.” As shown, by the two-piece rectangles, there are many functions that are currently shared and will continue to be shared even under a consolidated “Parking Department,” with the main difference being that the department or division head, will be accountable for the parking system as the “go to person” on parking issues, including being responsible for ensuring any coordination and integration is carried out among other sections, divisions or departments.

The “Own Unit” boxes refer to a parking function that would be directly provided within the particular organizational structure and not shared with another municipal section or department. It is interesting that even with the Parking Authority, Business District and Privatization models, the parking functions of Backoffice Administration (ticket & permit processing) and Compliance may be performed by other departments. For example, Chicago (Privatization model), the Police are responsible for parking enforcement and retain all revenue from fines even though the concessionaire (private operator) is allowed to use their own trained officers to issue tickets in order to increase compliance and hence parking revenue.

There are variations to all models shown. For example, the Toronto Parking Authority even as a self-governing agency with their own Board and a focus on operations and revenue generation, they are still involved with following the City of Toronto’s strategic transportation and land use objectives. The TPA has a very long history of high hourly parking rates, which have been supportive of encouraging public transit and the last few years being responsible for the City’s Bike Share program.

Table 4-10 is a more detailed illustration of the organizational structure of parking within eight (8) Canadian municipalities showing the comparison of hierarchical layers upon which the parking function operates. Parking is located within the transportation or public works areas for 6 municipalities, while two have parking in the Community Services Department (Regina) or the Planning and Economic Development Department (Hamilton). For Mississauga, Burlington, Edmonton, Hamilton and Ottawa parking is the 3rd hierarchical level within the main department or branch whereas London, Regina and Windsor are at the 2nd hierarchical level.

After the stakeholder consultation sessions these models will be more refined and evaluated based on a variety of criteria to narrow down the most feasible options.

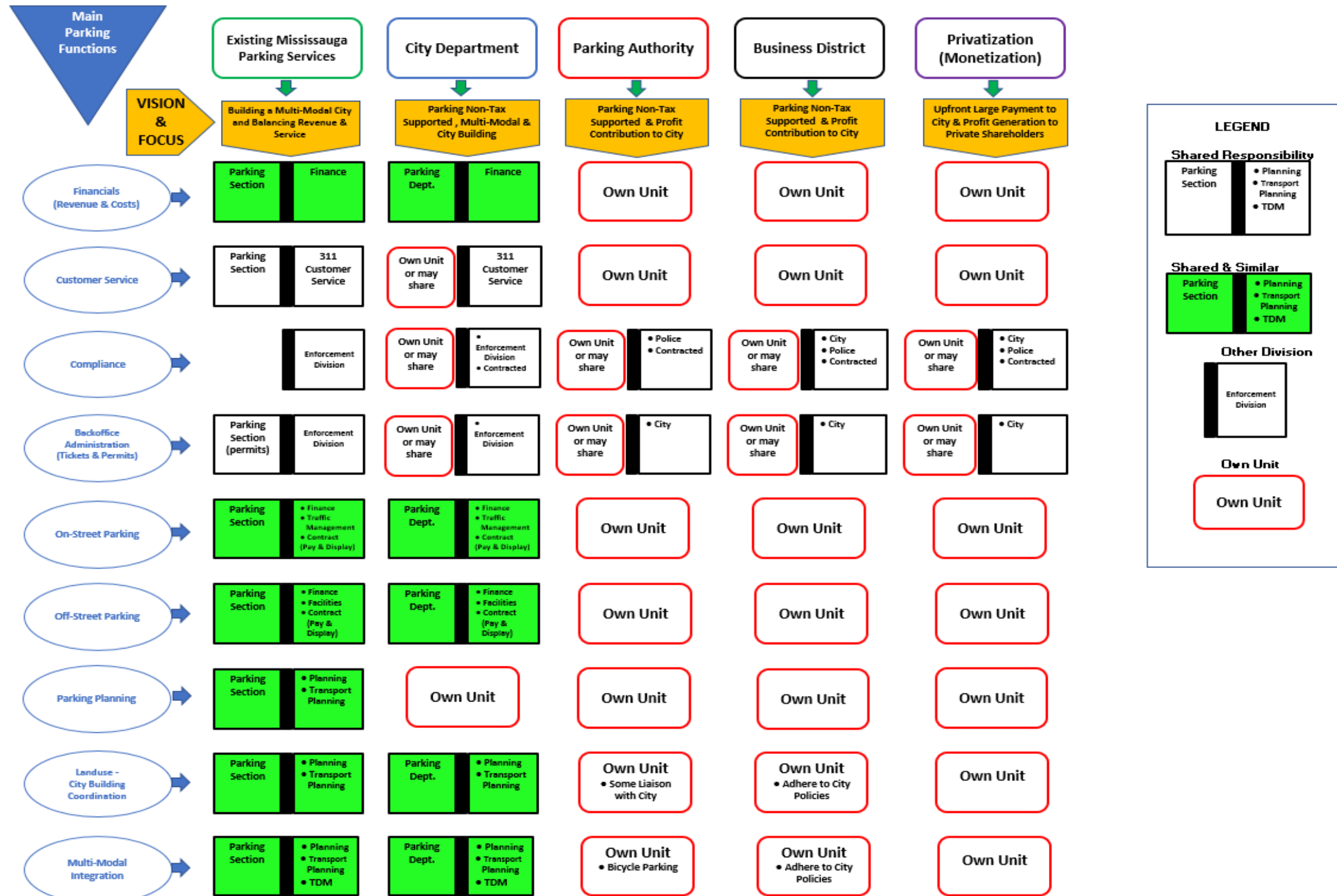


Figure 4 - 22 Parking Organizational Structure Within Select Canadian Municipalities



Figure 4 - 23 Parking Organizational Structures Within Select Cabnadian Municipalities

2.10 Parking Financial Models

As shown in the previous section, nearly all of the selected Canadian parking services are non-tax supported and generate surpluses for contributing to capital reserve funds for parking infrastructure improvements or expansion and/or an annual contribution to the municipality to off-set property tax increases. The City of Mississauga was shown as funded partially by the property tax base due to the horizontal organizational structure of many departments and sections across the City involved in parking and the non-allocation of all costs related to parking services. Therefore, a best practice is self-funded operation with no subsidy from the local property tax base.

The other financial model with a major difference as outlined in Figure 4-9 is the privatization (monetization) of the parking infrastructure to a consortium of private investors in exchange for a large lump sum upfront payment and long term agreement over 35 years. This has not been applied to any Canadian parking operations, but a similar situation occurred back in the mid-1990's in Ontario when the new Highway 407 Toll Highway concession was sold to a group of investors in exchange for building the highway and then operating it for 99 years and retaining the toll revenue.

The next section of this best practices review provides some key performance indicators for 2015 benchmarking and comparing Mississauga to eleven (11) other Canadian municipal parking services.

Benchmarking

For benchmarking Mississauga parking services against other Canadian cities, the most recent and publicly available data was from Dundas, Ontario based MBN Canada (Municipal Benchmarking Network Canada, formerly known as OMBI), which is a network of 16 Canadian municipalities using data to continuously improve the way they deliver services to their communities. MBN Canada uses 37 service areas, including municipal parking, 670 measures covering 6 provinces.

Mississauga 2015 data was not available directly from MBN Canada, but was obtained from City staff, calculated and then manually added to the applicable parking performance measure graphs extracted from the publication.

The abbreviations for the Canadian municipalities that are used on the graphs, are as follows:

The regional municipalities noted below do not operate municipal public pay parking so are not included in the subsequent graphs.

Table 4-14 Benchmark Municipalities and Abbreviations

Benchmark Municipalities and Abbreviations			
City of Calgary	CAL	City of Thunder Bay	TBAY
Region of Durham	DUR	City of Toronto	TOR
Halton Region	HAL	Region of Waterloo	WAT
City of Hamilton	HAM	City of Windsor	WIND
City of London	LON	City of Winnipeg	WINN
City of Montreal	MTL	York Region	YORK
Niagara Region	NIAG	Median	MED
City of Ottawa	OTT	Mississauga	MISS
City of Regina	REG		

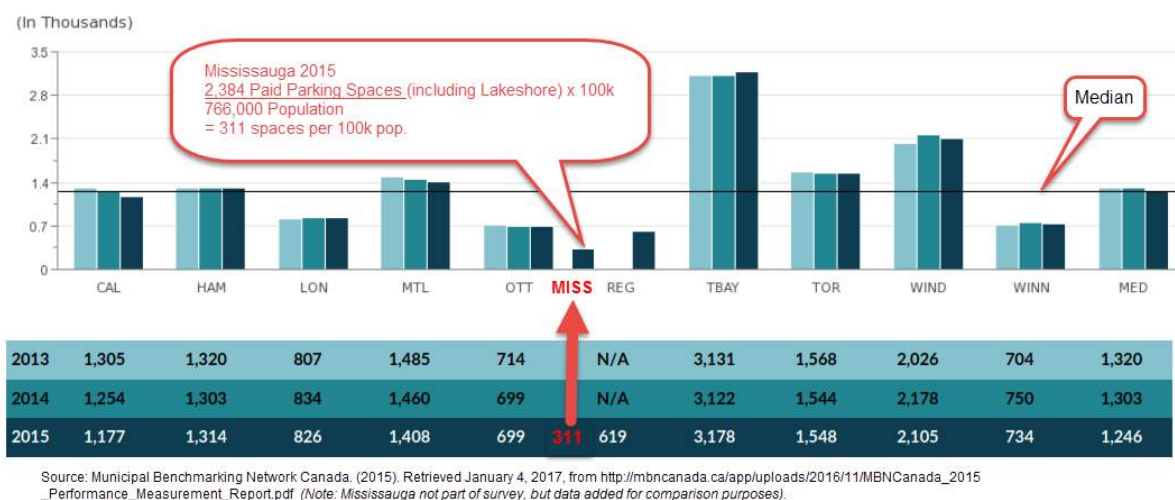
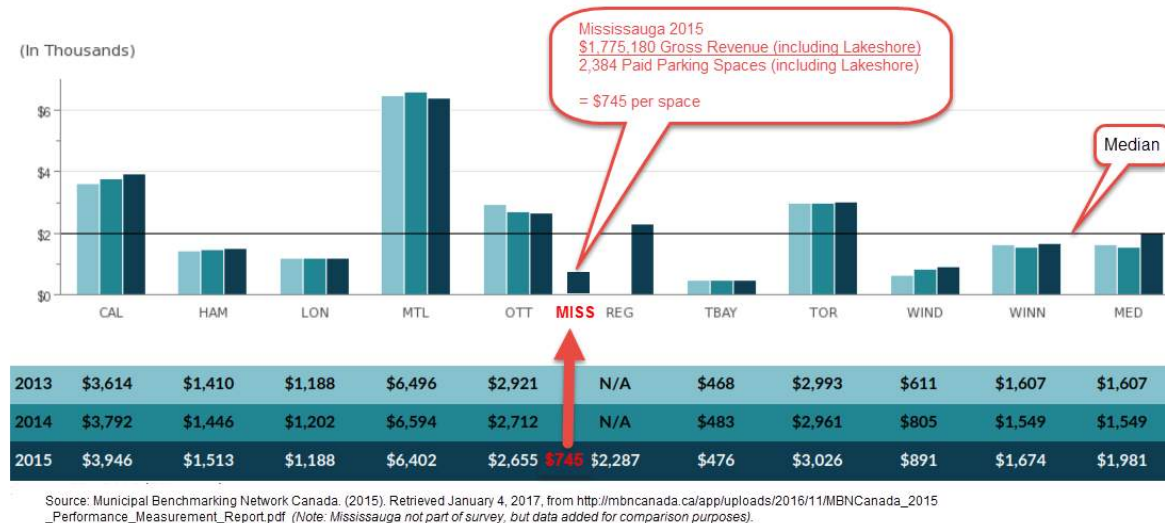


Figure 4 - 24 No. of Paid Parking Spaces managed Per 100, 000 Population

Discussion

- Mississauga has the lowest (311) number of paid parking spaces per 100,000 population (and less than half of the median) due to the fact that the benchmark cities have traditional well established old downtowns and pay parking operations compared to Mississauga which has a relatively new and growing downtown and pay parking only introduced a few years ago.



Comment: In the City of Montreal, a higher proportion of revenues is derived from parking tickets. The utilization of a web application (P\$) has helped to increase revenues and reduce the non-payment rate.

Figure 4 - 25 Gross Parking Revenue Collected Per Paid Space

Discussion

- Mississauga has the 2nd lowest (\$745) parking revenue per paid parking space, which is higher than the lowest, Thunder Bay (\$476) and close to Windsor (\$891).



Figure 4 - 26 Total Cost per Paid Parking Space Managed

Discussion

- Mississauga has the third lowest cost (\$624) per space compared to London (\$461) and Thunder Bay (\$440).
- The largest parking operations have higher costs per space with Calgary (\$2,129) having the highest cost followed by Montreal (\$1,849), Ottawa (\$1,778) and Toronto (\$1,613).

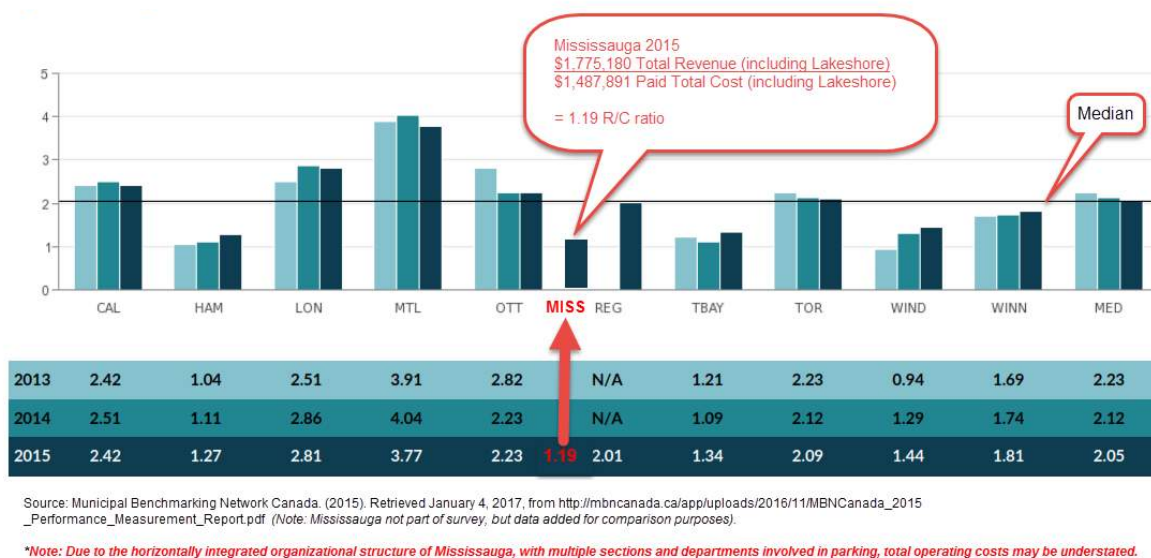


Figure 4 - 27 Parking Services Revenue to Cost Ratio – Total

Discussion

- The Revenue to Cost Ratio is an indicator of financial performance of the parking operation. A R/C ratio of 1.00 means that the parking system is breaking even. When the R/C exceeds 1.00 it's representative of producing a surplus (or profit) that may be either reinvested into the operation through a capital reserve fund or paid out as a contribution to the municipality in the case of all business models except the Privatization model.
- In 2015, of all the cities, Mississauga had the lowest R/C ratio of 1.19 with Montreal having the highest at 3.77, Calgary at 2.42 and Toronto at 2.09.
- Hamilton's R/C ratio of 1.27 is only marginally better than Mississauga's (1.19), yet Hamilton has a much larger operation (3,700 spaces) than Mississauga's (2,000 spaces) indicating less utilized spaces and/or greater competition by private parking operators in the downtown.

2.10.1 Understanding the Real Costs of Parking

Despite common thinking that parking can be provided for “free,” there are inherent costs associated with providing parking. For new parking facilities, the cost of parking spaces include: land acquisition, design & construction, lighting, power, signage, access control, safety and security, fencing, landscaping, parking planning and insurance. For existing parking facilities there are ongoing maintenance costs of snow and litter removal, power sweeping, resurfacing, landscaping, line painting, lighting and insurance as well as costs of marketing, promotion and enforcement.

It is often raised that privately owned shopping malls provide “free” parking, when in fact the inherent costs are passed along to the user. For example, the capital and operating costs incurred of operating the large number of parking spaces at a mall are reflected in the tenants' rent, which is passed on to consumers through the price of goods and services.

Enforcement costs are increased when free time-limited parking is provided because more frequent patrols are required. In some cities, parking enforcement revenue is used to support the entire parking program and operations, including enforcement costs.

When municipalities opt to provide “free” parking, the costs must be covered from sources other than user fees such as taxes and there isn't the ability to build reserves to fund future capital projects.

Table 4-15 shows the estimated capital and operating costs per space for various types of parking facilities, excluding land acquisition costs. Land acquisition costs have not been incorporated into this table since real estate costs vary greatly based on location. These costs apply to Southern Ontario and are based a recent WSP Canada Inc. study for Exhibition Place in Toronto.

Table 4-15 Estimated Capital and Operating Costs for parking spaces by type

Type		Cost (\$ per space for capital and \$ per space per year for operating)
Capital	Surface lot	\$6,250
	Above Ground Structure	\$44,000
	Above Ground Pre-Fab Steel	\$20,000
	Below Ground Structure	\$62,500
Operating	Surface Lot Stall	\$150-250
	Above Ground Structure	\$250-350

	Below Ground Structure	\$350-500
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2.10.2 *Key Elements of the Parking Financial Model*

Based on our combined previous work in this area, in developing a financial model for the Parking Master Plan, it will be important that public officials and managers resist the urge to increase revenue for revenue's sake and that the program's qualitative goals are not sacrificed for revenue expediency. However, there will be trade-offs and a balancing act to meet the strategic parking policy framework objectives while ensuring sufficient funds to support the parking requirements of the community. There are financial realities of providing an effective parking program and therefore, it is critical to understand the real costs before approving concepts in the Parking Master Plan to avoid burdening the local taxpayer. Parking revenue from paid parking and fines is important to re-invest in the parking services and infrastructure as well as supporting a state of good repair and other programs, such as TDM and active transportation.

The key elements that will drive the parking financial model (to be developed at later stage of the PMPIS) are:

- **Demand (parkers) forecasts** – short and long-term
 - volume of parkers by type of parker (transient vs. monthly)
- **Supply (spaces) forecasts**
 - based on demand or availability
- **Revenue (rates) forecasts**
 - based on demand (volume of parkers, by parker type) & pricing (rates)
 - fine tuning different rates to respond to the rate level to charge for monthly parking vs. transient parking
 - Incremental pricing increases (based on parking market)
- **Cost – Capital and Operating forecasts**
 - based on supply
 - type of parking facility (on-street, surface lot, underground, above ground)
 - ongoing operating and maintenance expenses
 - capital costs of surface and structured parking
- **Finance**
 - funding sources (user fees, Payment-in-Lieu, development charges, tax contribution, private sector contribution (in return for zoning variance) and tax incentives promoted through the Province's Smart Growth initiatives
 - ROI (Return on Investment) – including “breakeven point”
 - payback period (years)

2.10.3 *State of Good Repair for Parking Infrastructure*

Based on our experience and similar parking studies a best practice is that a financial model should start with a “State of Good Repair” evaluation of the City's existing parking infrastructure and equipment and a review of the City's 10-Year capital and operating budget forecasts and the amount of allocations for

infrastructure (i.e., resurfacing, lighting system replacement, elevators, parking access and revenue control technologies, parking guidance systems and garage refurbishment).

Any future expansion targeted to a specific area of the City Centre or other area (i.e., Port Credit), would a high level financial analysis will be undertaken of requirements for capital investment, ongoing operating costs, revenues and parking fees needed (i.e., charged to parkers) to sustain and support surface and structured parking during the life cycle of the parking facilities.

The development of the parking financial model will also consider the impact of new technologies that will transform the future transportation system. With the City's approach to forward thinking and planning, it will be important to ensure that the municipality is adaptable and flexible towards future trends that must be considered prior to making multimillion dollar investments in parking services and infrastructure.

In Ontario one of the most active and progressive parking operations that charges for parking, is the Toronto Parking Authority (TPA) where 7% to 10% of the total parking operating budget, should be budgeted for annual maintenance, covering sweeping and power washing facilities, pavement line markings, pavement patching and repair, equipment repair, and lighting and signage upgrades for both surface lots and parking structures. Snow clearing would add approximately an additional 4 to 5 percent of the parking operating budget.

Another typical best practice is an annual allocation of 1 percent of the total value (cost) of parking capital assets for major upgrades to elevators, parking lot repaving, lighting system replacement and technology (software and hardware) improvements for both surface lots and parking structures. This annual allocation should be used for refurbishment of surface parking lots at Year 15 and parking structures (above ground and underground) at Year 25 from the date of initial opening of the facilities. Surface parking lots typically have a 15-year life, while underground parking structures and prefabricated above ground structures have a life cycle of 50 years or more, if maintained properly.

2.10.4 Sustainable Parking Now and in the Future

Sustainable parking may be viewed in terms of financial sustainability as an economically viable operation with little or no burden on taxpayers and as an organization committed to environmental sustainability outcome, such as reducing greenhouse gas emissions and taking action on climate change. Financial self-sufficiency has been outlined in this report earlier and there is another section in the finance portion of this review, so it will not be repeated here.

Across North America municipal parking service providers are taking a leadership role in environmental sustainability by implementing many initiatives, which are listed below:

- Parking guidance systems both on local nearby road networks (i.e. Square One, Mississauga) and within surface parking and garages to cut down on motorists searching for spaces. The guidance system advises motorists where available parking spaces are located in real time.
- Support for TDM and active transportation by managing bicycle sharing programs and establishing secure bicycle parking in traditional parking garages. Examples can be found in Austria, 200 Euros subsidy per new bike parking space in existing parking facilities built before 2000 and 400 Euros subsidy per e-bike space (BMLFUW 2017), Munich (Germany), and Melbourne.
- Preferential parking locations within parking facilities for multi-occupant vehicles.
- Greening of buildings by working with local hydro boards and government programs to install energy efficient LED lighting and solar power panels on parking garages.

- Electric vehicle charging stations in garages (Mississauga is already doing this) and providing convenient locations within parking facilities for doing so.
- Carbon off-set programs through training and education for parking managers on learning how to calculate carbon footprints and reduce the latter with the objective of achieving 100% carbon neutrality.
- Carbon neutral internal fleets used by municipalities and their associated parking divisions.
- Partnerships with ZipCar, Car 2Go and others to allow for convenient parking spaces, 24 hours a day, 7 days a week.
- Smartphone guidance and payment apps to reduce parking ticket paper and make parking more convenient for customers.

This does not represent an exhaustive list; there are many other programs that are continually evolving as new technologies and practices are developed.

2.11 Parking Enforcement

Nobody likes to receive a parking ticket or getting towed. Parking enforcement is often viewed by the parkers as a “tax grab” for a municipality to generate additional revenues.

In balancing the management of parking spaces and the service needs of parking customers, there has been a trend the last few years of shifting the approach from parking enforcement to parking compliance. Enforcement helps to manage a scarce resource of parking spaces. To assist prospective customers with complying with the parking bylaws on payment, time limits, location and accessibility, some enforcement agencies are shifting away from seeing violators that need to be punished for parking infractions as customers who should be valued and appreciated.

The key objective of the “customer” approach is to improve compliance rather than issuing more tickets. A parking ticket is merely one of the tools. When illegal parkers do not comply, this causes safety issues and inconvenience to other parkers who require access to goods and services, their workplace, residence, place of worship, education and many other activities.

Some municipalities in both Canada and the USA have taken an approach where parking enforcement officers become “ambassadors” by helping motorists on how to use parking technologies, providing directions and educating someone parking illegally where the person has made an honest mistake or is purposely ignoring the law by directing them to a legal parking space.

2.11.1 Compliance (“Customer”) Vs. Enforcement (“Punitive”) Approaches

Parking Ambassador Programs

VICTORIA AND NANAIMO, BC

After several decades dating back to the 1950s of using contracted Canadian Corps of Commissionaires as parking enforcement officers, in January 2016 the City of Victoria, BC introduced a “parking ambassadors” program by hiring 23 new in-house staff that provide proactive customer service, while also enforcing the parking bylaws to ensure high parking turnover for residents and downtown businesses. Victoria adopted this program from a similar successful ambassador program used by the City of Nanaimo, BC. The criteria for hiring were candidates with strong verbal and interpersonal communication skills, proactive nature and strong judgment. A comprehensive training program was

introduced by providing the new staff with understanding of the importance of tourism, knowledge about the geography of the City and the needs of downtown businesses and the importance of safe and efficient parking services.

The ambassador program has been well accepted by the parking public and downtown businesses as fewer tickets are being issued with people complying more by paying for parking resulting in parking revenue in 2016 being \$500,000 to \$900,000 more than budgeted. There was a reduction of 5,000 fewer tickets due to fewer complaints and improved interactions with parkers where no ticket is written.



In addition to parking ambassadors, the City introduced convenient pay by smartphone service that lets drivers start and stop a parking session, paying only for the time they use. The rates in the City's parking parkades were changed by providing the first hour free and rate reduced to \$2 per hour, resulting in a shift of parkers from the highly occupied on-street spaces to the lower utilized spaces in the parkades. This has resulted in higher turnover rate for on-street parking.

The uniforms of the "ambassadors" appear less military looking. The parking ambassadors have provided the City with additional sets of eyes and ears on the streets, resulting in nearly 50 calls per month for crews to respond to traffic issues, graffiti, broken glass or garbage cans in need of cleanup as well as helping police identify stolen vehicles and simply assisting people.

Figure 4-27 Parking Ambassador

Source: Times Colonist. (2016). Retrieved December 27, 2016, from <http://www.timescolonist.com/news/local/new-parking-regime-a-winner-for-city-of-victoria-1.2314184>

The metrics of measuring “ambassador” programs may consist of the number of customer interactions, increased compliance (i.e. revenue increases in the parking payment machines and technologies), customer and merchant feedback and many others that may be different than solely based on the total number of tickets issued by enforcement officers.

The bottom line was that the City was serious about ensuring customer have a positive parking experience making the downtown more attractive for people to come and return downtown.

DUNCAN, BC

In 2015 the City of Duncan, British Columbia (population 5,000 with pay parking), the town adopted a new model for parking management in and around the downtown core by having a goal of being 100% customer friendly by ensuring prime parking spots are reserved for customers shopping in the downtown core. If an officer (contracted to the Canadian Corps of Commissionaires) issues a parking ticket to a customer while shopping or using downtown services, the person just calls City Hall to have the ticket cancelled or drops by in person. Business owners, employees and students that are all-day parkers in the downtown area are not provided the same leniency as a customer when parking in the downtown core and any tickets received may not be cancelled.(contracted to the Canadian Corps of Commissionaires) issues a parking ticket to a customer while shopping or using downtown services, the person just calls City Hall to have the ticket cancelled or drops by in person. Business owners, employees and students that are all-day parkers in the downtown area are not provided the same leniency as a customer when parking in the downtown core and any tickets received may not be cancelled.

10 WAYS TO AVOID A PARKING TICKET

1. Watch and follow the signs – Parking is typically signed to create clarity and avoid confusion.
2. Know parking options – meters, parking lots and parkades
3. Know the difference between no parking and no stopping
4. Leave bus stops and bus lanes open for buses
5. Park safely near schools
6. Leave designated disability spots for people with disabilities
7. Keep fire hydrants accessible
8. Respect time-limited parking and don't park in alleys
9. Follow parking standards for intersections, cross walks and driveways
10. Err on the side of caution – If you are unsure of your parking choice, find another spot. A poor parking decision can lead to impacts on others and a ticket for you.

Understanding Parking

BURLINGTON, ONTARIO

For over 15 years, the City of Burlington has had a very successful “downtown parking ambassador” that regularly meets with downtown businesses during patrols, interacts with the downtown Business Improvement Area members, helps pedestrians and drivers, reports damaged municipal property (i.e. lighting, equipment signs, cracked sidewalks, pavement failures),while issuing tickets under the Provincial Offences Act (POA).

REGINA, SASKATCHEWAN

In 2015, the City of Regina introduced a 6-month pilot parking ambassador program similar to the programs in Victoria and Nanaimo. When first launched, ambassadors handed out pamphlets about parking meters, bus lanes, fire hydrants and “10 ways to avoid a parking ticket.” As part of this education approach in the downtown, ambassadors provided warnings to parkers that were improperly parked rather than immediately issuing a parking ticket. Since the start of the program, there has been a decrease in repeat offenders and officers are continuing to issue pamphlets in 2017.

COURTESY TAGS – TORONTO PARKING AUTHORITY

 COURTESY CHARGE		
100133999		
Date of Infraction	Time of Infraction	Officer #
Oct 26, 2015	06:59 PM	77509
License Plate	Plate	Vehicle Make
	ON	Kia
Infraction Location Lot# 78 35 ERINDALE AVENUE		
Reason for Charge (23) PARKED OVERTIME		
Comments		
AMOUNT DUE: \$ 6.00 <small>Payment Instructions on Back</small>		

**Figure 29 TPA
Courtesy Charge**

One of the longest most successful alternatives to issuing parking tickets has been the Toronto Parking Authority's (TPA) "Courtesy Envelope" (CE) program that has been successfully used in all of their off-street facilities for over 25 years.

The TPA uses courtesy envelopes as its primary means of enforcing parking violations, related to the non-payment of posted fees. Courtesy envelopes are issued on attended, pay-on-foot and unattended "Green P" lots (pay & display).

The TPA views the courtesy envelope program as the most customer friendly means of enforcement that encourages initial compliance (payment for parking) while supporting the needs of local businesses. The use of courtesy envelopes is strongly supported by the Toronto Association of Business Improvement Areas (TABIA) representing Toronto's 82 Business Improvement Areas (BIAs) comprised of more than 40,000 businesses. The business community believes that exclusive use of parking tickets (officially called Parking Infraction Notices - PINs) to enforce parking on municipal lots will encourage shoppers to abandon shopping at local retail stores for shopping malls that offer free parking.

The TPA supplements the use of courtesy envelopes with parking tickets to enforce parking violations mainly on unattended lots (pay and display representing nearly 90% of all CE's issued). For several years a vehicle recorded as having three outstanding unpaid courtesy envelopes was required to be issued by a TPA enforcement officer a PIN on the fourth violation. However, the program was modified after 2002, as follows:

- If a vehicle had no ticket displayed and no unpaid CEs it would be issued a CE;
- If a vehicle had no ticket displayed and any unpaid CEs it would be issued a PIN
- If a vehicle was parked overtime and had zero or one unpaid CE it would be issued a CE;
- If a vehicle was parked overtime and had 2 or more unpaid CEs it would be issued a PIN;
- If a vehicle had 6 paid CEs within the previous 6 months it would be issued a PIN.

All of the above activities are tracked automatically by TPA enforcement officers use of handheld computerized parking ticket issuance devices.

Revenue Impact

The most publicly available information from the CE program on effect on overall revenue is 2009. Revenue from pay & display (PD) lots was impacted in 3 ways:

- Increase in initial compliance (persons buying PD tickets on entry);
- Less CEs being issued but for higher amounts; and
- More program related PINs issued.

Since the modification of the modified program noted in the above points, the following was reported:

- 135,000 CEs issued per year (down from 220,000 CEs prior to the modification)

- PINs increased from 24,000 to 44,000 per year
- CEs and PINs in arrears decreased from 244,000 to 179,000 resulting in initial compliance increasing substantially by 4% to \$800,000 per year (every 1% increase in revenue compliance is equivalent to \$200,000 per year).

In 2007, the TPA encouraged the Toronto Police Service to adopt the Courtesy Envelope program for on-street pay parking, but it was rejected for a variety of reasons where the Police believe there would be issues with differential enforcement, program boundaries, preferential treatment, increased disputes, risk to overall parking ticket program compliance and a decrease in overall parking ticket revenue to the City. However, the TPA continues to this day to successfully operate the CE program in all of its off-street parking facilities.

Depending on the organizational model adopted by the City of Mississauga there may be an opportunity to adopt this type of customer friendly program for Mississauga's parking program. If there is interest, the City may wish to have further detailed discussions with TPA officials.

LAMBTON SHORES, ONTARIO

In 2015, the community of Lambton Shores on the southern shores of Lake Huron (population: 11,000) adopted an enforcement approach that had officers issuing "courtesy tickets" on offending vehicles on Grand Bend's Main Street West and paid parking lot, which was well received in the community.

Green cards were issued to vehicles either lacking paid parking tickets or displaying time-expired tickets. The green cards informed parkers about their infractions, advised that an officer would be returning in approximately 15 minutes and requested that the parkers either buy more time or move their vehicles to avoid a parking ticket (fine).

The Town reported the program was successful. Out of the 3,373 "courtesy" tickets issued only 349 vehicles subsequently received parking tickets, which is almost 90 per cent compliance with the courtesy tickets. Positive feedback was received from merchants in support of the program and from visitors to this tourist area.

2.11.2 New and Emerging Technology Practices in Enforcement

Over the past 3 years, one of the latest advances in parking enforcement that was once only economical for larger operations and now cities, such as Guelph, Waterloo, Whistler, Prince George, Nanaimo, Lethbridge, and others are deploying mobile LPR (Licence Plate Recognition) for parking enforcement.

LPR - how it works

A normal vehicle is equipped with two cameras on the roof, just above the windshield, that scan the licence plates of any cars parked on a street. The computer will log the plate number, the GPS location of the vehicle, the date and the time. It also is tied through the internet for cities that have adopted pay by licence plate and mobility payment (pay by cell) to alert officers of expired purchases of parked vehicles.

For areas without pay parking, the officer may drive at the posted speed limit, and will return to the area when the period of free parking (i.e. 2 hour limit) has expired. Any vehicles that have not moved in that time are flagged by the LPR system and the officer issues that vehicle a parking ticket.

A second set of cameras at the back of the vehicle scans the position of the tire valves to determine whether or not the vehicle moved during that time and re-parked in the same location.

The data is stored on a secure server and follows the recommendations provided by the Information and Privacy Commissioner of Ontario about the handling of data.

CALGARY'S PARKPLUS SYSTEM

As noted in sections 4.6.2.1 and 4.82 the Calgary Parking Authority (CPA) has one of the most advanced and customer-convenient parking payment and enforcement system of any other city in North America. A customer enters the system using their licence plate number at either a pay by licence plate machine or with their cell phone, while camera mounted vehicles scan licence plates to verify payment. This process streamlines efficiency and can be used on-street, in surface lots or within parkades through the installation of stationary cameras to create a virtual gate. It's the ease and efficiency of this system that sets it apart from others: customers have a straight-forward and easy way to pay so they do, while on the operations-side, enforcement officers only have to check the vehicles in violation, which are just a small percentage of the vehicles scanned by the system. All those vehicles for which payment has been made are automatically accepted as valid by the system.

The City of Calgary Experience

In a survey conducted by Ipsos Reid (2013), 88 per cent of CPA customers indicated that they are "satisfied" or "very satisfied" with the ParkPlus System while 92 per cent of their cell phone payment customers echoed those satisfaction levels. Recent data shows that these satisfaction levels have resulted in a 19 per cent increase in payment compliance: people are choosing to pay for their parking more than ever before.

Since the adoption of the ParkPlus System, the City of Calgary has benefited from a 10 per cent increase in available on-street space because painting designated stall space isn't necessary. By opening up the curb side in this manner, more vehicles are able to park in a given area as smaller cars are able to utilize space that a regular sized vehicle can't squeeze into.

The CPA has experienced significant productivity improvement in enforcement with ParkPlus. Today, 10 enforcement officers do what 16 officers produced with walking beats and issuing tickets. The number of disputed tickets has decreased by 60% because of the strength of photo evidence; as a result, the number of court challenges has been drastically reduced saving the CPA company costs related to fees and time spent in court. These same streamlined efficiencies have impacted the operations side of the business as well.

In 2014, Edmonton became the first City to purchase the CPA's ParkPlus technology, rebranded as 'ePark'. The implementation cost of replacing 3,000 coin meters was estimated at \$12 million (Metro News Edmonton 2014).

2.12 Other On-Street Parking Related Policies

2.12.1 Parklets

The National Association of City Transportation Officials (NACTO) defines parklets as '*public seating platforms that convert curbside parking spaces into vibrant community spaces*'. Also known as street seats or curbside seating, parklets are the product of a partnership between the city and local businesses, residents, or neighbourhood associations".

Parklets are typically applied where narrow or congested sidewalks prevent the installation of traditional sidewalk cafes, or where local property owners or residents see a need to expand the seating capacity

and public space on a given street. Parklets typically require property owners to enter into an agreement with a municipality, in some cases through a citywide application process, procuring curbside seating in place of one or more parking spaces.

NACTO recommends that six critical steps must take place to ensure the proper planning of parklets:

1. Visibility with moving traffic and cars with a buffer zone
2. The implementation of vertical elements to ensure high visibility
3. A minimum width of 6 feet
4. A flush transition with sidewalks and curbs,
5. The incorporation of seating with the parklet,
6. A level sub structure dependent on slope.

Moreover, elements to consider when addressing parklets on City roadways are the applications process, control, and Local Business Improvement Area (BIA) role in facilitating parklets. Seasonal variation, and space allocation are also notable considerations when deciding on the location and implementation of parklets

Practices of Other Municipalities

EDMONTON

In Edmonton, parklets are semi-enclosed miniature parks opened for the public situated in the ancillary zone of a street to provide a place for public gathering, a destination to attract people. Parklets can be temporary or fixed in nature, and usually would have a ramp from the sidewalk to the road as well as a railing around the outer edge. To protect it from the traffic, it may have flex posts at each end clad with reflective tape. Measured from the face of the curb, parklets are usually 2.25m wide, but lengths are flexible and are context-dependent. Ancillary zones of 2.5m (the width of parking stalls) are demarcated on each side of the street for loading and parking purposes, and as an amenity space.

Again, parklets can be either temporary or permanent. In Edmonton a temporary parklet along Whyte Avenue was built to pay respect to a cyclist who was killed in an accident on the same street. The objective of this was to promote safety awareness in transportation (Lye, 2014).



Figure 4 - 30 **Edmonton Parklet, Whyte Ave, 2014**

ADELAIDE

Funded and designed by non-governmental organizations, Adelaide parklets are small parks inserted into an existing streetscape to provide amenity space. They may include spaces for catering, bike parking, plants and landscaping, and public benches. They contribute to the city-life both day and night. The City of Adelaide Parklet Program objective is to encourage public participation in street life by offering places for a temporary stay, which keeps an “eye on the street” or help with surveillance of undesirable behaviours.

TORONTO

The City provides design guidelines for parklets however the current approach is being refined as part of a larger review of regulations surrounding outdoor cafes. In this context, “outdoor cafe” refers to more than sipping a cappuccino on a patio and encompasses a range of commercial and community uses on and around sidewalks. The City of Toronto recently authorized the development of an Elm Street Summer Parklet

VANCOUVER

The City proved an application process and manual for businesses opting to extend a platform over on street parking to include benches, tables chairs, landscaping, and bicycle parking.

MONTREAL

The City outlines a guide for how to transform and implement parklets on on-street parking. The City's guidelines provides guidelines to create dynamic parklets on portions of the highways. The implementation of parklets aim to; (1) reinvent the street, (2) encourage alternative transportation, (3) support the local economy, (4) encourage social interaction, (5) increase security, and (6) stimulate creative designers.

Relevance to Mississauga

Parklets may be adopted by the City for use and implementation on many of their high traffic arterial roadways. These high traffic areas would directly benefit from additional street scape, and increased activity. Moreover, areas prompt from economic growth may benefit from parklets due to assumed increased pedestrian traffic.

2.12.2 Sidewalk Cafés

Sidewalk cafés and Parklets are commonly link together in terms of their intended use. The intended use would be to implement a sidewalk parklet followed by aiming to use the space as a sidewalk café. These cafés are typically linked to a business that possess the capabilities and desire to increase an outside service seating area.

Considerations

Like many of the elements slated for consideration in the preceding section, sidewalk cafes mimic many of the considerations for parklets. The main difference is, the sidewalk café are usually owned and operated by a business, a valid business license certificate(s) should accommodate and regulate the addition of seating. Likewise, if the business maintains a liquor license, this document must be accompanied and outlined during the application / implementation process.

Practices of Other Municipalities**CITY OF TORONTO**

The City maintains a Sidewalk Café Manual. The manuals main goal is to outline functional design, public right-of-way access, and what is required opposed to optional. Guidance, safety and accessibility are outlined to aid business owners on the proper use of sidewalk cafés.

CITY OF CHICAGO:

The City currently implemented an application process in respect to design guidelines, landscaping, and accessibility. For example, all sidewalk café platforms shall not be longer than 40 by 6 feet and support a 750 lbs. per square foot, all platforms must include plants are a minimum of 4 by 1 foot long by 32 inches tall, and include a transition zone between any raised sections and the natural sidewalk

Relevance to Mississauga

The City of Mississauga took steps in generating growth in its downtown core though endorsing Downtown21 – Conceptual Master Plan. This document outlines a walkable downtown prompting a complete street approach. Sidewalk cafés were mentioned with an aim to increase green technologies, a walkable downtown core, and improve the quality of downtown life not only as a place of work.

2.12.3 Temporary On-Street Parking Permits

Temporary on-street parking refers to providing limited exclusive use of existing on street parking provisions within a designated time frame. Temporary provisions regulating on-street parking can significantly impact the City’s transportation system, parking-related income, pedestrian experiences, as well as the goals and objectives of the City’s Official Plan. It therefore follows that they should be carefully planned and regulated.

Considerations

Two main elements should be considered when addressing temporary on-street parking provisions: payment structure and time length. Time length refers to whether daily, or weekly temporary regulations are put in place and whether special replacement parking is provided in lieu of standard on-street parking.

Practices of Other Municipalities:

Municipalities’ approaches to on-street metered parking options include the following:

CITY OF TORONTO:

The City provides three alternatives to temporary on-street parking; a 24-hour period, 48-hour period, and 1 week temporary parking permit. Associated costs increase with each alternative.

CITY OF RICHMOND HILL:

The City’s approach to temporary on-street parking throughout a fixed payment fee system. The City provided a 24-hour parking permit for \$5 plus HST and is valid from 7:00 AM to 6:59 AM the next day. In the situation of unforeseen circumstances such as construction, repair, and City maintenance, temporary on-street parking may be issued to residences free of charge by the City.

Relevance to Mississauga
The City currently outlines all temporary on-street and all parking provision in Traffic By-law 555-00. Temporary parking permits are currently provided on a case-by-case basis to address alternative parking provisions

2.13 Transportation Demand Management

2.13.1 Policies and Priority Parking for Carshare and Carpools

The increase in the use of carshare and carpools has led to changes in the approach to parking management. To encourage the use of both, there needs to be policies that support the provision of carpool parking spaces as well as locating them in safe and secure areas where they are close to building entrances, and elevators. .

City of Toronto (Staff Report dated 11 July 2014) – OPA includes policies in support of TDM and Parking including: allowing required number of parking spaces to be converted to spaces dedicated for carshare vehicles and provide preferential parking for carpool, carshare and low emission vehicles. The actual amendment (section 2.4) states:

8. In support of the TDM and environmental policies of this Plan, the City may:

- a) Support the conversion of required parking spaces to designated publicly accessible carshare spaces
- b) Encourage new developments to include publicly accessible bike share facilities
- c) Encourage parking providers to designate preferred parking spaces for the exclusive use of carpool and low-emissions vehicles
- d) Encourage parking providers to install plug in stations for electric vehicles and
- e) Provide on-street, reserved parking spaces for car sharing vehicles in selected locations

2.13.2 *Unbundling Parking from Dwelling Units*

Unbundled parking refers to the separation of housing and parking costs. “Traditionally, the cost of an apartment or condo unit includes one or more parking spaces, regardless of whether the tenant/owner is using them or not. Unbundling allows residents to choose the number of parking spaces they use and pay for accordingly.” Unbundling of parking can take several forms, including the following (MTC, 2017)

- a) Parking spaces are not included in the base rent/purchase cost, and are rented by the tenant/owner separately.
- b) Landlords/condo associations can provide a discount to renters/owners who do not want to use the standard number of parking spaces.
- c) Landlords/condo associations can create a secondary market for parking by renting unused spaces out as a separate commodity.
- d) Unbundling can be used as a municipal code tool that allows developers to reduce the amount of parking they are required to provide.

There are limited examples of unbundled parking that has been documented in Canada, but there have been some documented examples in the United States.

The Massachusetts Transit-Oriented Development (TOD) Bond Program in 2006 awarded \$2 million for a mixed-use affordable housing development called Dudley Village on Dudley, East Cottage and Leyland Streets in Dorchester. The development will have unbundled parking and just 0.7 parking spaces per unit. (MA Office of Commonwealth Development 2006)

The City of San Francisco is considering a proposal to limit parking in some downtown neighbourhoods to 0.75 spaces per unit in an effort to force developers to unbundle parking from housing costs. Developers would not be able to simply provide a space included with each unit; in order to build more parking, they would have to obtain a conditional use permit, the conditions of which would stipulate that parking costs must be unbundled from housing costs. (Millard-Ball 2002)

A condo project called "moda" in downtown Seattle includes 83 of 251 units that are lower priced and come without parking. The project sold out within a week. (Multifamily Executive 2007)

A new condominium development in St. Louis a block from the MetroLink public transit system that offered parking spaces for purchase separate from the units experienced rapid sales and found that 20-25% of buyers opted out of purchasing a parking space. The proximity to transit was instrumental in convincing the lender that the project could succeed without at least one parking space per unit. (Patterson 2006)

2.13.3 *Parking in Transit Oriented Development Areas*

Several municipalities have developed parking policies that are supportive of transit oriented developments (TOD). A few examples are below.

CALGARY

The City of Calgary has developed a set of policies to support the development of TODs within the City. They have included a number of areas including: reducing the number of parking spaces required (from the zoning bylaw) in TOD areas; cash-in-lieu; and provisions for shared parking, enhanced bicycle parking and on-street parking counting towards supply for development. (City of Calgary Transit Oriented Development Policy Guidelines)

WATERLOO (CITY)

The City of Waterloo has undertaken a considerable amount of work to support the introduction of the ION LRT service. The plans for the station areas include strategies that are supportive of the TDM and parking management, such as:

- Introducing maximum parking standards
- Priority parking near or at stations for carpools, vanpools, carshare services and bicycles
- Shared use of parking facilities
- Encourage parking fees that are higher than LRT fares (Waterloo Station Area Plans, 2016)

CITY OF OTTAWA

The City will soon be opening up the LRT services (mid-2018) and to ensure that the development surrounding the stations would encourage the use of the services, TOD guidelines were developed. Included were guidelines for parking. Below is an overview of these guidelines:

- Provide only the amount of parking required by the bylaw
- Encourage shared parking amongst uses with different peak demands (by time of day)
- Locate parking at rear of buildings
- Develop pedestrian corridors through parking areas
- Provide preferential priority parking for carpools, carshare and ridesharing vehicles.

2.13.4 *TDM Programs to Support Reduction in Parking Supply*

TDM programs and parking provision are intrinsically tied to each other. It is almost impossible to create a TDM program and hope it will be successful if there is a tremendous amount of free parking in the community, at a workplace or in a mixed-use, transit-oriented centre. The following communities have successfully undertaken TDM programs that support reductions in parking supply:

Cambridge, MA developed a parking and TDM ordinance to help encourage the use of sustainable modes, encourage short-term parking and discourage the use of single occupant vehicle trips particularly for long-term parkers and commuters. This program has been successful and has been used as an example of how to administer TDM programs.

Boulder, CO integrated TDM and parking in a way that has led to a vibrant downtown and parking revenues being invested into TDM programs so that they can reach their goal of a successful access management plan. As a result the TDM program includes bicycle parking spaces, managing shared parking, an Eco-pass program which allows the presenter to travel for free within the Boulder transit system. They also encourage people to travel downtown using other modes such as transit, cycling, walking and carpooling. (Kurt Matthews, Manager of parking Services, Boulder Co in IPI Newsletter, 2016)

2.13.5 *Bikeshare Parking*

Bikeshare programs are spreading across North America. In most areas that are no requirements for actually having a specific number of bikeshare parking areas. However, most are located in near transit stations, commercial areas, mixed use communities and institutional uses.

Munich, Germany

Munich is the state capital of Bavaria and home to the Munich Region with 2.6 million residents spread over an area of 5504km². Approximately half of these residents live within the City boundaries. In recent years, government and transit operators have made modest investments into bicycle parking with significant uptake. In 2009, it was estimated that 50,000 people were using bike and ride daily as an access method to train stations. In the wider region, investment has continued so that there are now 45,000 bike and ride parking spaces at a total of 96 train station in the region, suggesting that the daily figure would have increased significantly since this time. Within the immediate city area, 4,300 parking spaces exist and many are monitored by video surveillance.

Review of real world data associated with this expansion shows that bike and ride is 10 times more spatially efficient than park and ride. That is, that up to 10 bikes can be parked in the same area required for one car. The bicycle has been found to be most effective at increasing access to transit over distance of 3 to 5km. A 2009 study found that 35 % of bicycles were found to be left overnight and 20% of these overnight bicycles were used again by 10am the next day, demonstrating their effectiveness as a last mile solution to and from train stations for work purposes.

In recent years, the main local transit operator, the Münchener Verkehrsgesellschaft (MVG), has expanded into bikeshare and made created additional bicycle parking at many transit stations (train, tram, bus). MVG now operates a bike share system with bicycles that can be rented from 125 bike stations across the region. The capital cost of the system was estimated at 2.5 Million Euros and has led to 50,000 registered customers. The maximum daily price of bicycles is 12 Euros. In February 2017, citing continued growth in the popularity of the bikeshare system, the City resolved to increase the supply of bicycles by 2000 from 1200 to 3200 bicycles.

Other bicycle trends to emerge in the past 20 years include full-time supervised bike stations in which bikes can be stored, hired and serviced. The typical cost of storing a bicycle in such a facility is around 0,70 Euro cents per day or 4 Euros per week

2.13.6 *Parking Fees Supportive of TDM Measures*

Generally municipal parking fees are put into general revenues or into funds to replace and repair existing structures and equipment. While important, it continues to perpetuate the need for more parking with no regard to assisting with the need to reduce it overall and encourage the use of sustainable travel options. Changes to parking fee structures are often not very popular, however, some municipalities have attempted to develop programs and supportive measures that not only encourage the use of sustainable modes, but fund them as well

VANCOUVER

Vancouver has tried a few different programs to manage the supply of and demand for parking. Translink introduced a tax on parking fees that has essentially resulted in a tax of 35% on parking fees. This has had an impact on the number of people driving downtown and choosing other modes such as the Sky Train.

HALIFAX

As part of the ecoMobility program initiated by Transport Canada, Halifax applied for funding to develop a program to migrate funds from less sustainable modes to more sustainable modes. The program is called the TDM Migration Fund. Fees obtained from on-street parking permits are used to fund transit and other sustainable transportation programs and TDM-related measures.

2.13.7 Shared Parking

The City of Markham Parking Standards By-law 28-97 (Office Consolidation)

Parking can significantly influence the look and feel of a site. The City of Markham includes provisions for parking in their By-laws that permit the use of shared parking which can reduce the overall supply of parking on the site. Below is an abstract from the Parking Standards By-law (28-97):

Shared Parking

The parking requirements in Section 3 of this By-law may be reduced if the *lot* is used for two or more separate uses, each of which may have separate parking requirements. To determine the parking requirement for such a *Building* or *lot*, the total parking required for each use type is multiplied by the occupancy rates below, and the individual sums determined for each of the morning, afternoon and evening periods. The largest of these sums shall be the minimum parking requirement for the uses on the *lot*.

The City of Kitchener developed shared parking requirements within the ION station areas to support the use of the new LRT service. Similar to other municipalities, they have based it on the peak demand (by time of day) for each use.

The use of shared parking can be part of the overall approach to managing parking and encouraging the use of sustainable modes of travel to and from the site.

2.13.8 Short-Term Vs. Long-Term Parking

Parking pricing has an impact – at the moment many places discount parking the longer you are there and have high rates for the first few hours. However if it is reversed and the short term parking is cheaper and restriction on renewing it, then there could be less people parking all day and therefore reducing the number of personal vehicles driven alone. This could also see an increase in revenues as turnover would be higher and provide those only needing to park for a short time with lower parking rates.

Limiting the length of time people can park – free or not can be a method of encouraging short term parking over long-term, particularly in busy commercial areas where on-street parking is a premium.

Santa Monica is using TDM and encouragement of behaviour change. This is to free up more short-term parking for shoppers by raising the parking rates to discourage some more using them. The intent is to

encourage more people to walk, take transit or park further away. Other cities are doing similar things – using market-based parking rates to encourage more sustainable travel behaviour. These cities include Los Angeles, San Francisco and Washington DC. What this has resulted in is that there is plenty of on-street parking, it is just that it was being used by local workers and others who parked all day long. This approach will encourage more turnover and the ability of shoppers to get to their destinations. (Martha Groves, Los Angeles Times, 14 October 2009 (www.latimes.com/news/local/la-me-parking-experiment15-2009oct15,0,6335426,print.story)).



Future Outlook

3

Based on the review of existing City policy and Best Practices presented here, it is recommended that the City work towards developing a clear and deliberate parking framework that recognises the both the known importance and measurable impact of parking on the City. It is recommended that the parking framework be based on the following seven themes:

Intended Theme	What is it?
1. Vision & Principles	<i>A clear statement of parking's intended contribution to the future Mississauga and outlines the parking management principles the City will pursue in managing and resolving transportation and land use aspirations as outlined in the Official Plan and Strategic Plan</i>
2. Governance	<i>Outlines the City's governance process and mechanisms for both operational and long term management of parking.</i>
3. Paid Parking	<i>Defines and captures the role of the City in determining the appropriate amount of paid parking in the City on an area/precinct basis in accordance with the vision and parking management principles</i>
4. Funding & Finance	<i>A statement of the City's fiscal priorities for parking asset maintenance and strategic investment in parking and</i>
5. Parking Provisions	<i>City statute that outlines the obligations of land owners and other infrastructure providers to provide and manage parking on public and private land.</i>

Intended Theme	What is it?
6. Demand Management	<i>Those parking management principles that are designed to bring about a better balance of supply and demand for parking and guide people to using alternative modes where feasible.</i>
7. Technology	<i>Modern parking infrastructure that provides more accurate information on the availability and usage of parking to guide strategic decision making concerning parking supply and management across the municipality.</i>

From the best practices and trends outlined here, it is clear that these themes will help to better define the focus for the next stages of the Parking Master Plan and Implementation Strategy. The intention is to develop a Master Plan that provides the City with the ability to strategically evaluate the role of parking as it moves towards implementing the City's long term strategic vision now and into the future.



PARKING MATTERS

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PEOPLE CONSULTED (OPTIONAL)

→ Names, titles, employer





Appendix A

ABBREVIATIONS AND UNITS

Acronymes

Acronymes	Description
HOV	High Occupancy Vehicle
ITE	Institute of Transportation Engineers
TWLTL	Two-way Left-turn Lane
MTO	Ontario Ministry of Transportation
MNR	Ministry of Natural Resources
OPSS	Ontario Provincial Standards

APPENDIX A-1

UNITS

ABBREVIATION	Description
v/c	Volume to capacity ration
AADT	Average annual daily traffic
km/h	Kilometres per hour
m	Metre
s	Second
s/veh	Second per vehicle
veh/h	Vehicles per hour
veh/d	Vehicles per day
M	Million
B	Billion
\$	Canadian Dollar



PARKING MATTERS

Appendix B

CONCISE TITLE OF THE APPENDIX



Appendix C

CONCISE TITLE OF THE APPENDIX



Appendix D

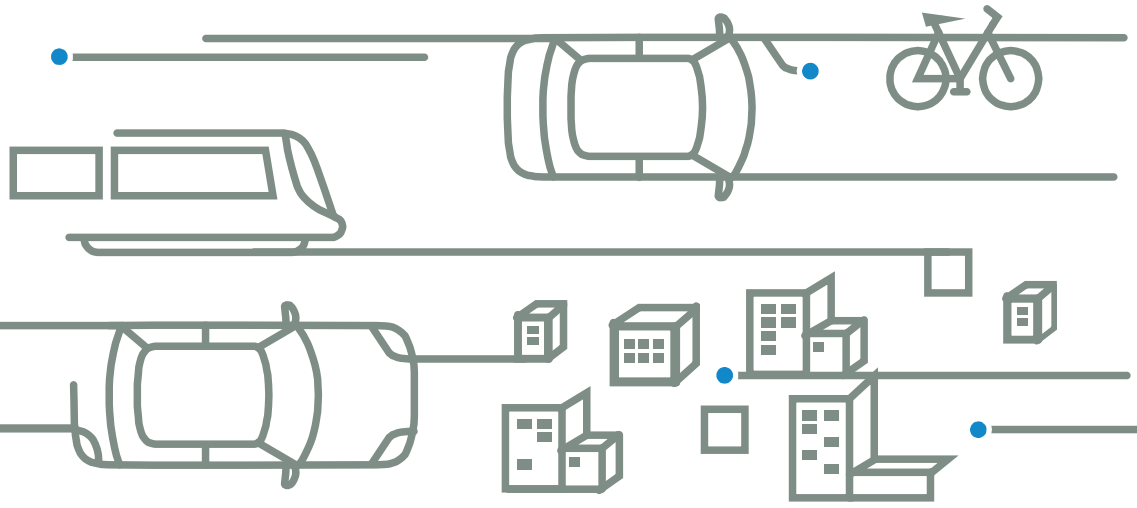
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Appendix E

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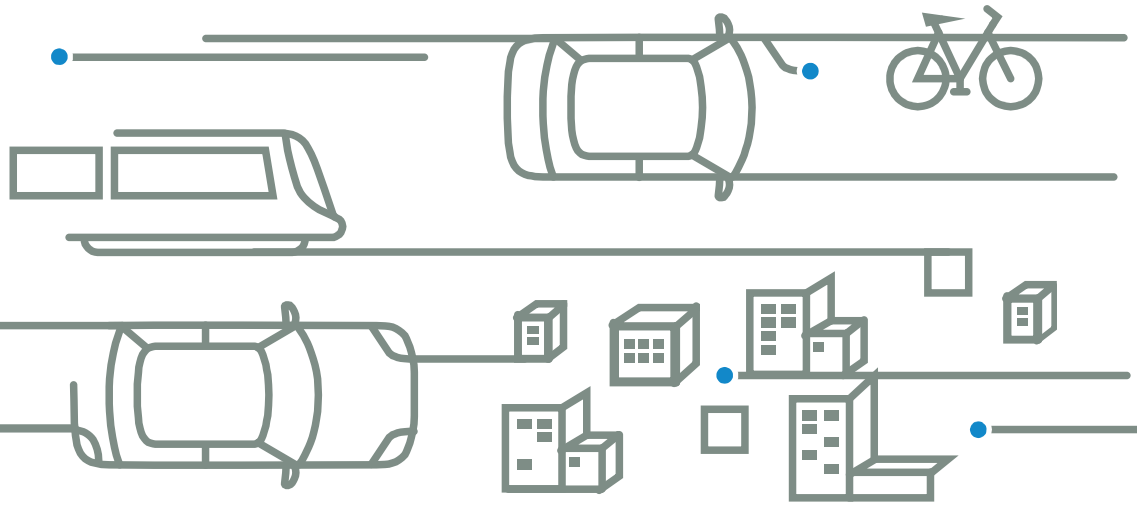


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APPENDIX 1-5 CONSULTATION ROUND 1 AND ROUND 2 SUMMARY REPORT

Mississauga Parking Master Plan and
Implementation Strategy (PMPIS)



PARKING MATTERS



CONSULTATION ROUND 1 SUMMARY REPORT

Mississauga Parking Master Plan and
Implementation Strategy (PMPIS)

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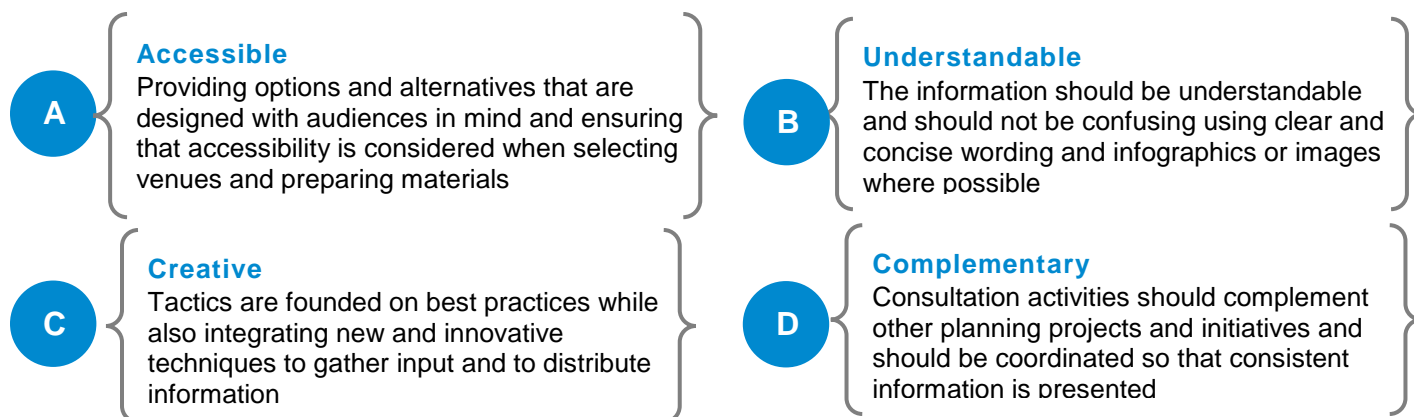
CHAPTER 1.0

Introduction



The Mississauga Parking Master Plan and Implementation Strategy ("Parking Matters") is being developed based on a significant amount of input from a wide range of audiences. In March and April 2017, the Mississauga Parking Master Plan and Implementation Strategy ("Parking Matters") project team undertook a first round of consultation with Council, industry stakeholders, developers, City of Mississauga staff and members of the public to learn more about the parking issues and opportunities in Mississauga.

Effective and successful consultation and engagement was one of the primary goals / objectives of Parking Matters. The consultation and engagement program designed for the City was established based on four (4) key principles:



The development of the consultation and engagement program for Parking Matters was also established around the processes and practices identified by the International Association of Public Participation (IAP2).

The process provides a commitment to members of the public and stakeholders regarding when and how they will be engaged over the course of the study. It also provides a strong basis for executing and evaluating the community engagement program and helps to establish a plan that focuses on the target audiences and develops a tailored approach responding to each.

A five (5) step process based on the IAP2 approach / principles was used to guide the consultation strategy which ensures that a stakeholder facing approach is utilized. The steps are outlined and described in detail below.



Figure 1 – Consultation & Engagement Process used to Guide the Mississauga Parking Master Plan Consultation Process

1.1 Who was Engaged?

Over the course of Parking Matters so far, the project team has proactively engaged with three key audiences. The audiences were identified and defined in a detailed stakeholder management plan which was prepared at the time of project commencement. A stakeholder management plan is an effective tool which helps to generate a greater understanding of the unique interests, preferences, issues and opportunities associated with the audiences that are anticipated to be engaged over the study process. A description of the three audience groups is presented below.



Figure 2 – Overview of the Parking Master Plan Consultation & Engagement Audiences


A more detailed documentation of the groups, agencies and representatives that make up each of these groups was made available to the City of Mississauga and is intended to be used as the City proceeds with the implementation of the parking master plan.

1.2 Round 1 Consultation Overview

The project's consultation and engagement program was designed to ensure that input was gathered from each of the key target audiences during each stage of the planning process. The purpose of the first round of consultation was to introduce the project and learn about the issues and opportunities related to parking across Mississauga.

A detailed overview of the objectives, purpose, timeline and the accompanying consultation, engagement and promotional tactics which were undertaken in Round 1 is presented in Table 1.

Table 1 – Overview of Consultation Rounds, Milestones & Promotion Tactics

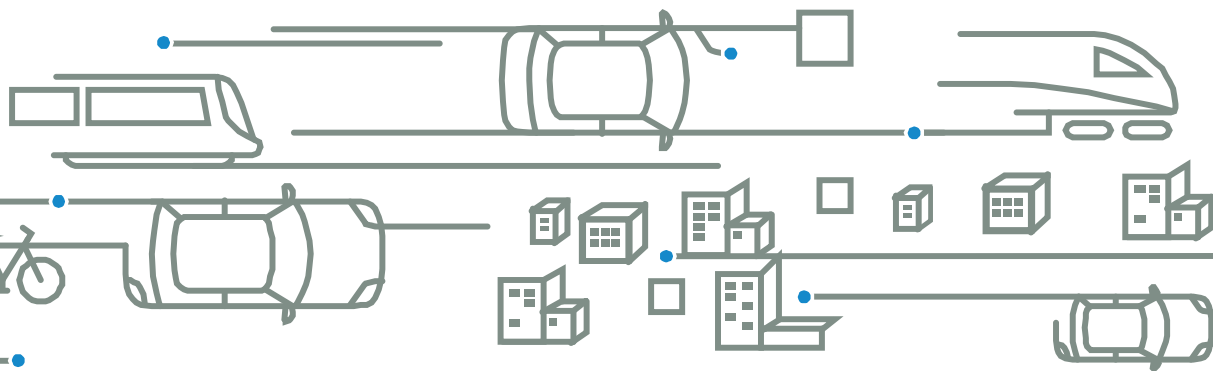


Overview of Round 1 Consultation Introducing the Project	
Objectives	<ol style="list-style-type: none"> 1. To inform the identified audiences of the intent and purposes of the study 2. To gather input on issues and opportunities associated with parking in the City 3. To involve key individuals in the preliminary decision-making process related to public information
Milestones	<p>In-person consultation tactics:</p> <ul style="list-style-type: none"> • One-on-one Councillor interviews • Parking Provider Workshop Session • Parking User Public Open House • Project Steering Committee Meetings <p>Online consultation tactics:</p> <ul style="list-style-type: none"> • Parking User online survey • Parking Provider online survey
Promotion	<ul style="list-style-type: none"> • Project website • Social media promotion and outreach • Community communication • Consultation pop-ups • Community network outreach

The details of each of the consultation phases, and specifically the input that was received, is of vital importance to the development of Parking Matters. It not only allows the study team to understand the ideas and preferences of each of the key audience members but also to demonstrate to decision makers that the recommendations and strategies reflect the unique interests and preferences of the various communities found within Mississauga.

The following section provides a more detailed overview of the various consultations and promotions completed within this round of engagement as well as the detailed input received from each of the consultations completed.

The document is intended to be used as a reference and resource by City staff as they proceed with the implementation of Parking Matters and any future updates to the master plan document and its recommendations. The content contained within this appendix should not be used for any other reason than for municipal planning projects and personal information will not be shared or sold for any other purposes.



PARKING MATTERS

CHAPTER 2.0



What we heard

The input that was generated over the course of Round 1 was documented through a range of consultation tactics and documentation techniques. The methodology used to generate the input for this round of consultation and the outcomes is documented below.

2.2 Round 1: Introducing the Project

The first round of engagement of Parking Matters was designed based on the following objectives:

1

To inform the different audiences of the intent, purpose and intended outcomes of the Mississauga Parking Master Plan

2

To consult with audiences with the intent of gathering input on issues and opportunities associated with parking in the City of Mississauga

3

Involve key individuals in the preliminary decision-making process related to public information

As noted in Section 1.2, the first round of consultation was made up of several tools and tactics to help promote, engage, involve and consult with the various target audiences in a meaningful way to achieve the objectives above.

The following sections provide an overview of each of the consultation and engagement tools and events that were part of Round 1. The outcomes and inputs received from those activities, as incorporated into the preliminary findings documentation of the Parking Strategy for the City of Mississauga, are also discussed.

2.2.1 *Project Promotion*

The promotion and outreach undertaken to encourage involvement in the first round of engagement for the Parking Master Plan was a collaborative effort between the consultant team and City staff. The City's Communications Department led many of the initiatives.

Prior to the launch of the study, the City's Creative department developed a specific "look and feel" for the Parking Master Plan Study and established the tag-line "Parking Matters". This visual identity and project name was used to develop the promotional materials and communication tactics and was used over the course of the study for documentation and reporting to ensure consistency.

As noted above, Round 1 engagement for the Parking Master Plan was promoted through a number of tactics. The following is an overview of the various tactics and tools that were used to increase awareness, generate interest and maintain momentum in the preliminary stages of the study.

The tactics enhanced the outcomes of the first round of engagement. They complemented the in-person and online engagement / input gathering tools and continued to improve the profile of the study in a meaningful manner.

Objective: To increase awareness of Parking Matters to various audiences and to promote the opportunities for engagement and involvement as they arise.

Audience: All members of the public specifically residents of the City of Mississauga in various neighbourhoods and communities

Timeline: Preliminary promotion took place at the time of project launch in February 2017 and was enhanced around the time of the first Public open house in March 2017.

1

Project Website

The project website was developed and launched by the consultant team using a template developed by Urban Interactive Studios – an external website and online engagement tool. The website integrated the project look and feel (see image to the right) and was developed as a “call to action” for public participation as well as a hub for project specific parking information.

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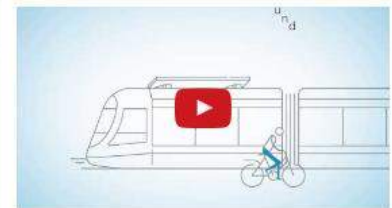

MISSISSAUGA

[Home](#) [Get Involved](#)


2

Project Video

Parking is a sometimes complex and technical topic and the intents and purposes of a master plan can be difficult to convey. To make the information more digestible to the public and to set out clear expectations of the project the team developed an explanatory animated video which explained the current state of parking in the City and the intents and purposes of the master planning study.

[Learn more](#)


Watch our project video and find out why Parking Matters!

3

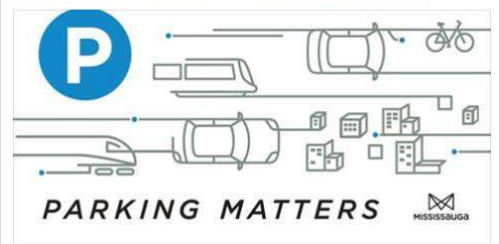
Social Media

It was the intent of the project team to have a wide audience and geographic reach for the parking master plan. Existing City social media was used to drive participants and interested residents to the project website to learn more about the study and to generate interest and attendance at the public open house sessions. Social media was also used as a call to action using questions to prompt public discussion and input.


City of Mississauga - Municipal Government

March 24 · 🌐

Didn't have time to come out to the #ParkingMatters open houses? You can still have your say! Take our survey at: <http://ow.ly/HY05309wOT3>



4

Promotional Tools

Additional promotion and communication tools were prepared by City staff to help encourage involvement and participation. Some of the tools that were explored included but were not limited to local media, posters in central locations, message boards in the civic centre and municipal buildings, the Celebration Square Screen and local newsletter and publications specific to various neighbourhoods.



5

Existing Networks

The study team utilized existing stakeholder communication channels, such as those of the local Business Improvement Associations and Resident and Community Associations to distribute information about the project and to invite and encourage people to participate in consultation and engagement activities. Other existing networks used included that of the City's Economic Development Office as well as Smart Commute. The use of these existing networks of communication allowed for a wider reach of communication.



6

Consultation Pop-ups

In addition to the formal consultation and engagement activities, the consultant team used select display boards and consultation materials generated for the public open houses to promote the study at key locations throughout the City. Locations were selected in neighbourhoods where additional promotion was thought to be needed to increase awareness of the project.



2.2.2 Councillor Interviews

Councillors are the lead decision makers for the City. Because the context of each Councillor's Ward of the City is different, different parking issues and opportunities exist. As such, the project team wanted to ensure that each Councillor was proactively engaged in the study process. As one of the first engagement activities, the consultant team and select members of City staff engaged in one-hour interviews with members of Council. Apart from one Councillor, all Councillors and the Mayor took part in the one-hour interview.

Questions were submitted to Councillors in advance along with some background information about the study. The interviews were facilitated by the consultant team and reviewed each of the questions posed while also providing Councillors with an opportunity to ask their own questions and engage in dialogue with the team. The following is an overview of the questions which were posed to the Councillors and some of the key themes that emerged from the discussions that occurred.

Objective: To meet with member of Council early in the study process to provide them with an overview of the intent and purpose of the study and to ask them questions about their experiences and the current state of parking within their Ward. Specific focus was placed on parking issues as well as opportunities for improvement re: management and engagement.

Audience: Each member of Council was invited with all except one accepting interviews with the consultant team.

Timeline: The interviews were held over the course of a three-week period within the month of March 2017.

Question	Recurring Responses
Question #1: When you think of parking in Mississauga, what is one word that comes to mind? What have you heard from your constituents about parking?	Many different responses were provided which varied by ward. Unsurprisingly, responses are reflective and representative of the make-up and values of each ward. Some examples include: <ul style="list-style-type: none"> • Intentional management (of parking space) • Context specific • Expensive • Built for the Car • Controversial • Development oriented • Nuisance • Value Potential • Complaints • Churches • Illegal

Question	Recurring Responses
Question #2: When thinking about parking's role, which would you say is the most important: a revenue source, a service or a City-building tool?	<p>Most respondents indicated that it would typically be a combination of the various roles. In some cases, it would be a benefit as a revenue source but in others it would not be appropriate (i.e., commercial land uses versus residential land uses). Many Councillors indicated that there are circumstances where it is appropriate to charge for parking.</p> <p>As a service, Councillors expressed some concern that if free parking were removed in certain areas that there could be concern from residents. Many residents perceive parking to be a service that is provided by the City.</p> <p>Lastly, as a city building tool, parking policies should be in-line with municipal policies and strategies to try and support the achievement of complete communities and streets. Some specific comments provided which provide the rationale for these sections:</p>
Question #3: Please elaborate as to why you chose this.	<ul style="list-style-type: none">• Management, usage and moving parking considerations are opportunities which could be used to generate revenue for the City• Residents have an expectation that parking is provided by the City and changing this could be a concern for residents• Encouraging people to move and participate within their community is a responsibility of the City and parking is considered part of this• We are trying to achieve a complete, sustainable, and progressive City and parking needs to play a role in achieving this

Question	Recurring Responses
<p>Question #4: What are some things that need to be looked at and / or could be improved when it comes to parking in Mississauga?</p>	<p>Many of the interviews used the time to discuss in detail the issues associated with parking within the City of Mississauga. The following are some of the key issues that were discussed:</p> <ul style="list-style-type: none"> • Driveways are being widened in residential areas without proper approvals • Insufficient parking supply in business parks • Peak-hour parking constraints around Places of Worship • Illegal parking on side-streets around schools • Cost of parking in select locations and access to those locations from specific groups • The balance or contrast of busy areas and high utilization parking versus areas of low utilization; • The mix of free and paid parking and the inconsistent application throughout the City • Reducing parking standards hasn't always worked well in the past because residents still need somewhere to park their car • Linkages with other modes of transportation • Signage / wayfinding (i.e., the overall understanding of the parking approach and process is not clear for residents and visitors) • Varying audiences as well as preferences (i.e., those who require their car day today and need parking and others that require it for infrequent use) • Clarification on design standards and regulations related to parking and consistent policies and plans which are implemented • Tomkin • GO Station • Downtown areas

Question	Recurring Responses
<p>Question #5: What is one thing we could do most to improve parking in Mississauga?</p>	<p>In addition to the issues that were identified, several councillors also provided some suggestions for improvements, opportunities for enhancing parking or changes to parking. The following is a summary of some of the most frequent responses that were provided:</p> <ul style="list-style-type: none"> • Introduce an on-street residential permit parking program to provide more options for residents • Partnerships (e.g., GO Transit/Metrolinx or private partners) for future facilities • Enhanced parking facility design • Better education of rules and enforcement for parking throughout the City • Consider providing incentives to encourage other modes to relieve some of the demand in select locations • Explore opportunities for a new management structure • Potential for the City to strategically purchase land to hold areas for future parking facilities • Communication needs to be enhanced with residents on the guidelines and expectations once the project moves forward • Consider creating sustainable neighbourhood action plans and transportation demand management plans to off-set the demand on parking • Moving forward, the City should be progressive and consider the integration of technology as part of future management of parking <p>Some councillors identified best practices from other municipalities for consideration when developing the parking strategy. Some of these best practices included:</p> <ul style="list-style-type: none"> • Japan, Oregon, Minnesota, Seattle – references for effective parking management • Chicago – separated cycling facilities and integrating other modes • Portland – subsidization of parking through businesses

Question	Recurring Responses
<p>Question #6: What can we do to most effectively engage your constituents through this process? What are your ideas for how we can make the topic more interesting?</p>	<p>Some suggestions were provided on areas and tactics which could be used to engage with audiences in a more meaningful way. Some of the examples included:</p> <ul style="list-style-type: none"> • Communication materials in different languages • Neighbourhood community meetings with different groups • Hold public events in a greater number of locations citywide • Partnerships with external organizations including public health and neighbourhood organizations • Provide incentives to encourage attendance at events • Explore campaigns at schools or in specific locations to reach target audiences or audiences that are harder to reach • Community awareness campaigns and reaching out to local media • Working with local champions within the community • Utilizing the networks of service clubs within the community as well as central location such as farmers' markets

2.2.3 Parking Provider Workshop #1

The Parking Provider workshop was held on March 21, 2017, at the Living Arts Centre (in the BMO Room). Attendees were invited two weeks in advance of the workshop session via email with RSVPs coordinated using EventBrite.

The session included presentations as well as interactive activities where attendees were encouraged to engage with each other as well as members of the project team.

An overview of the workshop agenda is provided on the following page. Each of the activities were facilitated by the project team's lead facilitator to guide and manage discussion and input was documented using interactive tools such as mapping, mark-up sheets, cue cards, etc. A more detailed description of the activities and the outcomes / input generated is documented following the agenda.

Agenda Summary

Introduction

Why are we here?

Who is here?

Parking in Mississauga: What are we doing?

What are others doing?

Activity #2: Challenge-storm

Activity #3: Parking Context

Thank you and Next Steps

Purpose: To meet with, inform and engage with anyone that is responsible for a / or has influence over the provision and management of parking in Mississauga to discuss parking issues and opportunities, as well as share ideas.

Objective(s):

- To inform stakeholders of the intent, purpose and anticipated outcomes of the parking master plan study;
- To inform stakeholders of the work that has been completed to date;
- To engage parking providers on the opportunities and challenges around parking in the City of Mississauga; and
- To engage on current usage and experiences of parking provision throughout the City.

Audience: The workshop was attendees by invitees only including representatives from both public and private entities that are responsible for the management of parking throughout the City of Mississauga.

Timeline: The workshop was held on March 21, 2017, between 1:00 p.m. and 4:00 p.m.

Presentation Overview

Three presentations were given to provide background and context to the meeting attendees regarding parking in the City of Mississauga. A more detailed description of each of the presentations is provided below along with the individual who presented it:

- Presentation #1: Why are we Here?**
 The presentation was given by Sharon Sterling from the consultant team and provided attendees with an overview of the intents and purposes of the parking master plan study. More specifically the presentation provided attendees with a more detailed understanding of the project schedule and the consultation and engagement opportunities.
- Presentation #2: Parking in Mississauga: What are we doing?**
 This presentation was given by Hamish Campbell, the City of Mississauga's Project Manager for the Parking Master Plan. The presentation provided attendees with an overview of the current state of parking in the City including highlights on how parking is managed, maintained and operated.
- Presentation #3: What are others doing?**
 The presentation was given by members of the consultant team including Sharon Sterling and Vince Mauceri. It provided attendees with an overview of the process and outcomes behind the best practices review which was completed by the team. Specifically, an emphasis was placed on the outcomes and highlights from each of the topic areas researched including technology, enforcement, technologies, governance, finances, etc.



Figure 3 – Samples of Slides from the Presentations given at the Provider Workshop

Activity #1: Who is here?

The first activity focused on increasing awareness of the different attendees at the workshop session as to the various players involved in the day to day management and operation of parking within the City. It was also intended to introduce the attendees to the members of the consultant team as well as the City staff involved in the development of the plan.

The attendees who participated in the workshop represented both public and private parking providers. It is important to note that there was a relatively equal representation of both public and private providers. An overview of the types of organizations and agencies that were represented at the workshop is presented below.

Private	Public
<ul style="list-style-type: none">• Mobile payment providers• Government relations consultancies• Private parking providers• Developers• Brokers• Business Associations• Planning consultants representing developers/brokers• The hotel industry	<ul style="list-style-type: none">• Residents' Associations• Places of Worship (Catholic, Anglican, United and Islamic)• Metrolinx/GO Transit• Greater Toronto Airports Authority• Peel District School Board• Trillium Health Partners

Activity #2: Identifying Challenges

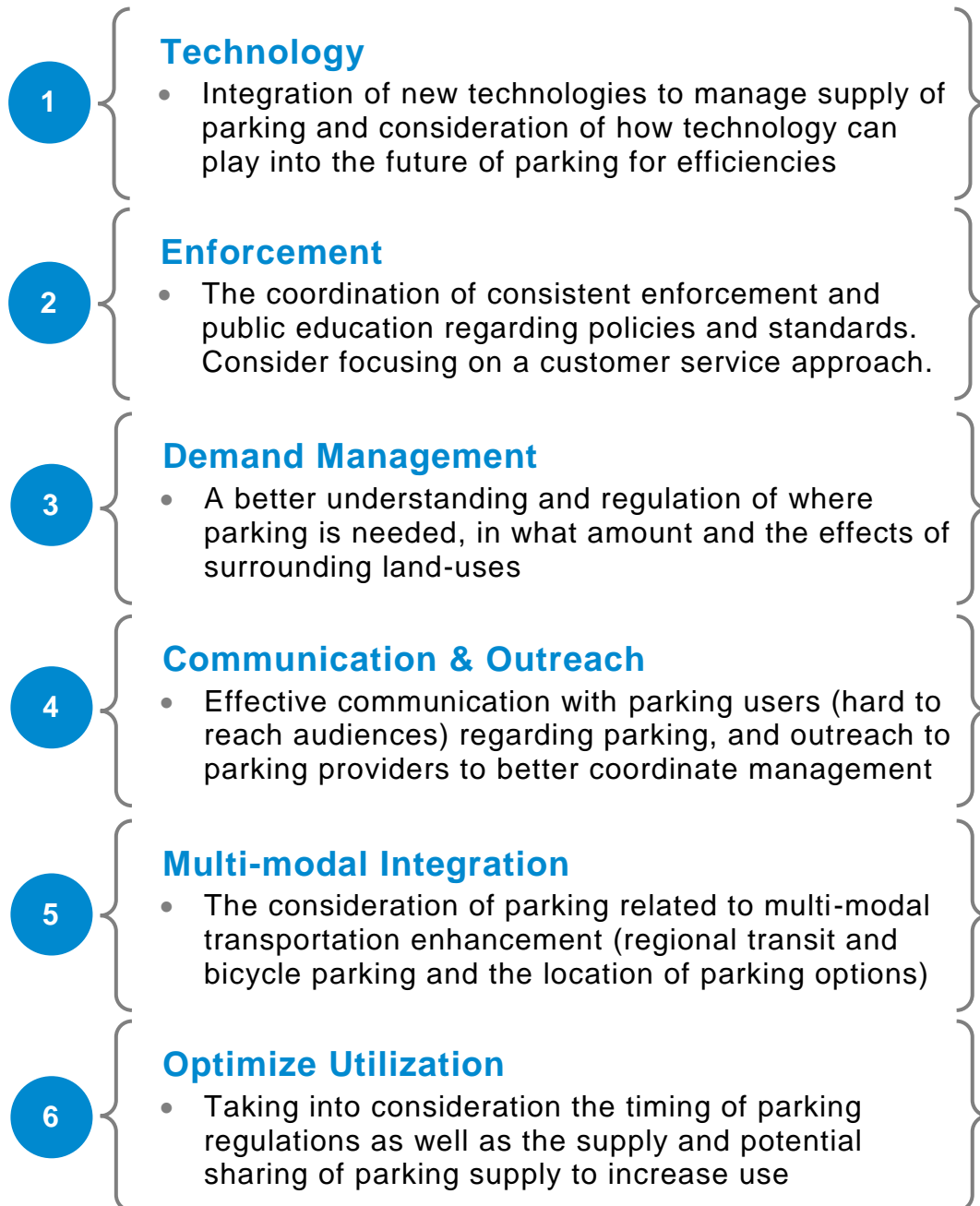
The second activity used the facilitation tool “challenge-storming” to gather input from attendees on the various challenges associated with parking throughout the City of Mississauga.

Attendees were asked to identify high-level challenges that they have experienced through their day to day work and discuss those challenges within their groups to share experiences and highlight key issues to the project team.

Once each group had identified their challenges, they were asked to document them on cue cards provided and present them to the group. During each of the presentations, the facilitator guided the discussion and identified key themes for consideration.

One of the overarching discussion topics that arose from the workshop was about parking standards. Participants sought clarification of project expectations as well as anticipated outcomes to guide future decision making as they relate to parking standards.

The following figure outlines the key themes and some of the detailed comments gathered through the challenge-storm activity.



Activity #3: Parking Context

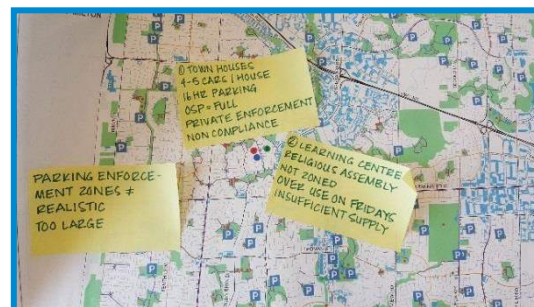
In addition to the parking challenges highlighted through activity #1, attendees were asked to engage in a second exercise to document specific parking locations and context. An interactive mapping exercise was used to gather input from the attendees.

Maps were provided to the attendees illustrating the existing parking lots and other transportation conditions within the City. Using these maps and the tools provided (dots, markers, post-it notes, etc.) they were asked to:

- Identify the location where they provide parking (using a blue dot)
- Identify the location of specific parking problems (using a red dot)
- Identifying locations of insufficient parking (using a green dot)

Some of the key themes that emerged from the activity included:

- Attendees indicated a dispersion of parking throughout the City with inconsistent application based on land-use requirements (i.e. OP and zoning)
- Individuals indicated site specific issues within residential areas as well as commercial nodes related to timing of overuse of parking
- Attendees noted some of the issues related to parking requirements based on land-uses and future development as well as alignment with future City building goals and objectives
- Parking issues were identified in some frequent locations including the Port Credit area, near Square One, Erin Mills Town Centre, Streetsville and generally within the downtown core
- Future provision of parking and the encouragement of parking in select locations versus parking requirements (re: land-uses)



2.2.4 Parking User Session #1

The first parking user session was held at the Mississauga Central Library in the Atrium on March 21, 2017, and the second session was held on March 23, 2017, at the Port Credit Arena. Each session was held as a drop-in style open house which allowed attendees to review the display materials at their leisure, provide input on interactive display boards and speak with members of the study team on a one-on-one basis.

A total of 20 individuals attended the Library session while 35 attendees participated in Port Credit. The information presented at each of the sessions was the same and the activities were consistent with some more focused and context specific mapping provided at the Port Credit location.

Most of the display boards presented were interactive and mimicked the questions posed through the online engagement tool. An overview of the display boards that were presented is provided below.

Objective: To inform the public of the intent and purpose of the parking master plan study and to gather their input on their experiences, interests and challenges associated with parking throughout the various areas of the City.

Audience: The open house sessions were targeted to members of the public (i.e., parking users) including residents of the City of Mississauga, community representatives, stakeholders and interest groups.

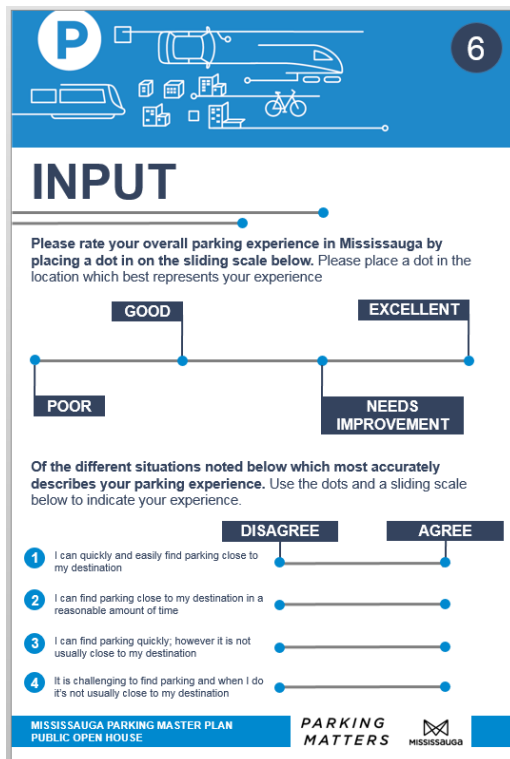
Timeline: A total of two public open houses were held the first on March 21, 2017, and the second on March 23, 2017, and both sessions were held between 6:00 and 8:00 p.m.

Board	Description
Welcome	An overview of the various methods of engagement available for the study
About	An overview of the purpose of the study and the meaning of effective parking management
Process	An overview of the various steps and stages that make-up the parking master plan study process
Background	A description of the elements which make-up the best practices review (i.e., the input and outcomes)
Input #1	An open comment interactive display board asking individuals to identify parking improvements.

Board	Description
Input #2	A two-part interactive display allowing people to rank their parking experience and assess the different parking scenarios they encounter
Input #3	An interactive display prompting attendees to assess the various parking situations and the level of difficulty accessing parking
Input #4	An interactive display prompting attendees to assess various situations from the perspective of real or perceived safety
Parking Map	An illustration of the current conditions of parking in the City on a map asking people to highlight issues and potential areas of improvement.

Interactive Display Board Input

As noted above, there were a total of four (4) interactive display boards with varying intents and purposes. Images of the display boards with comments are provided below along with some of the key themes that emerged from both sessions.



INPUT

Please rate your overall parking experience in Mississauga by placing a dot in on the sliding scale below. Please place a dot in the location which best represents your experience.

GOOD EXCELLENT

POOR NEEDS IMPROVEMENT

Of the different situations noted below which most accurately describes your parking experience. Use the dots and a sliding scale below to indicate your experience.

DISAGREE AGREE

- I can quickly and easily find parking close to my destination
- I can find parking close to my destination in a reasonable amount of time
- I can find parking quickly; however it is not usually close to my destination
- It is challenging to find parking and when I do it's not usually close to my destination

MISSISSAUGA PARKING MASTER PLAN PUBLIC OPEN HOUSE

PARKING MATTERS

MISSISSAUGA

Parking Situation and Ease of Finding Parking

- Respondents indicated that they felt it was easier to park easily at home versus for events or shopping
- Some respondents indicated difficulty finding parking at GO Transit facilities and places of religious assembly specifically at peak hours throughout the day
- Of the responses, community centres were identified as easier locations to find parking within the City

7

INPUT

For the situations below please tell us how easy / hard it is to find parking. Use a marker and place a check mark in the box to indicate your experience finding parking.

PARKING SITUATIONS	VERY EASY	SOMEWHAT DIFFICULT	VERY DIFFICULT	NOT APPLICABLE TO ME
At home				
When I visit friends / relatives				
At work				
At my business				
At places of religious assembly				
At places where I shop / eat				
At places where I have appointments				
At special events				
At municipal parking lots				
At parks				
At community centres				
At schools				
At GO Transit facilities				

MISSISSAUGA PARKING MASTER PLAN
PUBLIC OPEN HOUSE

**PARKING
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Ranking of Parking Experience

- Respondents indicated their overall parking experience as varying depending on the location that is being discussed, the time of day and the intent of the trip
- Respondents noted in the Port Credit area that they felt as though they could not find a parking spot close to their destination within a reasonable amount of time

8

INPUT

From a safety perspective, how problematic are each of the following situations? Use a marker and place a check mark in the box to indicate your experience finding parking.

SITUATIONS	NOT PROBLEMATIC	SOMEWHAT PROBLEMATIC	VERY PROBLEMATIC
People walking from parked cars to buildings			
Bike lanes passing by driver door of cars parked on street			
Parking entrances crossing sidewalks without a light			
Residential driveways crossing the sidewalk			
Ice and snow removal in parking lots			
Ice and snow removal on streets			
Night lighting of parking lots			
Illicit activity in parking lots / garages			

MISSISSAUGA PARKING MASTER PLAN
PUBLIC OPEN HOUSE

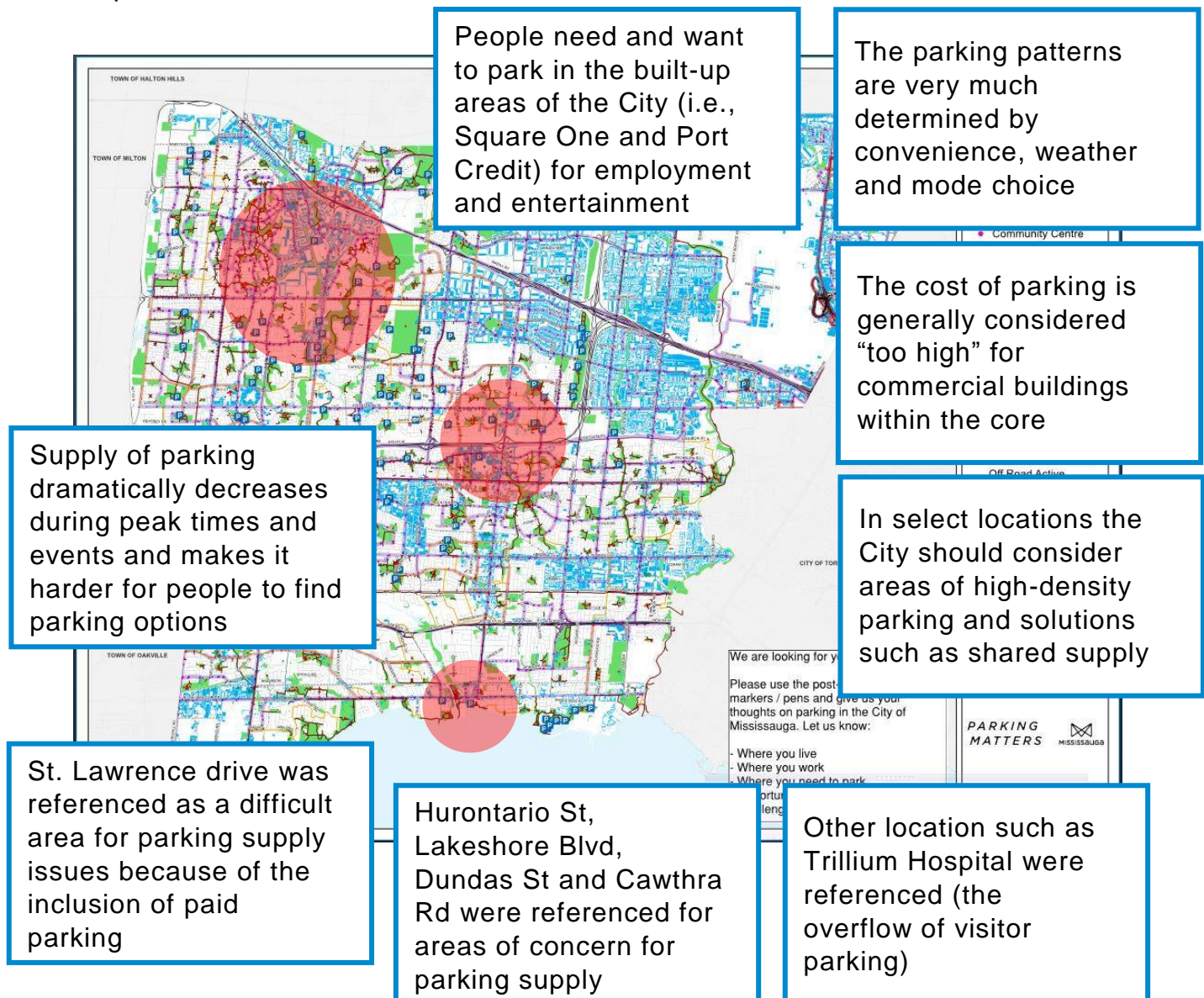
**PARKING
MATTERS**

Safety Around Parking Areas

- Respondents identified issues of conflict between parked cars and cyclists on street (dooring)
- Of the options provided, attendees identified “ice and snow removal on streets” as relatively safe
- Respondents indicated a need for improved parking design and the removal of parking meters (more free parking). They also identified a preference for clearly delineated parking spaces and designated space.
- Respondents indicated they felt that the way in which parking lots were currently lit felt safe

Mapping Input

A map of the City of Mississauga was presented at the Open House sessions. At the Port Credit Arena location, a zoom in map of the Port Credit area was also provided. Attendees were encouraged to use the mapping to document their ideas, interests, issues and opportunities associated with parking in the City. Members of the project team supported attendees by helping them markup mapping during the open house sessions with their input. An illustration of the mapping presented is provided below along with highlights of the comments provided. The red dots included on the mapping are some of the “hot spots” which were identified by respondents.



In addition to the location specific comments that were provided through the interactive mapping exercise, the activity also generated responses regarding the overall coordination, management and provision of parking as well as some thoughts on potential solutions. The following are some highlights of these more “general” comments regarding parking in Mississauga:

1

Some associated parking issues which arose from the discussions included maintenance of parking lots and spaces specifically within the winter, signage associated with parking options and supply, parking supply based on land use and the impact of parking on businesses due to the parking in-lieu solutions implemented.

2

Some individuals identified the need for more multi-modal integration and encouragement and noted that parking should not be free in any areas of the City as it is counter intuitive to promoting other modes specifically transit and the future LRT.

3

Individuals expressed the need for a balance between what is provided for motor vehicle drivers and those who want to walk and cycle while taking into consideration user safety (motorist-cyclist conflict).

4

Residents identified the need for better parking management in retail areas. They should focus on foot traffic and parking turn off. A grace period of 30 minutes can be provided but payment parking should be enforced beyond that.

5

The vision of parking should be integrated with the “bigger picture” of city building and complete communities. It should reflect the visions of the OP and strategic plan or support their achievement.

6

Concerns were expressed regarding the introduction of paid visitor parking on residential streets while other attendees expressed concern about parking enforcement in residential areas during the holiday periods.

2.2.5 Online Engagement Tool #1

In addition to the in-person consultation activities, the consultant team provided alternative consultation and engagement alternatives through online engagement tools.

At the time of project commencement two online surveys were developed and hosted on the project website. The first was tailored to parking providers while the second was developed with parking users in mind.

For consistency, both surveys included a range of question types and were the basis for the majority of the interactive display boards for the parking user open house session. The following table outlines the questions that were asked through the surveys. The parking provider survey posted nine (9) questions whereas the parking user survey posed six (6) questions. The intent was for the surveys to be short and easy to complete with the intent of increasing response rates early in the process.

A total of 490 responses were submitted, of which the majority were parking users (as opposed to providers). A high-level summary of key responses that emerged from the surveys that were completed is presented below. The information gathered was used to help identify some of the key areas of research which needed to be undertaken as well as some of the solutions which needed to be investigated further or issues that needed to be managed. A more detailed documentation of responses can be provided as needed.

Objective: To gather input from parking providers and parking users about their experiences related to parking within the City of Mississauga

Audience: Parking Users and Parking Providers

Timeline: The online surveys were hosted through the project website from March 1, 2017, until May 1, 2017.

Our first phase of consultation has now closed



Please sign up for updates by providing your e-mail to stay in touch about when the next round of public consultation will begin. Thank you!

Respond

Parking Provider Survey

Though there were only four (4) respondents to the parking provider survey, the input generated was complemented by the feedback received from the parking provider workshop.

Parking Provider Survey Questions	Response Highlights
Question #1: How many parking spaces does your organization provide / manage?	<ul style="list-style-type: none"> • 50% of parking providers indicate that their supply ranges from 51-100 parking spaces • 25% of providers indicated providing either 1-50 parking spaces • The remaining 25% of providers indicated providing 101-200 parking spaces
Question #2: In what City Wards do you provide / manage parking?	Parking providers who submitted responses represented parking supply and management primarily in Wards 2, 3 and 8.
Question #3: Please select the times when your parking utilization exceeds 90%	<p>When identifying the time in which parking utilization exceeds 90% capacity, the following responses were provided:</p> <ul style="list-style-type: none"> • Off-peak evenings (6:00 p.m. onwards), generally between Monday to Thursday and during religious holidays; • Off-peak times during the day (1:00 a.m. to 3:00 p.m.), generally between Monday to Thursday and on Sundays; and • Peak afternoons (3:30 p.m. to 6:00 p.m.) on Sundays and during the summer months.
Question #4: Where is there not enough parking in Mississauga?	Most respondents indicated that insufficient parking supply was typically found at condos and GO Transit facilities within Mississauga.
Question #5: Is your organization considering expanding parking supply?	75% of respondents indicated that they are not currently considering expanding their parking supply.

Parking Provider Survey Questions	Response Highlights
Question #6: Rate the following situations from a safety perspective from most problematic to least problematic in Mississauga.	<p>Most situations identified or ranked by respondents were not identified as problematic with the exception of two options where they were considered “highly unsafe”:</p> <ul style="list-style-type: none"> • People walking from parked cars to buildings • Parking lot or garage entrances crossing sidewalks
Question #7: How would you rate your relationship working with Mississauga in providing parking?	The majority of the respondents (67%) indicated that they feel they have a strong relationship with the City as it relates to parking provision.
Question #8: Who are the primary users of your parking spaces?	<p>Most parking providers indicated the following primary parking users:</p> <ul style="list-style-type: none"> • Visitors • Residents of the area • Employees
Question #9: Do you provide parking in other municipalities?	All respondent stated that they do not provide parking in other municipalities and that their focus was the City of Mississauga.

Parking User Survey

Parking Provider Survey Questions	Response Highlights
Question #1: How would you rate your overall parking experience in Mississauga?	<ul style="list-style-type: none"> 11% of respondents believe that parking in Mississauga is “excellent” Approximately 50% of respondents indicated that the overall parking experience was “good” 36% of respondents stated that parking “needs improvement” The remainder of respondents find that parking in the City is “poor”
Question #2: Which of the following most accurately describes your parking experience in Mississauga?	<ul style="list-style-type: none"> Most respondents relatively agree that they can find parking close to their destination within a short or reasonable amount of time.
Question #3: For all of the following situations, please tell us how easy / hard it is to find parking.	<ul style="list-style-type: none"> Most respondents find it relatively easy to park at home, when visiting friends or relatives, at work, retail shops, parks, and community centres; however, a portion of respondents argue that it is relatively difficult to park at places for appointments, special events, and places of religious assembly. The remaining responses generally do not have a strong opinion towards parking at municipal parking lots, places to eat or drink, work, schools, and businesses.
Question #4: From a safety perspective, please rank the following situations from most problematic to least problematic.	<ul style="list-style-type: none"> Many respondents find it least problematic when walking from parked cars to buildings and when crossing the sidewalk at residential driveways; however, many parking users find “bike lanes passing by driver door of parks parked on the street” and “ice and snow removal on streets” problematic in Mississauga Situations such as illicit activity in parking garages, night lighting in parking lots, and ice removal in parking lots remained generally balanced throughout the safety spectrum.

Parking Provider Survey Questions	Response Highlights
Question #5: In circumstances where you have to pay for parking in Mississauga, please rate the fee.	<ul style="list-style-type: none"> • Most parking users find parking fees either fair or expensive • A small portion of respondents do not pay for City parking
Question #6: Are you a resident or business owner in Mississauga?	<ul style="list-style-type: none"> • Most (93%) of respondents indicated that they were a resident or business owner in Mississauga.



CHAPTER 3.0



Summary of key themes

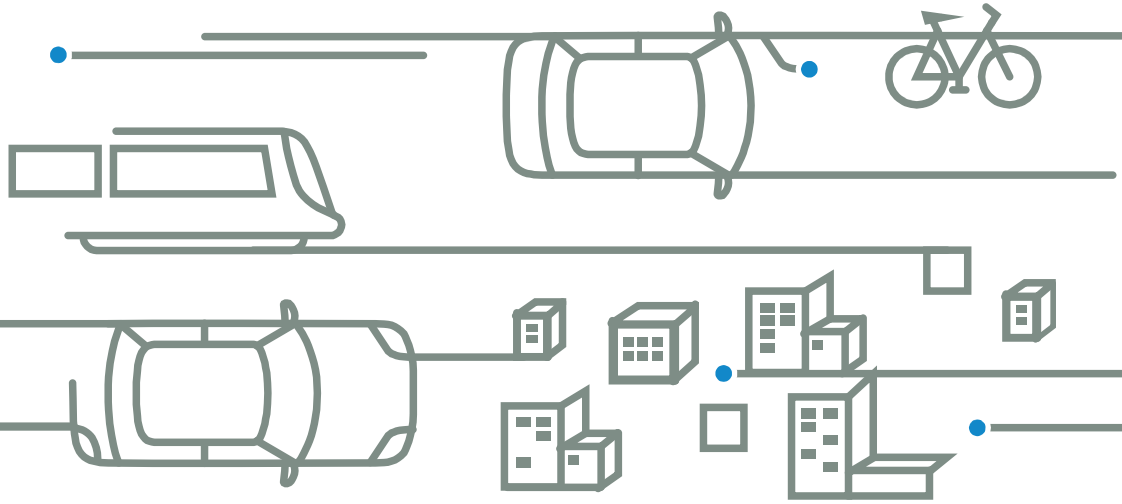
From the first round of engagement, several key themes emerged. Despite the varying level of prior knowledge and understanding of the parking issues in Mississauga there were still some clear consistencies between the responses provided by the various audiences. There were six (6) key themes that emerged from the first round of engagement that were clear:



A more detailed description of each theme is provided below:

- **Location:** the area where parking is provided, the surrounding land-use and desired vision for the space should have a strong influence on how parking is determined and managed.
- **Application:** the application of parking standards need to be considered or more clearly rationalized based on other City policies and strategies.
- **Enforcement:** Consistency and frequency of enforcement is needed depending on the by-law requirements and the various land-uses throughout the City. It should be considered more as a tool as opposed to a reaction.
- **Communication:** There needs to be more communication between the City and its parking users regarding the current as well as emerging or changing standards for parking as well as meaningful communication with the parking providers regarding expectations for management and provision.
- **Context:** There are unique parking circumstances throughout the City which are driven by neighbourhoods, communities and land-uses. The context needs to be considered when determining parking requirements and supply.
- **Perception:** There are a considerable number of perceptions around parking both from the parking users regarding how it is planned, designed and enforced as well as from the providers as to how parking requirements are determined. There are preconceived notions about how much parking should cost in various areas throughout the City which may be more assumption-based as opposed to what is set-out by the City.

The project team was very pleased with the number of responses that were submitted and the level of participation that occurred through the first round of engagement. Some lessons learned regarding location of engagement, styles of communication and types of questions posed were identified and will be considered as further rounds of engagement and consultation are undertaken.



PARKING MATTERS

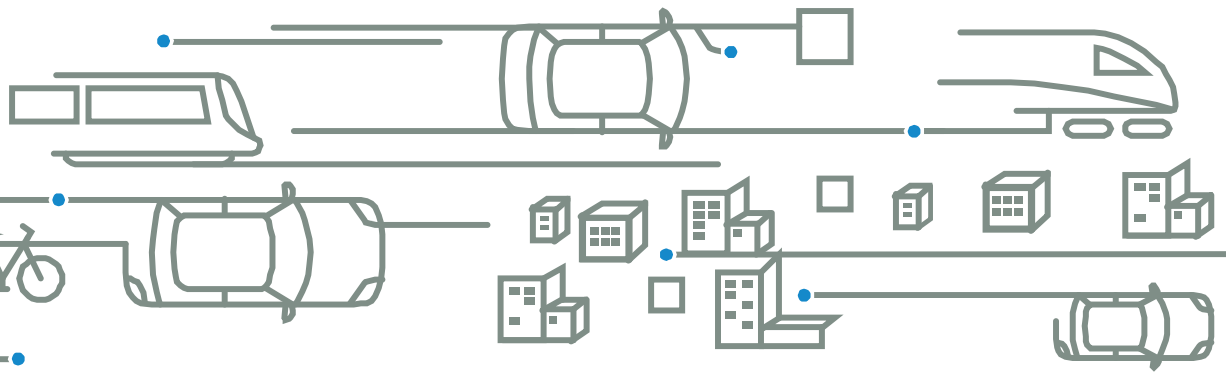


CONSULTATION ROUND 2 SUMMARY REPORT

Mississauga Parking Master Plan and
Implementation Strategy (PMPIS)

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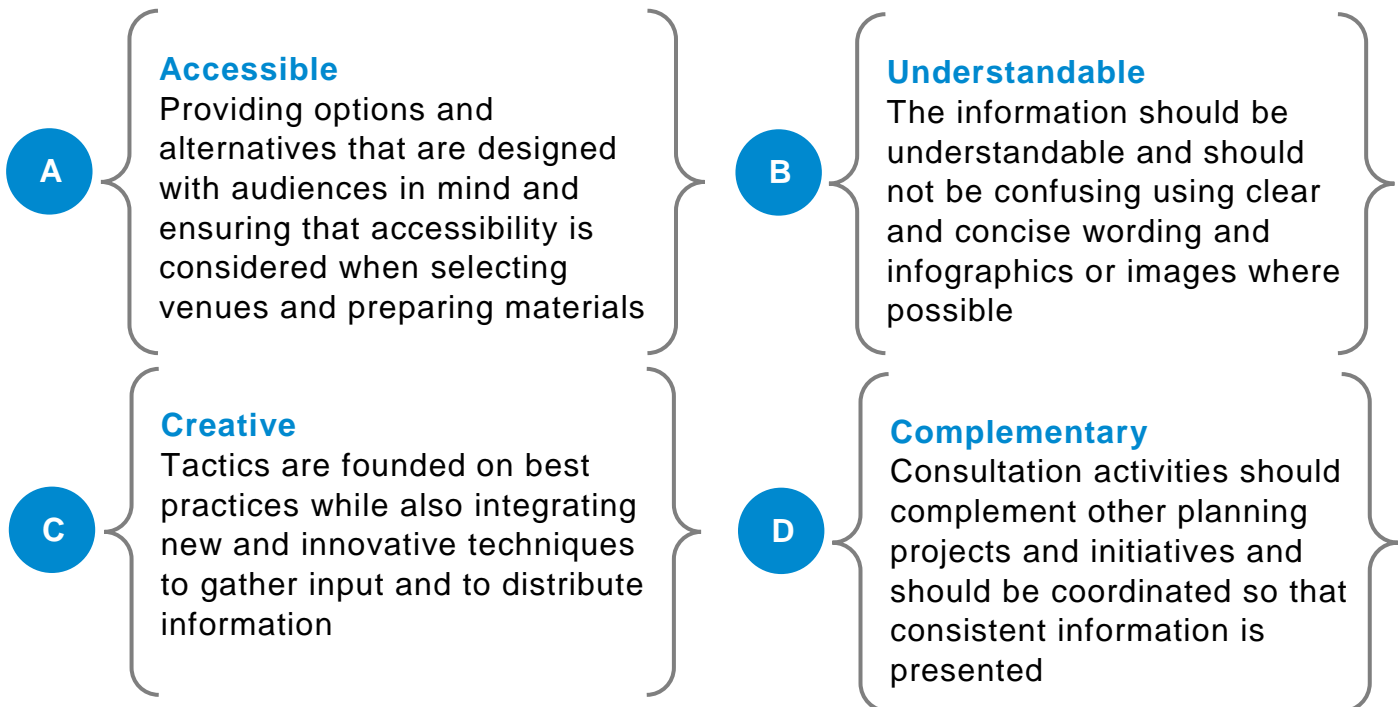
PARKING MATTERS

CHAPTER 1.0

Introduction



In November 2017, the Mississauga Parking Master Plan (“Parking Matters”) Project Team embarked upon a second round of consultation with industry stakeholders, developers, City of Mississauga staff and members of the public to inform and educate stakeholders on the progress of the project. The consultation and engagement program continues to be based on the four (4) key principles established in Round 1:



As noted in the first round of consultation, effective and successful consultation and engagement is one of the primary objectives of the project.

The second round of consultation centred on presenting a number of draft recommendations for public feedback and input. The input received will be used to further refine these draft recommendations prior to the Implementation Plan expected in second quarter of 2018.

The five (5) step process based on the IAP2 approach / principles was established in Round 1 and was used to guide the consultation strategy. This continues to ensure that a stakeholder facing approach is utilized. Figure 1 represents a summary graphic with the five steps of the process.



Figure 1 – Consultation & Engagement Process used to Guide the Mississauga Parking Master Plan Consultation Process

1.1 Who was Engaged?

The project team has continued to proactively engage with the three key audiences that were identified and defined in the detailed stakeholder management plan which was prepared at the time of project commencement:



1. **Decision Makers**, primarily administrative and political representatives from the City



2. **Parking Providers**, primarily those who are in the business of parking, both public and private



3. **Parking Users**, primarily Mississauga residents but also representatives from community organizations, businesses and engaged collaborators who are parking users or have the interests and opinions of parking users in mind

Stakeholder management techniques used in Round 1 were reviewed and refined as part of Round 2. These refinements are explained further in the next sections.

The stakeholder management plan continues to be used as effective tool that is helping to generate a greater understanding of the unique interests, preferences, issues and opportunities associated with the audiences that are anticipated to be engaged over the study process.


1.2 Round 2 Consultation Overview

As noted in the Round 1 consultation report, the consultation and engagement program undertaken to inform the development of the Mississauga Parking Master Plan has been designed to ensure that input was gathered from each of the key target audiences during each stage of the planning process.

The purpose of the second round of consultation was to share the preliminary themes and directions emerging out of the study process.

A detailed overview of the objectives, milestones and the accompanying consultation, engagement and promotional tactics which were undertaken in Round 2 is presented in Table 1.

Table 1 – Overview of Round 2 Consultation, Milestones & Promotion Tactics



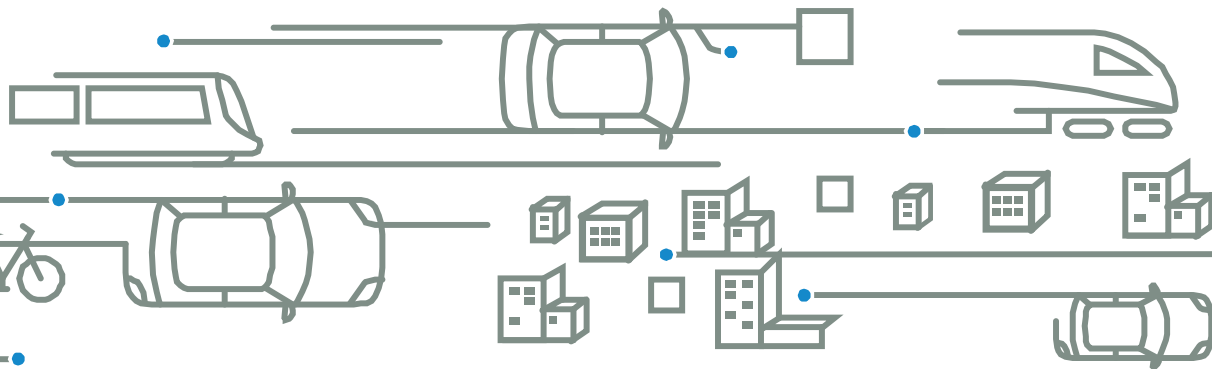
Round 2 Assessing the Options	
Objectives	<ol style="list-style-type: none"> 1. To provide audiences with an update on the progress of the study 2. To present the parking strategy themes developed to date and preliminary recommendations identified by the project team 3. To gather input on the preliminary recommendations to be able to refine these in the final phase of the study
Milestones	<p>In-person consultation tactics:</p> <ul style="list-style-type: none"> • Parking Provider Working Sessions • Parking User Open Houses • Project Steering Committee Meetings • Pop-up Information Nights (six total) <p>Online consultation tactics:</p> <ul style="list-style-type: none"> • Parking Provider and User Online Survey
Promotion	<ul style="list-style-type: none"> • Tweets from City of Mississauga account using #parkingmatters hashtag • Advertisements in Mississauga News and InSauga • Rolling updates to project website http://www.parkingmatters.ca • Posters and flyers at City offices

The input received in each consultation phase has been of vital importance to the development of Parking Matters. It not only allows the study team to understand the ideas and preferences of each of the key audience members but also to demonstrate to decision makers that the recommendations and strategies reflect the unique interests and preferences of the various communities found within Mississauga.

The document is intended to be used as a reference and resource by City staff as they proceed with the implementation of Parking Matters and any future updates to the master plan document and its recommendations. The content contained within this appendix should not be used for

any other reason than for municipal planning projects and personal information will not be shared or sold for any other purposes

The following chapter provides a more detailed overview of the various consultation and promotional tactics completed within this second round of engagement as well as a summary of the input which was received from each of the consultation activities.



PARKING MATTERS

CHAPTER 2.0

What we heard



The input that was generated over the course of Round 2 was documented through a range of consultation tactics and documentation techniques similar to those used in Round 1. The methodology used to generate the input for this round of consultation and the outcomes is documented below.

2.1 Round 2: Assessing the Options

As noted in the previous chapter, the second round of engagement of the Parking Master Plan study was designed based on the following objectives:

- 1 To provide audiences with an update on the progress of the study
- 2 To present the parking strategy themes developed to date and associated preliminary recommendations identified by the project team
- 3 To gather input on the preliminary recommendations to be able to refine these in the final phase of the study

2.1.1 Parking Provider Working Sessions

The Parking Provider workshops were held on November 14 and 16, 2017, at two locations in Mississauga at different times of day. Attendees were invited two weeks in advance of the workshop session via email with RSVPs coordinated using EventBrite.

The session included presentations as well as interactive activities where attendees were encouraged to engage with each other as well as members of the consultant team.

An overview of the workshop agenda is provided below. Each of the sessions were facilitated by the consultant project manager to guide and manage discussion. Input was captured and documented accordingly.

Agenda Summary

Introduction

Presentation including:

- Why are we here?
- Current project status
- What we heard in Consultation #1
- Preliminary consultation themes

Discussion Part 2:

Management of existing parking

Debrief and Next Steps

Purpose: To meet with, inform and engage with anyone that is responsible for a / or has influence over the provision and management of parking in Mississauga about the preliminary parking strategy recommendations.

Objectives:

1. To provide audiences with an update on the progress of the study
2. To present the preliminary parking strategy themes and recommendations identified by the project team
3. To gather input on the preliminary recommendations to be able to refine these in the final phase of the study at workshop session with the participants.

Audience: The workshop was attendance by invitation only including representatives from both public and private entities that are responsible for the management of parking throughout the City of Mississauga.

Timeline: The a.m. workshop was held November 14, 2017, at Port Credit Arena and the p.m. workshop was held November 16, 2017, at the Living Arts Centre.

Presentation Overview

A presentation was given to provide useful and relevant information to parking providers on the status of the project and the preliminary parking policy themes. The ten (10) parking policy themes are outlined below:

1. **Vision:** A Parking Vision statement and supportive policy framework that guides decision making
2. **City Policies and Bylaws for New Parking Provision:** Introduction to the concept of precinct-based parking policy reflective of both current day and aspired urban form
3. **Parking Demand Management and Outreach:** Identifying Transportation Demand Management (TDM) measures for each Precinct to influence parking demand
4. **Municipal Parking Provision and Management:** Building on the work to-date to prioritize investment in future Municipal Parking expansion
5. **On-street parking:** A holistic review of on-street parking
6. **Parking funding and finance:** Policies for revenues and capital spending on City-managed parking
7. **Safety and accessibility:** Continuously improving safety and accessibility at all parking facilities by design
8. **Technology and innovation:** Upgrading digital and physical technology
9. **Green initiatives and municipal parking:** Policies for green initiatives at Municipal Parking Facilities
10. **Governance:** A future governance structure for parking that best meets the City's Strategic goals and the aspirations of the Parking Master Plan and Implementation Strategy.



Consultation #1 Highlights

- One-on-One Councillor Interviews
- 2 Open Houses, 50+ attendees each
- 1 Parking Provider Workshop, 40 attendees
- 3 Information Nights, 550 bookmarks handed-out
- 486 survey respondents



Theme 3: Parking Demand Management and Outreach

What are we considering?:

- Identifying Transportation Demand Management (TDM) measures for each Precinct to influence parking demand

TDM Strategies
Bicycle storage
Carpooling
Site design to support transit, cycling and walking
Parking management (paid parking/parking reductions)
Flexible working arrangements
Transit discounts/subsidies
Smart Commuter programming
Real-time Transit Information
Park and ride facilities
Trip planning tools
Individualized marketing projects
Catalytic services



- Establishing tactics and channels to improve outreach and education about parking



Sample: Brampton



Theme 8: Technology and Innovation

What are we considering?:

- Upgrading digital and physical technology

Possibilities:

- Digital payments and products
- Digital signage and sensors
- Parking guidance systems
- Enforcement upgrades
- Data digitization (for Open Data)

Protect for:

- Digital permits
- Dynamic pricing
- Automated Vehicles



Workshop Discussion: New Parking and Management of Existing Parking

The workshop discussion focused on understanding whether the parking providers believed that the preliminary policy themes introduced in the first half of the provider session represented a solid basis for the development of the parking master plan.

The attendees who participated in the workshop represented both public and private parking providers. Similar to the first round engagement, both public and private providers were represented. An overview of the organizations and agencies that were represented at the workshop is presented in Table 2.

Table 2 - Organizations represented at Parking Provider Working Sessions

Private	Public
<ul style="list-style-type: none">• Honk Mobile• Sutherland Corporation• Greater Toronto Airports Authority• Passport Incorporated• Trillium Health Partners• Colliers• BA Group• Waterside Inn• Indigo Park	<ul style="list-style-type: none">• Building Stronger Communities• St. Pere's Anglican Church• Metrolinx• Eden United• Cristo Rei Church• Peel District School Board• Trillium Hospital

To help attendees better understand how the preliminary recommendations were developed, the ten (10) themes that arose from this phase of the project were introduced to the audience as well as the range of proposed new parking initiatives that accompany each of the themes.

The providers were then asked in the subsequent workshop and question and answer session to provide feedback to the themes and/or express a level of support for the themes. The summary of the feedback can be found in Table 3.

Table 3 - Summary of parking provider workshop feedback by theme

Theme	Parking Provider Workshop Feedback
Theme #1: Vision	<ul style="list-style-type: none"> Broad support from providers for the idea vision that clearly outlines the City's long term intentions for parking No major issues with the draft vision advanced in the best practices review and revised during the second phase
Theme #2: City Policies and Bylaws for New Parking Provision	<ul style="list-style-type: none"> Broad support for a precinct-based approach to parking that allows for parking policies and off-street minimum parking requirements to vary by geographic area. A desire to see a shift away from a 'one-size-fits-all' approach. Broad agreement that this approach is no longer appropriate for a municipality that aspires to greater intensification efforts on transit corridors. A desire to see clear criteria established for any proposed reductions in parking requirements. Churches were cited as examples of a land use where existing requirements struggle to cope with uses that vary by time of day. Intensifying neighbourhoods such as Lakeshore were also cited as an area where the City's conventional minimum parking requirements have proven have shortcomings in terms of accommodating both more mixed uses and the varying parking needs that accommodate these uses. A desire to see clear criteria established for unbundling parking from residential development. A desire to see the City prepare for future development that prioritizes transit as a primary means of access and a formal recognition of the importance of coordinating reductions in minimum parking requirements with transit provision.

Theme	Parking Provider Workshop Feedback
Theme #3: Parking Demand Management and Outreach	<ul style="list-style-type: none"> Supported in principle, but also a desire to see more details of an approach that does not unfairly disadvantage one provider over another. A desire to see better coordination of parking demand management with transit for significant existing land uses. For example, the U of T campus cited the success of their current TDM initiatives, but would like to be able to work closer with the City and Metrolinx to take these initiatives further.
Theme #4: Municipal Parking Provision and Management	<ul style="list-style-type: none"> A desire to see an increased focus on effective parking management of municipal parking. A desire to see a policy framework that outlines how changes to the supply of private and public parking will be made over time, particularly in key land use areas including intensification areas and mobility hubs. In-principle support to work with the City to implement a framework that is fair and equitable to private providers and other stakeholders. A desire to see parking management implemented around schools and other publicly managed land uses, including after-hours events, so as to try and create the more level playing field with private providers.
Theme #5: On-street parking	<ul style="list-style-type: none"> A desire to see better municipal enforcement, particularly where it conflicts with private provision of parking. No comment about the proposed on-street residential parking program.
Theme #6: Parking funding and finance	<ul style="list-style-type: none"> Support for the City to identify a clear strategy for public investment in parking and expenditure of parking revenues so that private providers are aware of the City's intentions in the market for public parking.

Theme	Parking Provider Workshop Feedback
	<ul style="list-style-type: none"> A desire to see greater recognition by City policymakers and parking operators of the capital and operating costs of providing parking, both for private and public providers.
Theme #7: Safety and accessibility	<ul style="list-style-type: none"> In-principle support for new urban design guidelines for internal circulation and pedestrian access.
Theme #8: Technology and innovation	<ul style="list-style-type: none"> Strong support to see greater use of technology in both public and private parking provision. Existing private providers expressed a desire to see their own private investments to date respected. A desire to see more parking data collected and made available as open data.
Theme #9: Green initiatives and municipal parking	<ul style="list-style-type: none"> More details required before providers can lend their support to any initiatives.
Theme #10: Governance	<ul style="list-style-type: none"> Support for governance reform that more clearly identifies and delineates parking responsibilities at the City. Broad support for a financial plan that clearly identifies the City's revenues and expenditures associated with all activities relating to parking as well as an investment strategy.

2.1.2 Parking User Open Houses

During the second phase of the project, two (2) Parking User Open House sessions were held on November 14 (Port Credit Arena) and 16, 2017, (Mississauga Civic Centre) in the evening. Drop-in style open houses allowed attendees to review the display materials at their leisure, provide input on interactive display boards and speak with members of the study team on a one-on-one basis (refer to Figure 1). The second of the two open houses was coordinated to coincide with the first open house for the Mississauga Transportation Master Plan, *Mississauga Moves*.

Based on the number of registrations received from both events, it is estimated that a combined total of approximately 180 persons attended the open houses.

Around half of the display boards presented were interactive and mimicked the questions posed through the online engagement tool. An overview of the display boards as presented is provided in Table 4.

Objectives:

1. To provide audiences with an update on the progress of the study
2. To present the preliminary parking strategy themes and recommendations identified by the project team
3. To gather input on the preliminary recommendations to be able to refine these in the final phase of the study.

Audience: The open house sessions were targeted to members of the public (i.e., parking users including residents of the City of Mississauga, community representatives, stakeholders and interest groups).

Timeline: A total of two public Open Houses were held: November 14 (Port Credit Arena) and November 16 (Mississauga Civic Centre) between 6:30 and 8:30 p.m.



Figure 2- Open Houses (Port Credit and Mississauga Civic Centre)

Table 4 - Display Boards, associated theme and description

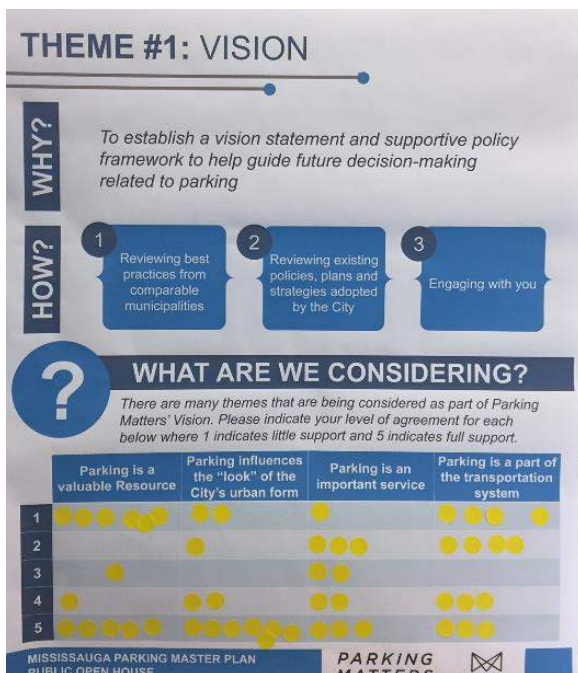
Board	Theme	Description
Welcome		An overview of the various methods of engagement available for the study.
About		An overview of the purpose of the study and the meaning of effective parking management.
Process		An overview of the various steps and stages that make-up the parking master plan study process.
Previously		An illustration of the six most common issues that arose from the first round of consultation.
Themes		An introduction to the ten parking policy themes and how these have been defined for the purposes of the project and developing the master plan.
Input #1	1	An open comment interactive display board asking individuals to identify the importance of statements associated with the Draft Vision statement .
Input #2	2	Part 1 of 2 of an interactive display allowing people to identify and comment on the draft precinct areas as well as the criteria used to identify these areas.
Input #3	3	An interactive display prompting attendees to assess the appropriateness of twelve (12) parking demand management measures ranging from bicycle storage to carsharing services.
Input #4 (Draft Precinct Map)	2	Part 2 of 2 of an interactive display allowing people to identify and comment on the draft precinct areas as well as the criteria used to identify these areas.
Input #5	5	An interactive display prompting attendees to determine the extent to which they determine holiday parking, driveway widenings, boulevard parking and school parking zones to be important.
Input #6	5	An interactive display prompting attendees to assess and provide comment on how well the City communicates to residents about current on-street parking rules.

Board	Theme	Description
Input #7	5	An interactive display asking attendees to comment how supportive they would be if the City allowed permit parking on residential streets.
Input #8	6	An interactive display asking attendees to comment on how the City should fund and finance City-run parking structures.
Input #9	8	An interactive display asking attendees to rank how important they believe new technologies are for parking.
Input #10	Other	An interactive display asking attendees to nominate other parking related themes or topics that they believe require attention by the City.
Next Steps		A board that outlines the three next steps being taken to advance the study to the next phase (advance recommendations, develop the plan and present to council).

Interactive Display Board Input

As noted above, there were a total of ten (10) interactive display boards with varying intents and purposes. Images of the display boards where comments were provided are provided below along with a qualitative summary of the feedback from the themes introduced in both of the sessions.

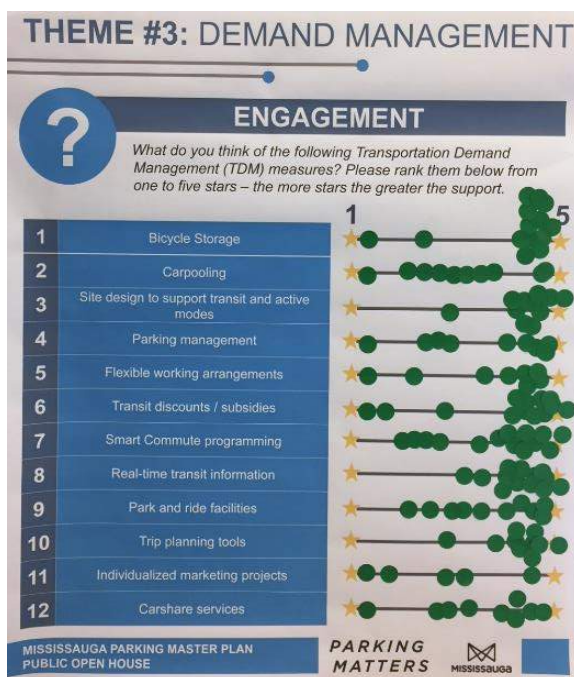
A quantitative summary of feedback from both the display boards and the online survey results can be found in Table 5.



Theme 1: Vision

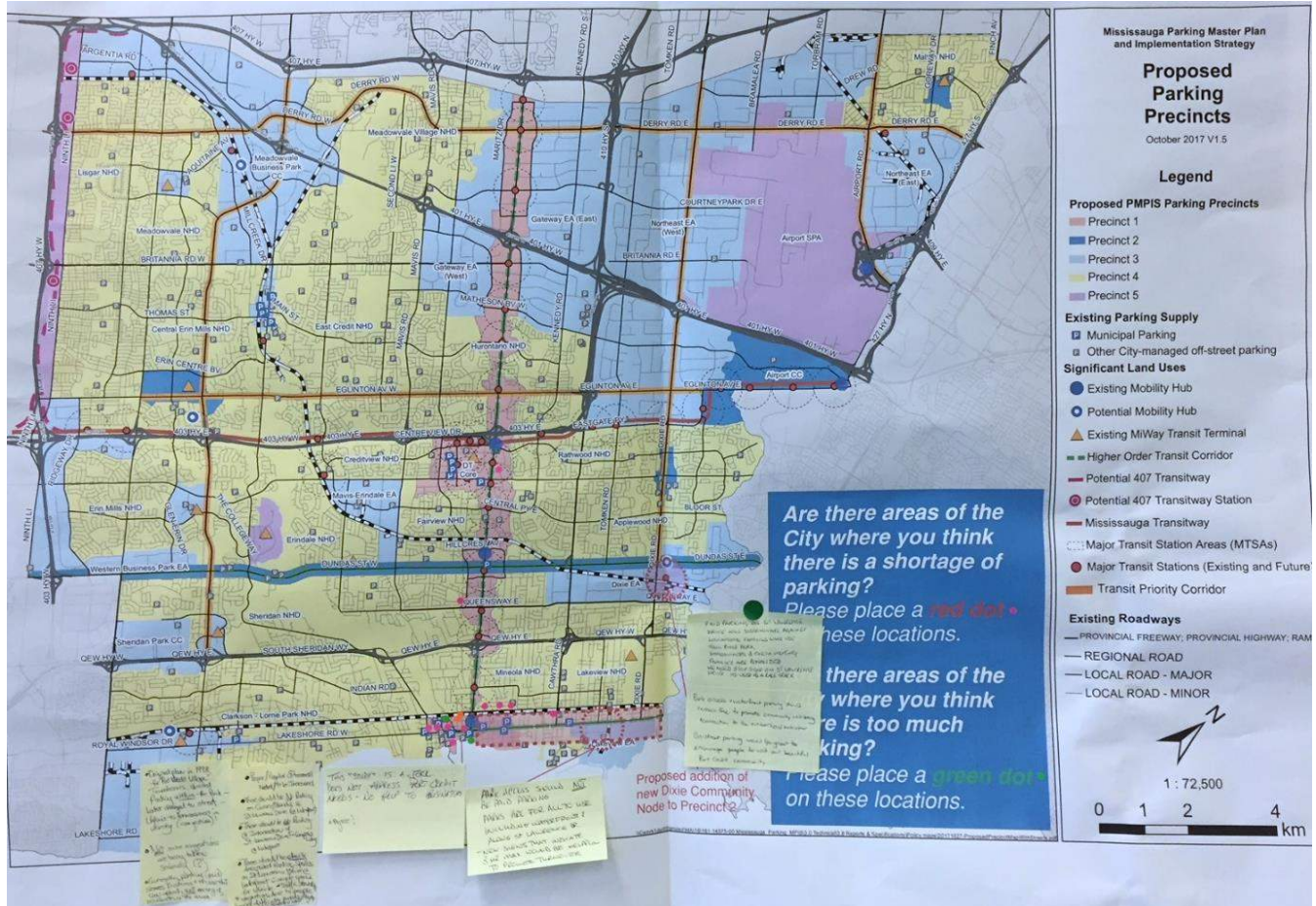
- There was a mixed response to the each of the vision statements.
- Respondents appeared to have diverging views on whether parking is considered a valuable resource (some strongly agree and others strongly disagree).
- There was broad agreement that parking influences the look of the City and its urban form.
- Opinions concerning parking as a service diverged, with a slight majority indicating they saw less importance of parking as part of the transport system.

Theme 2: City Policies and Bylaws for New Parking Provision is discussed on the next page



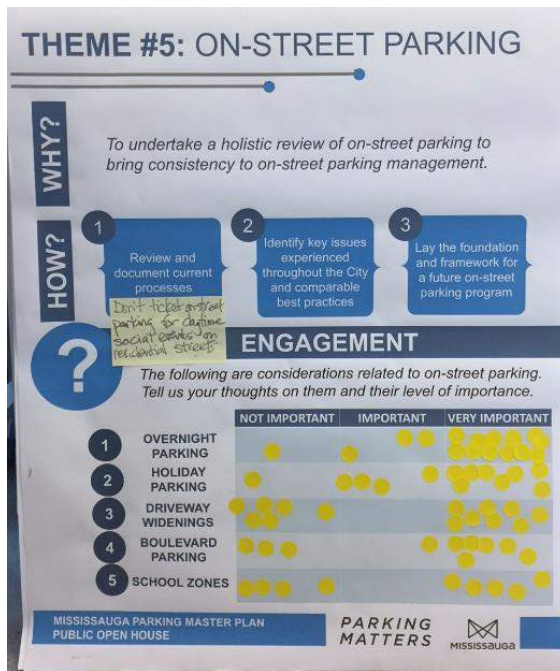
Theme 3: Demand Management

- There was broad support for most of the TDM measures outlined within this theme with most support for bicycle storage, safe design and real-time transit information.
- 'Individualized marketing projects' as a TDM measure to provide relief from parking demand did not particularly resonate or receive much feedback, suggesting these types of initiatives may need to be more clearly defined and communicated.



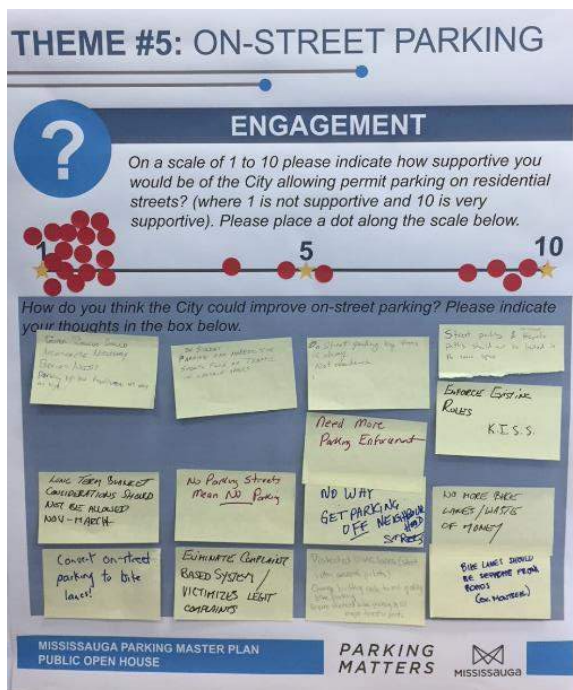
Theme 2: Parking Precincts

- Broad support for the idea of developing parking precincts that vary parking policy approaches by geographic area and level of transit service.
- Broad support for the number of precinct areas (5 in total) and their proposed boundaries.
- Several locations were identified in which there are perceptions of either too much or too little parking.
- Concerns that attitudes towards continued provision of free parking is distorting the City's ability to implement evidence-based policy.
- The belief by some that it is the City's responsibility to address the free parking attitude through strong city policy that discourages free parking in favour of intensification and promotion of alternative modes.
- Concerns about any potential parking fees discriminating against low income individuals.
- Several on-street locations were identified where attendees indicated a preference for parking to be restricted or banned altogether.



Theme 5 (1 of 2): On-Street Parking Practices

- All five (5) of the on-street parking issues identified were generally considered to be very important by respondents.
- Overnight parking was the issue considered very important by the largest number of respondents.
- Holiday parking followed a trend similar to overnight.
- Driveway widenings attracted diverging views, with some considering it to be very important and others less important.
- Boulevard parking also incurred diverging opinions, but was considered very important by most respondents.



Theme 5 (2 of 2): A proposed on-street residential parking permit system

- Limited support for the idea of an on-street residential permit system.
- A desire to see more residential parking enforcement, both on- and off-street.
- It should be noted that some negative feedback appeared to be predicated on the idea that residential permits would attract a fee and that residents would be 'penalized'. This suggests further work is necessary on emphasizing the potential parking management benefits associated with permits.
- Some respondents expressed a desire to see road space on collector streets could be used for bike lanes, particularly in those locations where parking is already prohibited.

THEME #6: FUNDING & FINANCE

WHY? To be strategic with policies and practices for revenues and capital spending on City-managed parking

HOW?

- 1 Investigate a strategy for paid parking rates and use of reserve funds
- 2 Identify criteria for investment in municipal parking infrastructure
- 3 Identify processes for partnerships with landowners, developers and operators

WHAT ARE WE CONSIDERING?

The City anticipates it will need to build new parking infrastructure to support future growth. How do you think the City should fund and finance this? Please indicate your thoughts below.

	STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE
1 People who drive and park should pay	[Red dots]			
2 City-run parking should be funded by property taxes	[Red dots]			
3 Other	[Red dots]			

Please indicate other options below.

MISSISSAUGA PARKING MASTER PLAN PUBLIC OPEN HOUSE

NEED BICE PARKING

MISSISSAUGA

Theme 6: Funding and Finance

- Strong support for the notion that people who drive and park should pay for the privilege.
- Mostly strong disagreement for the notion that city run parking should be funded by property taxes.

THEME #8: TECHNOLOGY

ENGAGEMENT

What do you think of the different technologies being considered for the City of Mississauga? Please rank them below from one to three stars indicating your support – the more stars the greater the support.

	1	2	3
1 DIGITAL PAYMENT & PRODUCTS	[Yellow stars]	[Yellow stars]	[Yellow stars]
2 DIGITAL SIGNAGE & SENSORS	[Yellow stars]	[Yellow stars]	[Yellow stars]
3 PARKING GUIDANCE SYSTEMS	[Yellow stars]	[Yellow stars]	[Yellow stars]
4 ENFORCEMENT UPGRADES	[Yellow stars]	[Yellow stars]	[Yellow stars]
5 AUTOMATED VEHICLES	[Yellow stars]	[Yellow stars]	[Yellow stars]
6 OTHER?	[Yellow stars]	[Yellow stars]	[Yellow stars]

Are there other forms of technology related to parking that you would like the City of Mississauga to consider? Please write them in the space below.

use of drones for enforcement? Not!

GREAT FOR PARKING LOTS / BUSINESSES BUT NOT Residential.

Please comments Here.

Theme 8: Technology

- Strong support for digital payment and products, signage and sensors.
- Support for parking guidance systems.
- The limited number of responses suggests that there is likely to be a limited understanding of the relevance and benefit of enforcement upgrades and automated vehicles to parking at present.

2.1.3 Online Engagement Tool #2

In addition to the in-person consultation activities, the consultant team provided alternative consultation and engagement through online survey on the parkingmatters.ca website. The questions followed the format used at the in-person consultation sessions reviewed in the previous section.

The parking user survey posed 6 questions. The intent was for the surveys to be short and easy to complete with the intent of increasing response rates early in the process.

A total of 78 responses were submitted. A high-level summary of key responses that emerged from the surveys that were completed is presented in Table 5.

Table 5 - Parking User Survey Responses and comparison with Open House responses (where available)

Objective: To gather input from parking providers and parking users about their experiences related to parking within the City of Mississauga.

Audience: Parking Users and Parking Providers.

Timeline: The online surveys were hosted through the project website from November 1 to December 10, 2017.

Parking User Survey Questions

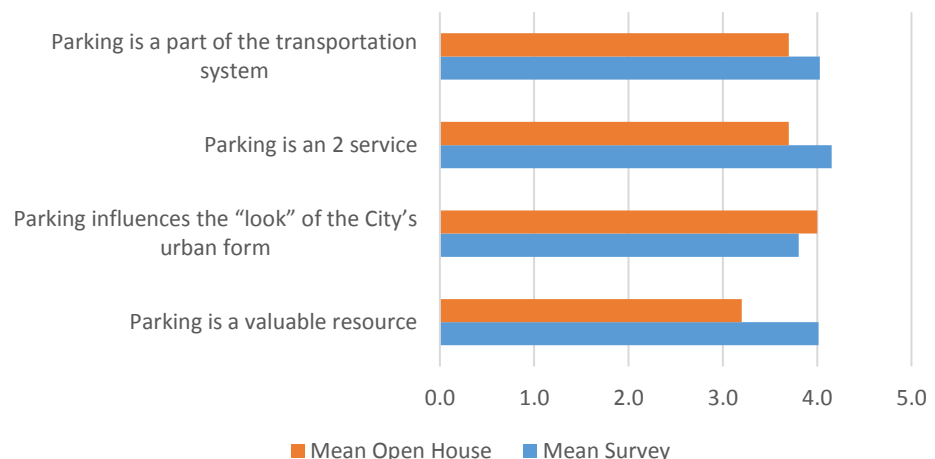
Question #1: Vision Statement

Please indicate your level of agreement for each below where 1 indicates little support and 5 indicates full support.

Summary of Responses

The online survey had 78 respondents. Number of respondents at the open houses varies by question. The average (mean) result is shown unless otherwise indicated.

Q1: Attitudes toward Draft Vision Statement



Parking User
Survey Questions

Summary of Responses

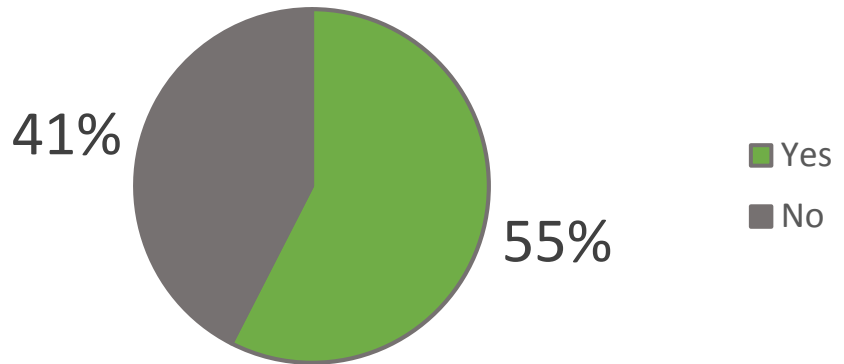
The online survey had 78 respondents. Number of respondents at the open houses varies by question. The average (mean) result is shown unless otherwise indicated.

Question #2a:

Are there areas of the City where you think there is a shortage of parking?

NB: Open House participants asked to nominate locations only

Q2a SURVEY: Shortage of parking?



Common locations cited in both online and open house:

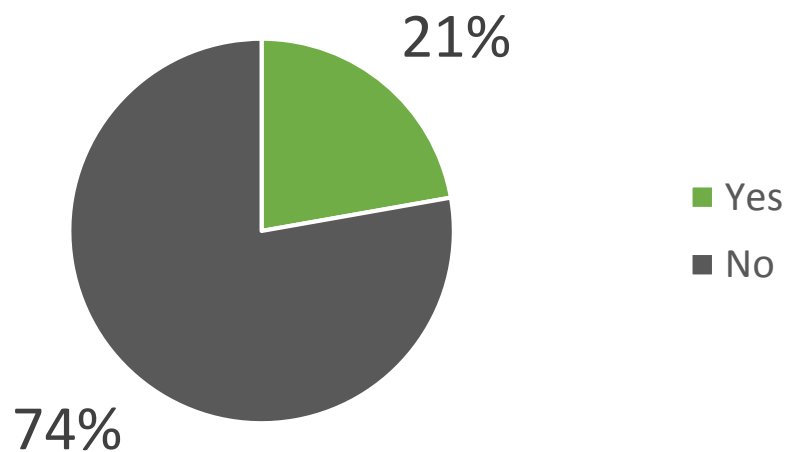
- GO Stations
- Port Credit
- Square One
- Streetsville
- Malton
- Central Library

Question #2b:

Are there areas of the City where you think there is too much parking?

NB: Open House participants asked to nominate locations only

Q2b SURVEY: Too much parking?



Parking User Survey Questions

**Common
locations cited in
both online and
Open House:**

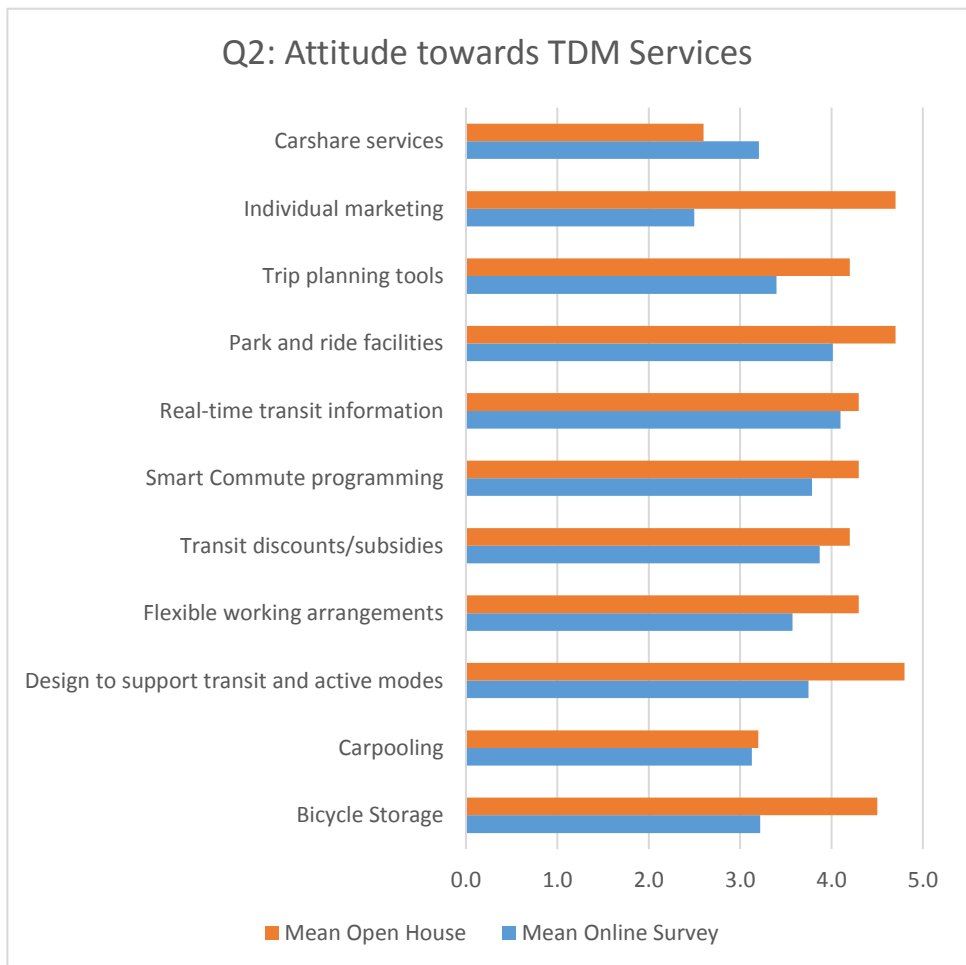
Summary of Responses
The online survey had 78 respondents. Number of respondents at the open houses varies by question. The average (mean) result is shown unless otherwise indicated.

- 'All shopping malls/strip malls'
- Port Credit
- City Centre
- Clarkson
- 'Unused shopping centres'
- Airport business park
- Meadowvale business park
- South Common
- Erin Mills

Question #3:

What do you think of the following Transportation Demand Management (TDM) measures?

Please indicate your level of agreement for each below where 1 indicates little support and 5 indicates full support.



**Parking User
Survey Questions**

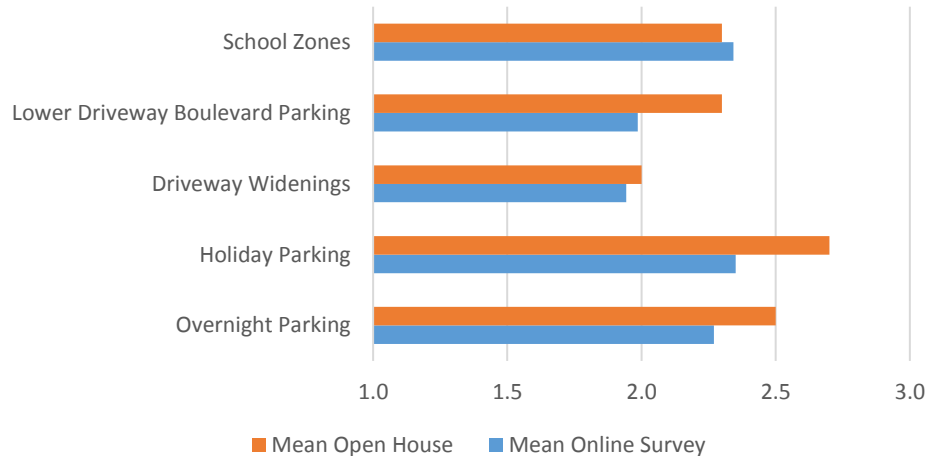
Summary of Responses

The online survey had 78 respondents. Number of respondents at the open houses varies by question. The average (mean) result is shown unless otherwise indicated.

**Question #4 a)
on-street and
residential
considerations:**

The following are considerations related to on-street parking. Tell us your thoughts on them and their level of importance. Very Important = 3 Important = 2 Not Important = 1

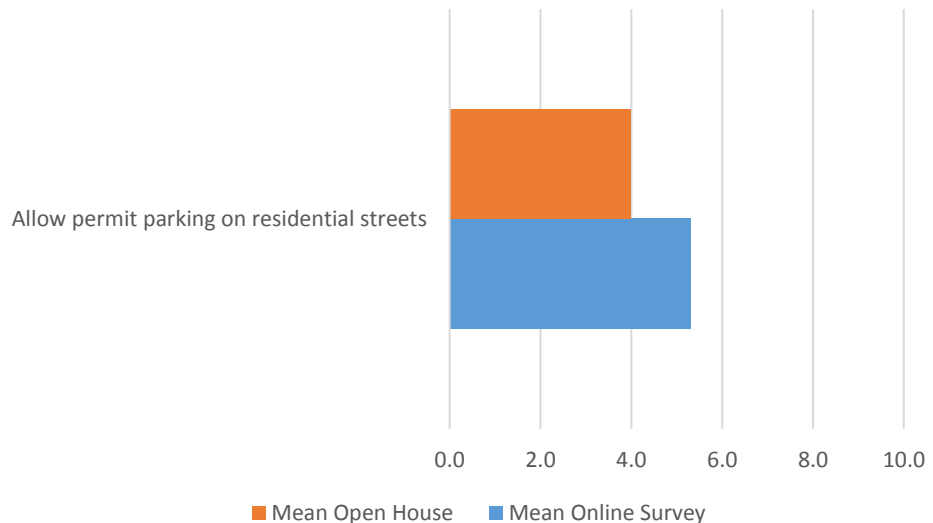
Q4: On-street and residential considerations



**4. b) Permit
Parking on
residential
streets**

On a scale of 1 to 10 please indicate how supportive you would be of the City allowing permit parking on residential streets? (where 1 is not supportive and 10 is very supportive)

Q4: Permit parking on residential streets



Parking User Survey Questions

Summary of Responses

The online survey had 78 respondents. Number of respondents at the open houses varies by question. The average (mean) result is shown unless otherwise indicated.

4. c) How do you think the City could improve on-street parking?

Please indicate your thoughts in the box below.

Common Responses:

- *'The city should allow street parking where it doesn't create problem for emergency services or snow cleaning'.*
- *'Allow permit parking so that people do not park on the boulevard and create a trashy neighbourhood appearance'.*
- *'Allow parking on one side of the street only'.*
- *'Reasonable on street parking should be permitted (visitors, entertaining, etc); however, on-street parking should NOT be expanded to enable homeowners the ability to own and park multiple cars beyond their garage / driveway capacity'.*
- *'Where streets are wide enough, make street parking available'.*

**Parking User
Survey Questions**

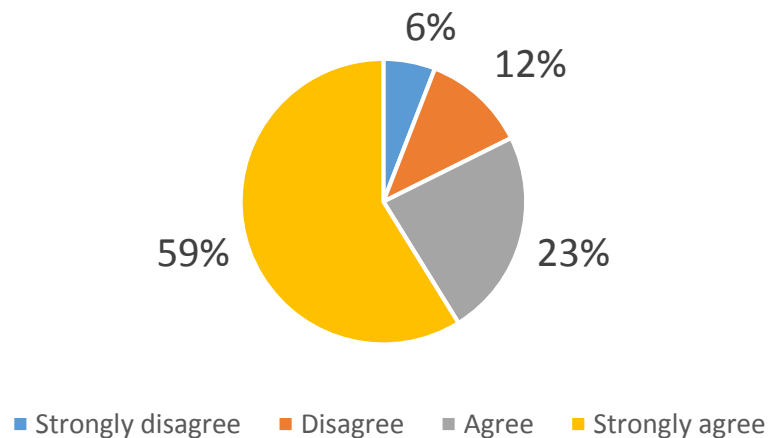
Summary of Responses

The online survey had 78 respondents. Number of respondents at the open houses varies by question. The average (mean) result is shown unless otherwise indicated.

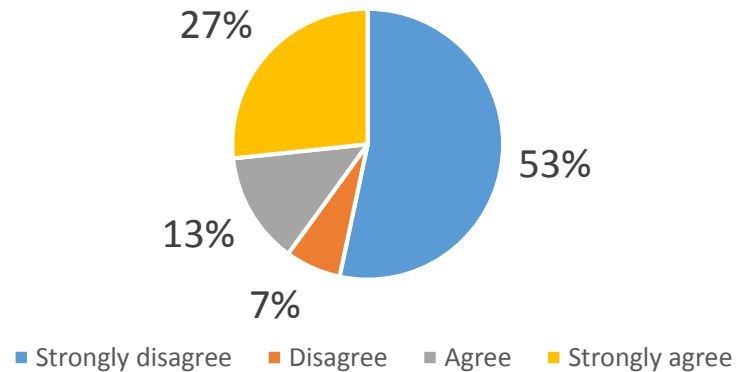
**#Q6a). Attitudes
towards funding
and paying for
parking**

The City anticipates it will need to build new parking infrastructure to support future growth. How do you think the City should fund and finance this?

Q6 OPEN HOUSE: People who drive and park should pay



Q6 OPEN HOUSE: City-run parking should be funded by property taxes



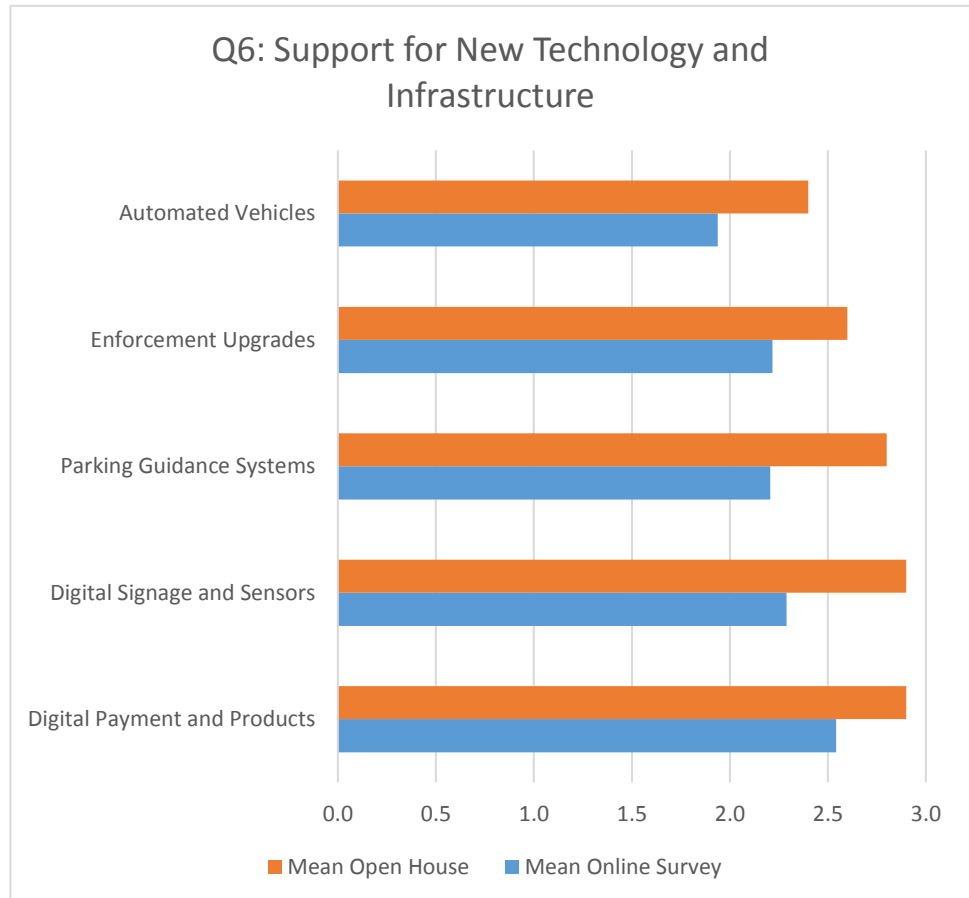
Parking User Survey Questions

Summary of Responses

The online survey had 78 respondents. Number of respondents at the open houses varies by question. The average (mean) result is shown unless otherwise indicated.

Question #6b): Support for New Technology

The City is considering digitizing its parking products, services and infrastructure. What do you think of the different technologies being considered for the City of Mississauga? Please rank them below from **one to three** indicating your support – the more the greater the support.



Common responses:

- *'Enforcement should be automated - perhaps use cameras and then just mail out parking bills to the vehicle owner if they don't pay at the time (for that to work, the province may have to completely ban the use of license plate protectors, and the police should clamp down on drivers who have license plates in poor/unreadable condition).'*
- *'Please include charging stations for electric cars'.*
- *'I use Green P in Toronto and NEVER have to worry about carrying change or making payment. Mississauga needs that'.*
- *'Apps'.*

Question #6: Technology

Are there other forms of technology related to parking that you would like the City of Mississauga to consider?

**Parking User
Survey Questions****Summary of Responses**

The online survey had 78 respondents. Number of respondents at the open houses varies by question. The average (mean) result is shown unless otherwise indicated.

Question #7:

Do you have any thoughts on anything else parking related that you think should be considered as part of the Parking Master Plan? Please write them in the box below.

Common responses:

- *'The City needs to get out there and crack down ruthlessly on bad parkers, to teach them to observe and obey proper parking rules - no exemptions. The more you penalize, the sooner they will smarten up - plus you will gather a lot of revenue to use towards your future parking improvements'.*
- *'Drastically reduce parking minimums for areas of the city with transit oriented development such as Hurontario.'*
- *'Make parking more environmental sustainable (sic) and better looking... they are ugly to see/walk through and are bad for climate change'.*
- *'There should be across the board AFFORDABLE public parking in Mississauga and not supply and demand parking fees. As an example, if I park and use public transit in Toronto, I can park as economically as \$6:00 a day; however, if I need to park at destination (not my preferred option) the day charge can be as high as \$26.00 per day'.*

2.1.4 Pop-Up Information Nights

A total of six (6) Pop-Up Information Nights were held at various locations around Mississauga (see right for details).

The Pop-Up Information Nights provided parking users with the opportunity to find out more about the Parking Master Plan project, its preliminary recommendations as well as ask questions and raise issues about parking in their local neighbourhood.

As can be seen in the photos of the boards in Figures 2, 3, 4 and 5, the majority of feedback collected from the Pop-Up Information Nights related to local on and off-street parking issues in the immediate areas surrounding the locations where the events were held.

Respondents in the first week provided qualitative feedback suggesting there was not enough parking in specific locations such as downtown and a surplus in those areas that are planned to generously accommodate private vehicle access, such as the Airport Corporate Centre. They also echoed sentiments concerning the need to adopt more modern parking technology to better identify parking availability.

Respondents in the second week provided qualitative feedback suggesting there was not enough parking in locations such as Port Credit and nominated a number of local residential areas where on-street parking rules and behaviour was a concern. The following pages provide a concise summary of the feedback received.

Objective: To provide additional opportunities for parking users i.e. residents within the various areas of the City to learn more about the project and to provide input.

Audience: Parking Users and Parking Providers

Format: Pop-ups were held in community locations throughout various areas of the City with a paired down version of the display boards to ask simple questions and to drive traffic to the project website and the second online engagement tool.

Timeline: November 21st, 22nd, 23rd, 28th, 29th and 30th, 4:00 – 7:00 p.m.

Locations:

1. Burnhamthorpe Library
2. Malton Community Centre
3. Meadowvale Community Centre
4. Churchill Meadows Library & Activity Centre
5. Clarkson Community Centre
6. Erin Meadows Community Centre

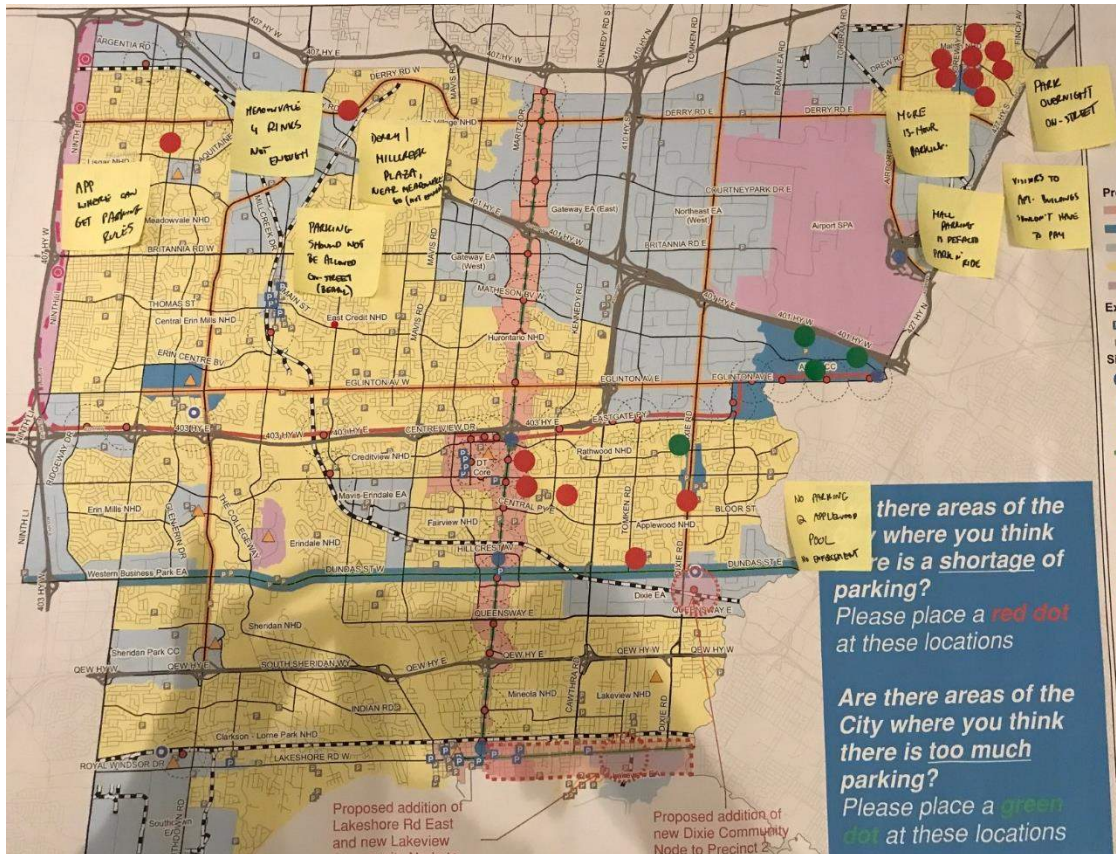


Figure 3 - Week 1 Pop-Up Information Night (November 21,22 and 23) Feedback

Theme 2: Parking Precincts (Week 1)

- Rathwood, Meadowvale and Malton neighbourhoods nominated as locations where there is a perceived shortage of parking.
- Airport Corporate Centre nominated as a location where there is a perceived excess of parking.

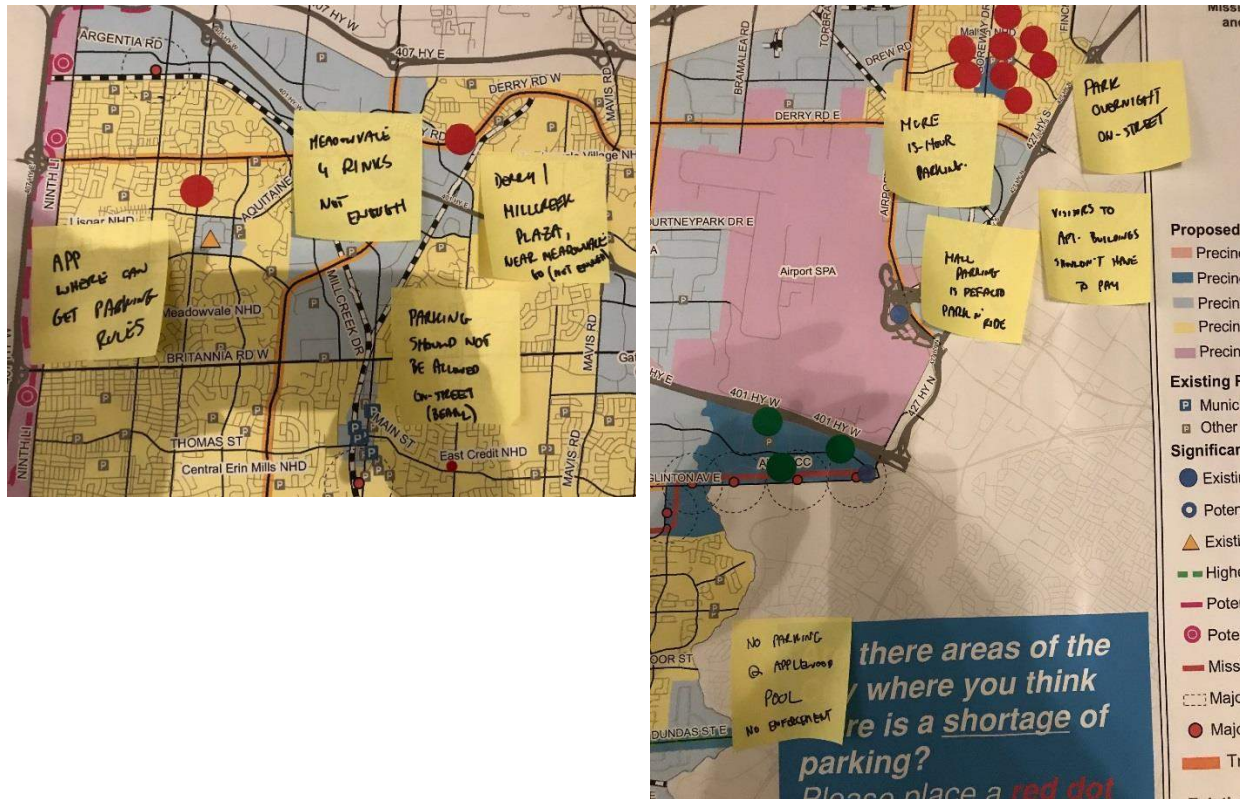


Figure 4 - Week 1 Pop-Up Information Night (November 21,22 and 23) Post it Notes Feedback

Neighbourhood-specific feedback (Week 1)

- A request for more visitor parking at apartment buildings
- A desire to be allowed to park overnight on-street in residential areas in Mississauga
- A perceived lack of parking in the Derry/Hillcreek Plaza area
- A desire to see an app introduced that gives real time information on parking availability

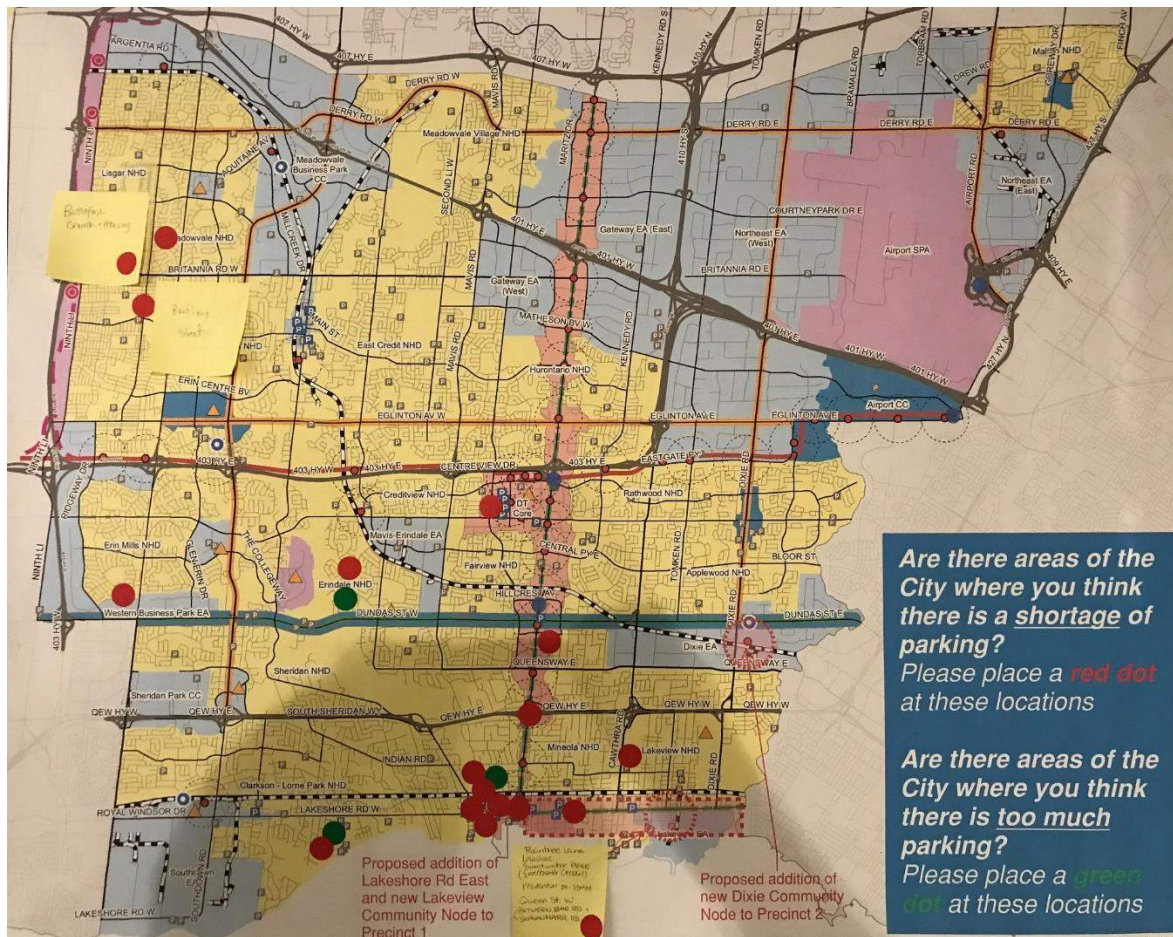


Figure 5 - Week 2 Pop-Up Information Night (November 28, 29 and 30) Feedback

Theme 2: Parking Precincts (Week 2)

- Feedback was focused around a perceived lack of parking in Meadowvale and Port Credit

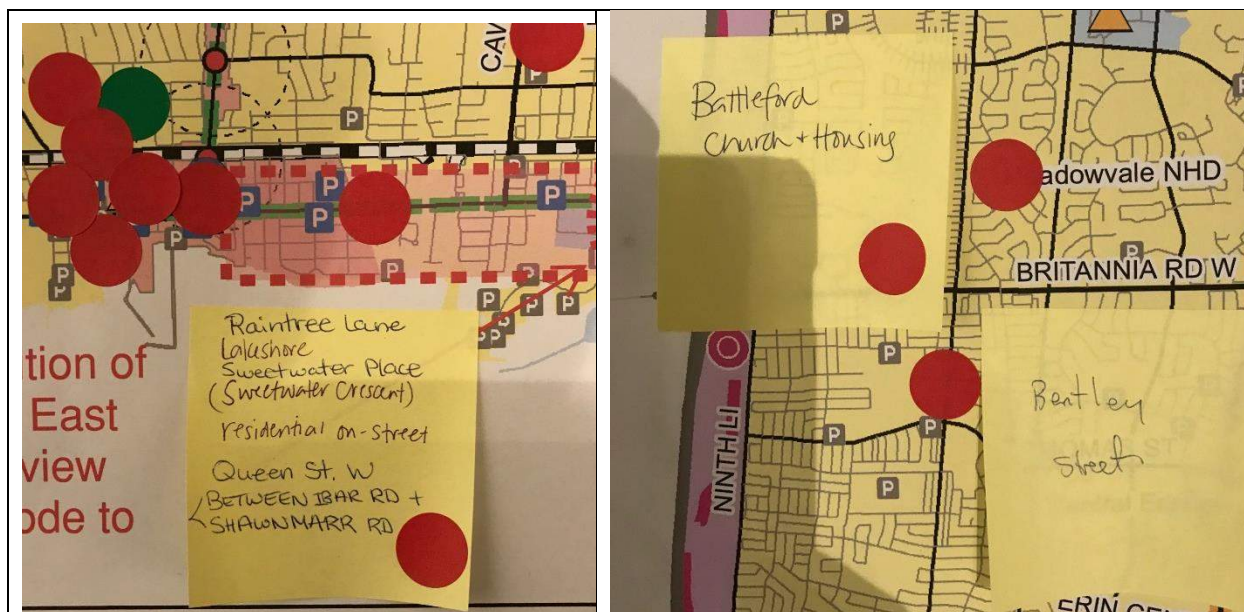
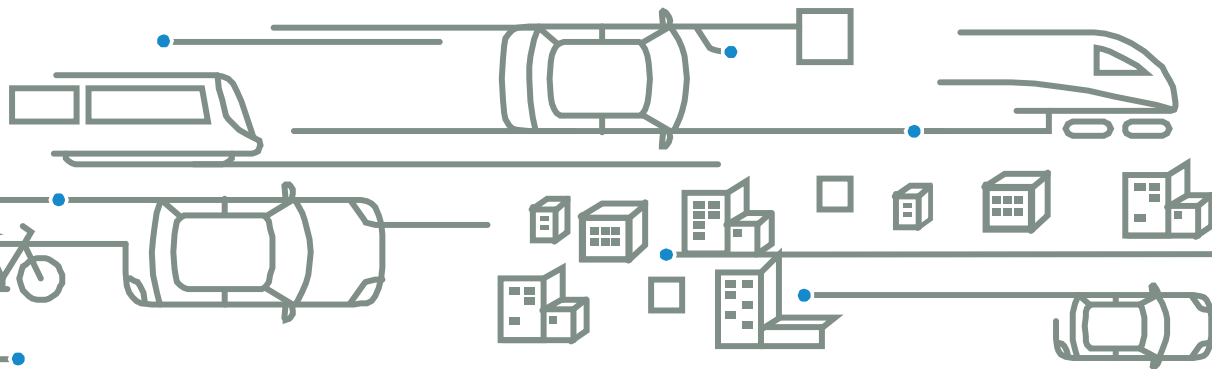


Figure 6 - Week 2 Pop-Up Information Night Feedback (November 28, 29 and 30)

Neighbourhood-specific feedback (Week 2)

- Perceived lack of parking at Battleford Church and House, as well as residential areas in Bentley Street in Erin Mills, Raintree Lane and Sweetwater Crescent and Queen St West in Port Credit



PARKING MATTERS

CHAPTER 3.0

Summary of key themes



Based on the feedback received from the three main user groups and input analysed in this Round 2 report, the Project Team now believes there is a solid basis from which to further refine the ten parking policy themes and adjust the preliminary recommendations developed in the Parking Matters project thus far. The feedback received has been sorted into three themes that featured prominently in this round of engagement.

Formalizing the Plan and Level of Engagement

For the part of the parking providers, the feedback received suggests that parking providers welcome both a renewed focus on parking and appreciate the City's efforts to formalize the its involvement with a new Parking Master Plan. The main concerns centre on developing a greater understanding of how any new city policy and governance structures stand to affect existing operators.

In moving to the final phase of the project, the Project Team recognises that it will continue to need to work closely with the City to ensure that the final Parking Master Plan recommendations are considered fair and transparent by each of the user groups. It will be important to demonstrate to parking providers that these sentiments are reflected in the final Parking Master Plan.

Proposed Policies and Impacts

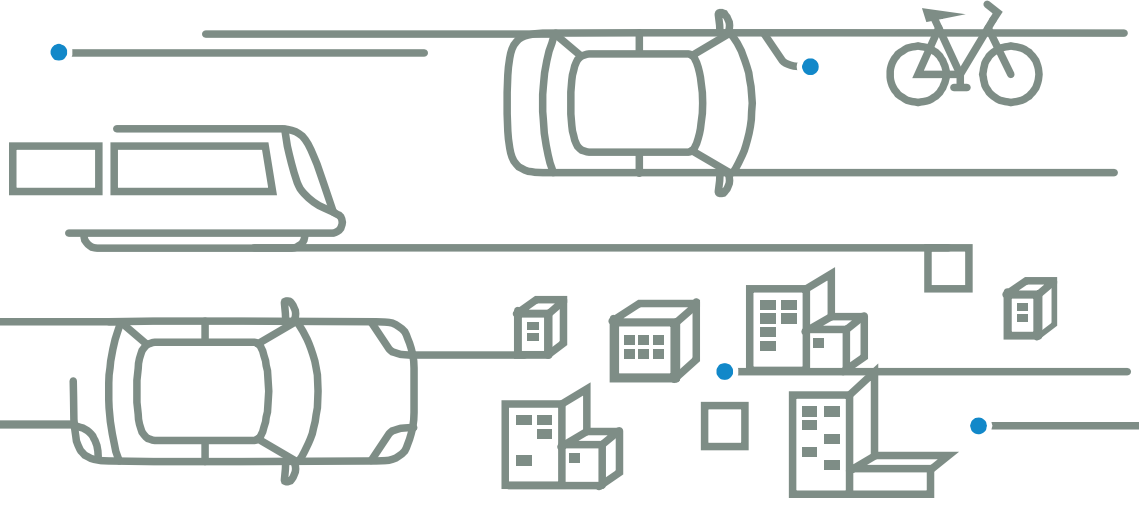
Parking users have registered similar concerns, particularly with regard to the parking facilities that they commonly use. They would stand to be directly affected by if changes are implemented. There appears to be a strong appetite for technological innovation that improves the parking experience. Individual parking and Transportation Demand Management (TDM) measures also appear to enjoy relatively strong in-principle support. Some TDM measures do not appear to be as well-known or understood in the community (individualized marketing and unbundled parking for instance), most likely because they are not currently in widespread use in Mississauga.

The main issue of contention for parking users is likely to be rules associated with parking in residential neighbourhoods and the proposed introduction of residential parking permits. This has attracted strong views both for in support of and against from those who stand to be affected by any changes. The Project Team will need to work closely with the City to refine the relevant recommendations in the final phase.

Financing Parking

There is further work to be done in the final Parking Master Plan to reconcile the community's clear desire for parking not to be a tax-funded activity while addressing the general resistance and aversion to paying for it. The efforts to educate the community on the significant costs of parking appear to have been well received but this is likely to require more work in the future.

In conclusion, the Project Team will continue to work closely with the City, users and the broader community to refine each of the themes and associated recommendations in the final phase of the project.



PARKING MATTERS



APPENDIX 2-1 JURISDICTIONS WITH PRECINCT/POLICY AREA APPROACH TO PARKING POLICIES

Mississauga Parking Master Plan and
Implementation Strategy (PMPIS)

1 PARKING PRECINCTS

According to the relevant literature as presented in the *Existing Policy and Best Practices Review* appropriate parking management policies are best developed using a policy area (precinct) approach based on the quality of transit available in the different areas and the expectations for future development.

This Brief first examines criteria for defining and determining precincts for parking policy analysis (Section 1.1) and then summarizes the approach and experience of seven jurisdictions in southern Ontario (Section 1.2). The seven jurisdictions are: Toronto, Vaughan, Kitchener, Hamilton, Richmond Hill, Oakville, and Newmarket.

1.1 CRITERIA FOR DETERMINING PRECINCTS

Exhibit 1-1 provides a list of factors that typically affect parking needs, parking demand, and parking supply. The factors listed are obtained from Litman's *Parking Management Comprehensive Implementation Guide* and most are commonly used in the development of appropriate parking management policies. Some are also used to group areas with similar characteristics and therefore a similar vision and need for a similar set of parking policies.

The most effective and most frequently used factors are:

1. Transit Accessibility and Service Frequency
2. Vehicle Ownership
3. Availability of Alternative Travel Modes
 - Active Transportation Network
 - Shared Vehicles
 - Taxi Service
 - Carshare Service
4. Public Parking Facilities
5. Land Use
6. Walkability

Exhibit 1-1 – Factors Affecting Parking Demand, Supply, and Management

Factor
Geographic Location: Vehicle ownership and use rates in an area
Residential Density: Number of residents or housing units per acre/hectare
Employment Density: Number of employees per acre/hectare
Land Use Mix: Land use mix located within a convenient walking distance
Transit Accessibility: Nearby transit service frequency and quality
Car Sharing: Whether car-sharing services are located within or nearby a building
Walkability and Bike-ability: Walking environment quality
Demographics: Age and physical ability of residents or commuters
Income: Average income of residents or commuters
Housing Tenure: Whether housing is owned or rented
Pricing: Parking that is priced, unbundled, or cashed out
Sharing/Overflow: Ability to share parking facilities with other nearby land uses:
Management Programs: Parking and mobility management programs implemented at a site
Design Hour: Number of allowable annual hours a parking facility may fill
Contingency-Based Planning: Use lower-bound requirements, and implement additional strategies if needed

Source: *Parking Management Comprehensive Implementation Guide*, Victoria Transport Policy Institute, 2018

1.2 JURISDICTIONS WITH PRECINCT APPROACH

As pointed out in the *Existing Policy and Best Practice Review* prepared as part of the PMPIS, jurisdictions in many countries have adopted a policy area approach to parking policy. The availability of transit, public parking, and active transportation networks is important to the approach. Many jurisdictions also review their parking policies and update their Zoning By-laws when adopting a policy area approach. The policies that emerge differ with the different needs of different jurisdictions. Seven jurisdictions are reviewed: Toronto, Vaughan, Kitchener, Hamilton, Richmond Hill, Oakville, and Newmarket.

1.2.1 CITY OF TORONTO

The City of Toronto conducted a series of reviews of its parking policies and standards to develop a new *Zoning By-law 569-2013* in 2013. The new by-law reflects the parking needs of residents and businesses and incorporates policies in the city's Official Plan Urban Structure (Exhibit 1-2) and higher-order transit corridors (corridors serviced by higher-order transit). The Zoning By-law includes specific parking policies for: Avenues, Centres, Employment Areas, and Downtown and Central Waterfront.

The City of Toronto parking reviews also used the city's Official Plan Urban Structure and higher-order transit corridors to develop standards for the following five policy areas:

- Policy Area 1: Downtown and Central Waterfront.
- Policy Area 2: Yonge and Eglinton.
- Policy Area 3: Centres and Avenues on Subway.
- Policy Area 4: Other Avenues well served by Surface Transit.
- Policy Area 5: Rest of the City.

Exhibit 1-3 shows the five policy areas as incorporated by *Zoning By-law 569-2013*.

Exhibit 1-2 – City of Toronto Urban Structure

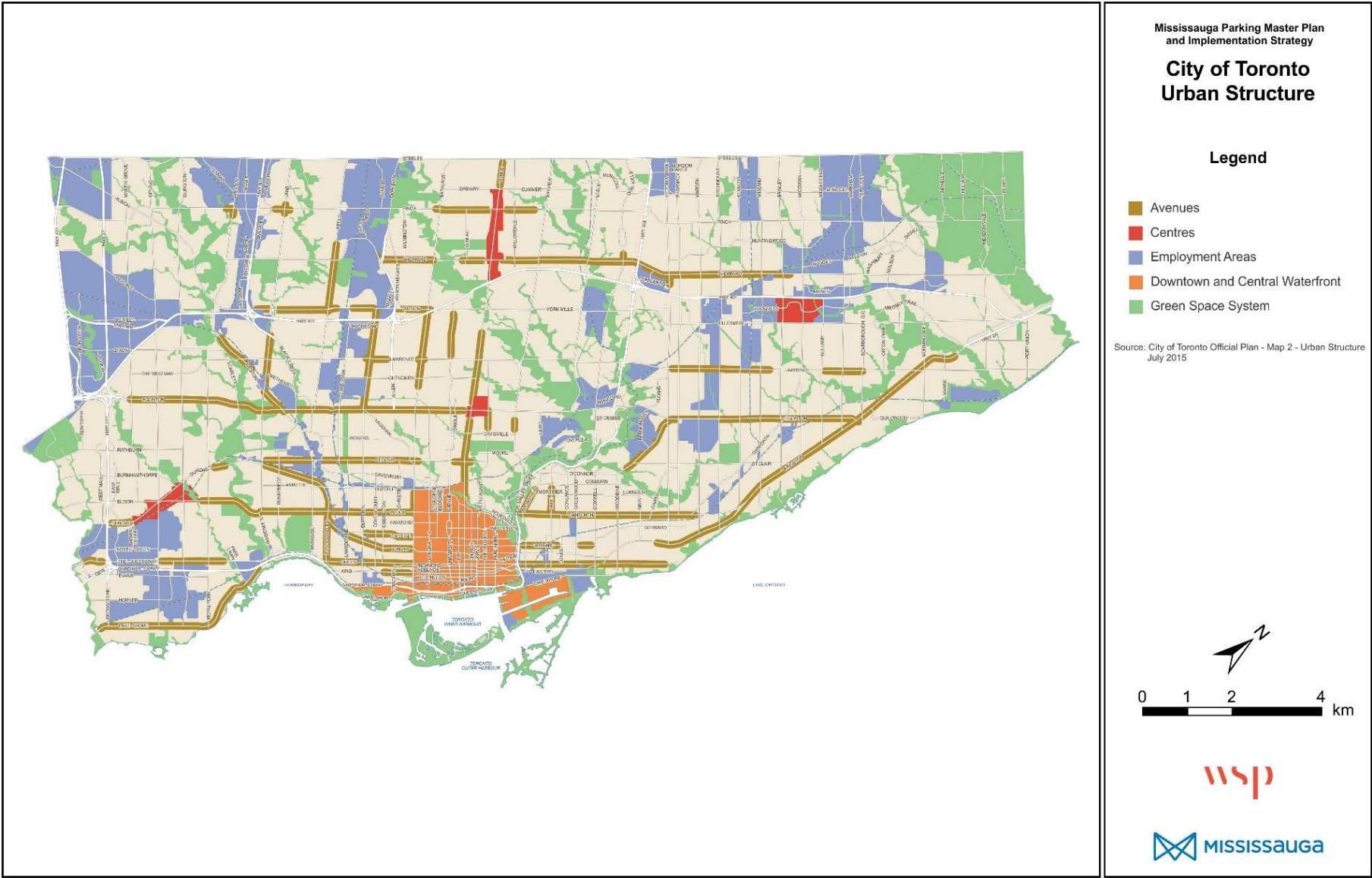
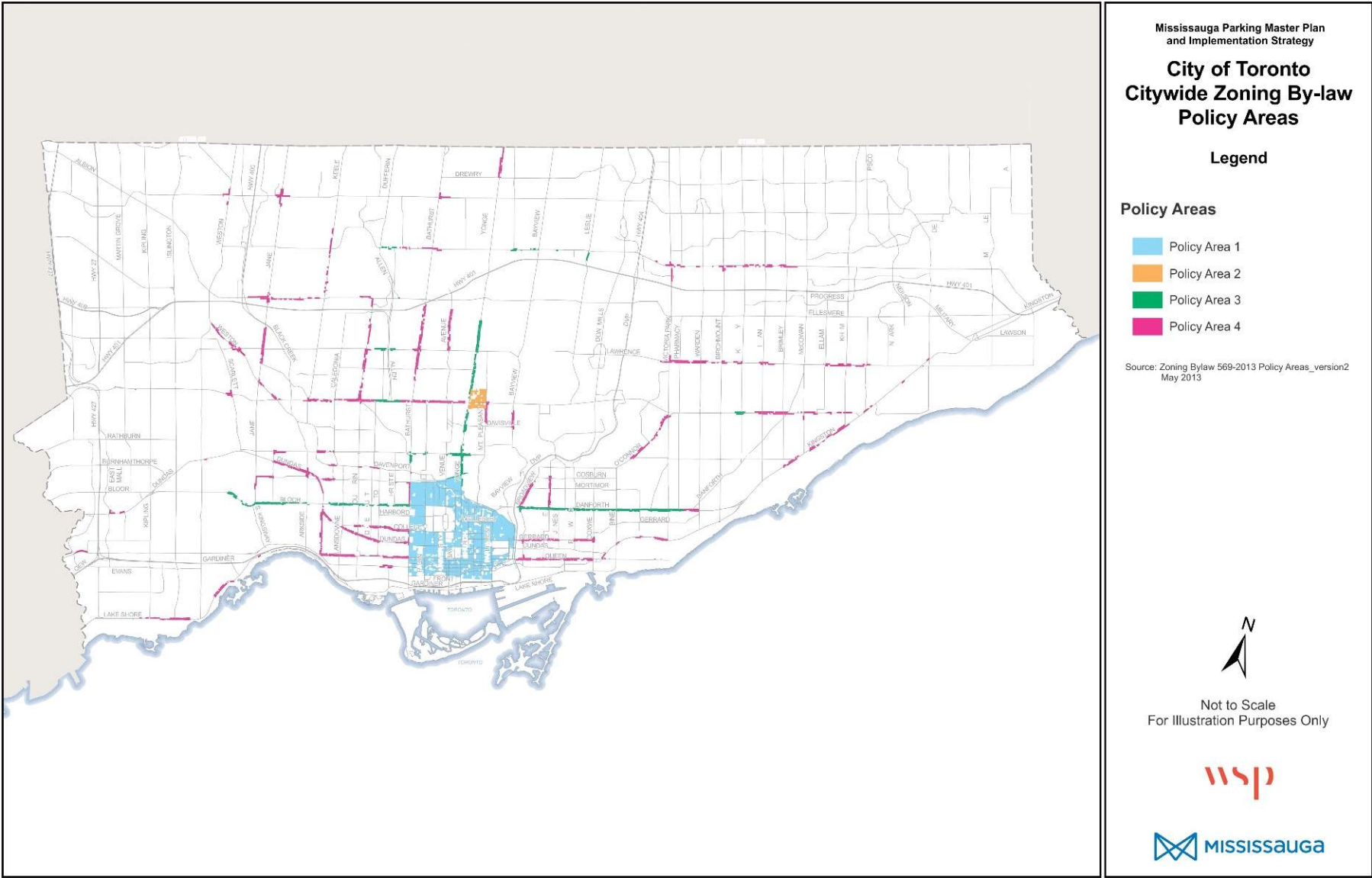


Exhibit 1-3 – City of Toronto Zoning By-law Policy Areas



1.2.2 CITY OF VAUGHAN

The City of Vaughan also adopted a parking policy area approach in 2010 based on the city's Official Plan's urban structure and linked to current and planned transit facilities. The city's parking policy review recommended four policy areas:

- Higher-order Transit Hubs
- Local Centres
- Primary Centres and Primary Intensification Corridors
- Base (Other Areas)

The review recommended parking standards for each separate area. These standards ranged from minimums in areas with limited transit to maximums in areas in Transit hubs or along higher-order transit facilities and Intensification Areas.

Exhibit 1-4 shows the City of Vaughan Urban Structure map and Exhibit 1-5 shows the approach adopted for each of the four policy areas.

Exhibit 1-4 – City of Vaughan Urban Structure

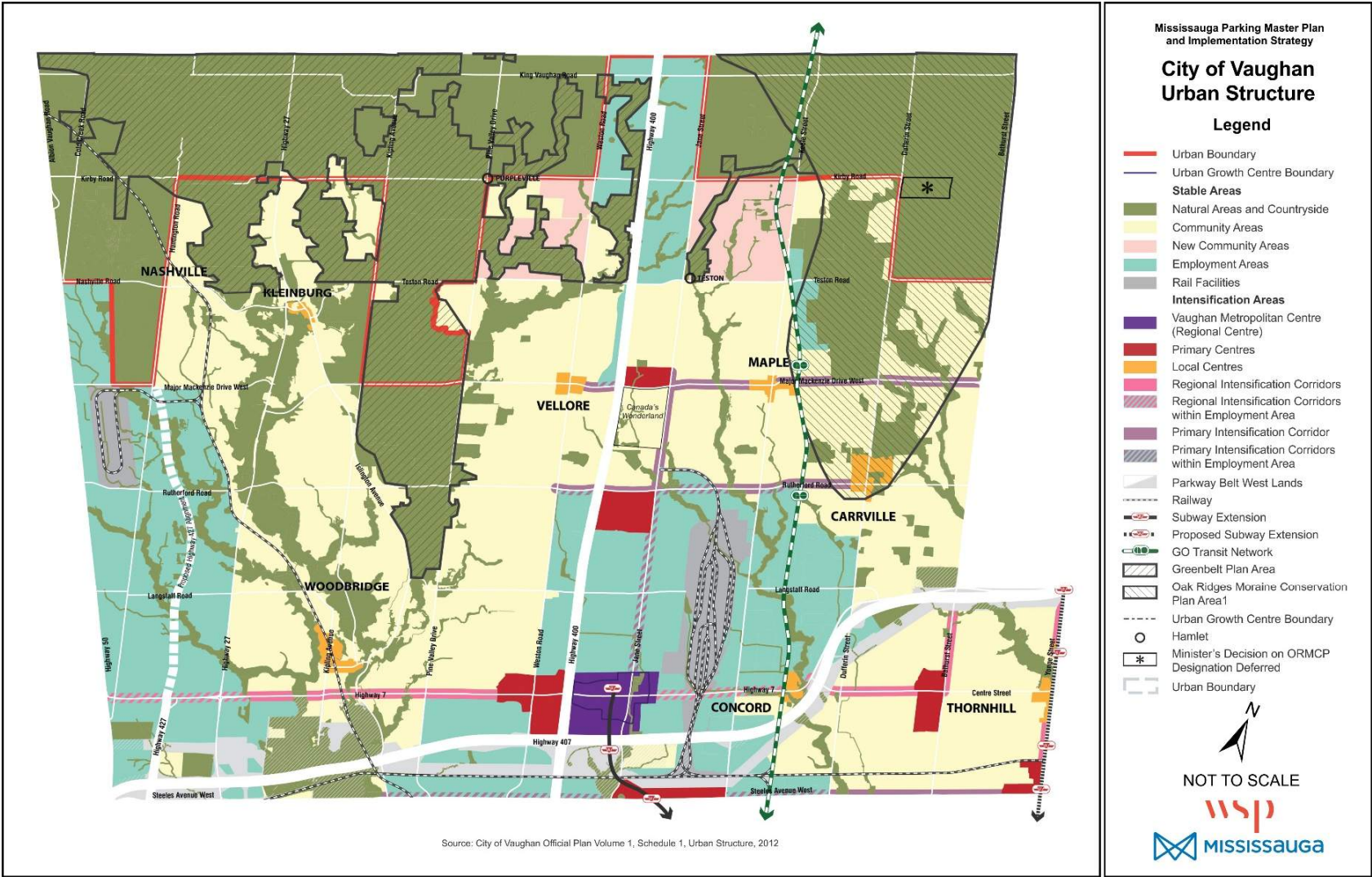


Exhibit 1-5 – City of Vaughan Proposed Parking Structure

Urban Context Category	Approach
High-Order Transit Hubs (Vaughan, Metropolitan Centre, Steeles Corridor, Jane to Keele, Yonge Street)	<ul style="list-style-type: none"> • Lowest parking minimums recognizing high level of transit service and planned availability of on- and off-street collective parking • Responsible parking maximums designed to encourage transit use, promote compact development, and support establishment of on- and off-street collective, priced parking • High potential for public parking including on- and off-street facilities provided that parking maximums are enforced and City develops capacity to provide public parking
Local Centres (Woodbridge Core, Thornhill Heritage Conservation district, Maple Heritage Conservation District, Kleinberg-Nashville Heritage District, Vellore, Carrville, Concord)	<ul style="list-style-type: none"> • Low parking minimums recognizing small lots, mixed-use development form, desire to maintain high-quality public realm, and availability of on-street parking • Parking maximums on surface parking designed to discourage large surface parking lots encourage transit use and structured parking, and support development of more on- and off-street collective parking • High potential for public parking in selected areas including on-street (in commercial/industrial areas) and off-street facilities provided that parking maximums are enforced and City develops capacity to provide public parking
Primary Centres/Primary Intensification Areas Regional Corridors: Yonge Street, Avenue 7, Jane Street Vaughan Metropolitan Centre west of 400	<ul style="list-style-type: none"> • Reduced parking minimums recognizing good level of transit service and desire for compact development • Parking maximums on surface parking designed to encourage transit use, discourage large surface parking lots and support establishment of on- and off- street collective, priced parking • Medium potential for public parking in selected areas including on- and off-street facilities building off of initiatives in the Vaughan Metropolitan Centre and Steeles Corridor
Base (Other Areas) (The rest of the City including Employment lands and Neighbourhoods)	<ul style="list-style-type: none"> • Basic parking minimums requiring a minimum responsible level of parking, but allowing for some flexibility to account for availability of travel choices and surrounding land use context • No maximum parking limits recognizing that these areas are currently auto-dependent and not well served by transit.

Source: Review of Parking Standards Contained Within the City of Vaughan's Comprehensive Zoning By-law, IBI Group, 2010

1.2.3 TOWN OF RICHMOND HILL

The Town of Richmond Hill developed a parking strategy study report in 2010. The report recommended a parking policy area approach similar to that of other municipalities in the Greater Toronto Area (GTA). The approach should consider, for example, existing or planned Mobility Hubs and rapid or higher-order transit facilities. Richmond Hill also used their Official Plan's urban structure as the geographical base and overlaid the planned transit facilities.

Exhibit 1-6 lists and defines the town's five Parking Strategy Areas.

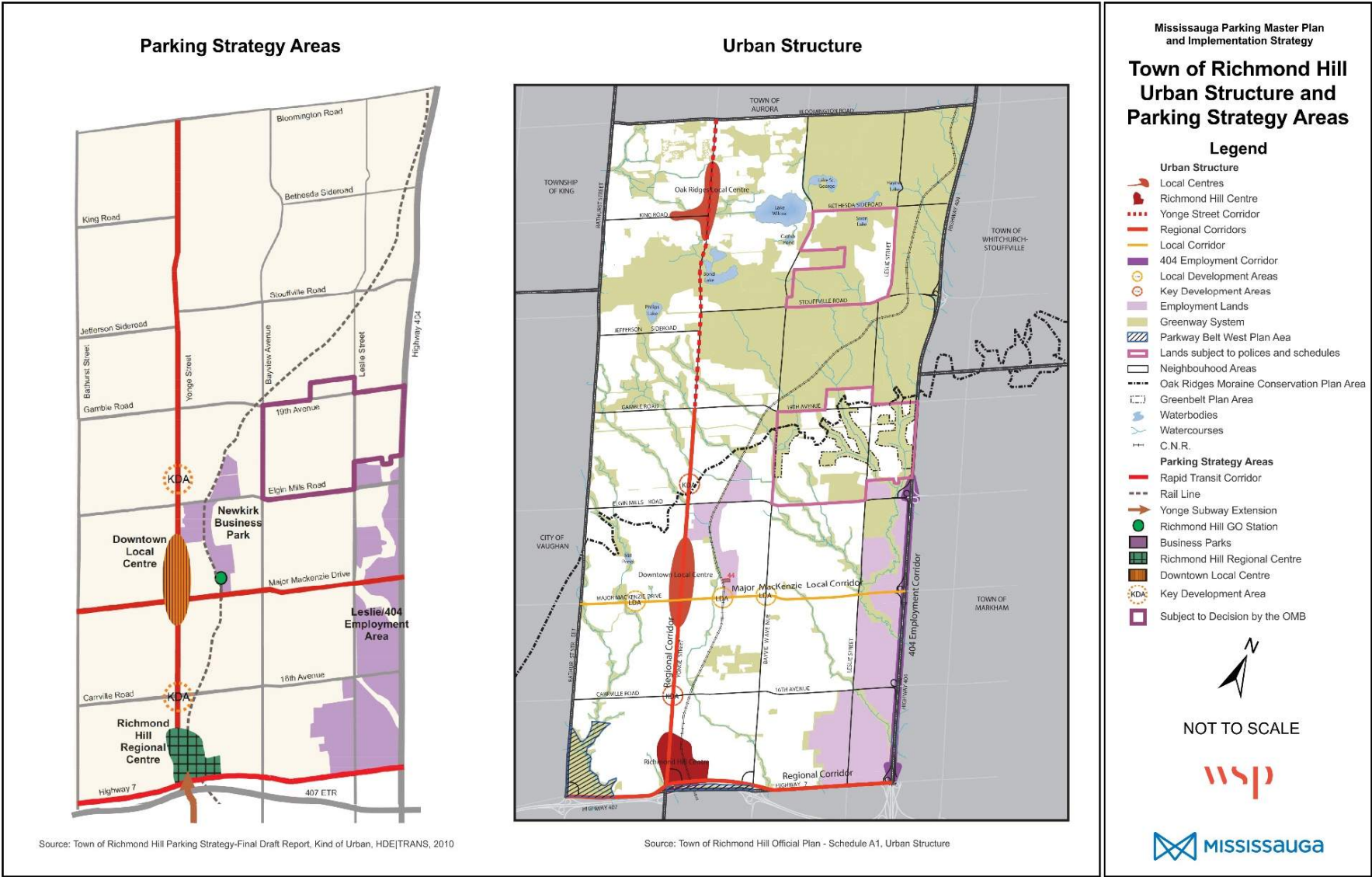
Exhibit 1-6 – Town of Richmond Hill Parking Strategy Areas

Parking Strategy Areas	Area Definition
Downtown Local Centre and Key Development Areas (KDA)	The Downtown is located along Yonge Street from Leventdale Road south of Elgin Mills Road to Harding Boulevard south of Major Mackenzie Drive. KDAs are located at Yonge Street north of Elgin Mills and at Yonge Street and 16th Avenue-Carrville Road.
Richmond Hill Regional Centre	As defined in the Urban Structure Plan.
Rapid Transit Corridors	Areas within 400 m walking distance of: <ul style="list-style-type: none">– Rapid transit stops on Yonge Street– Rapid transit stops on Highway 7– Rapid transit on Major Mackenzie Drive– Richmond Hill GO Rail station
Business Parks	Newkirk Business Park and Employment Corridor consisting of Beaver Creek, Headford, Barker, and other employment lands along the 404 Employment Corridor As shown in the Draft Official Plan.
Rest of Richmond Hill	All remaining areas of Richmond Hill.

Source: *Richmond Hill Parking Strategy, HDR | iTRANS, 2010*

Exhibit 1-7 shows Richmond Hill's Urban Structure and Parking Strategy Areas.

Exhibit 1-7 – Town of Richmond Hill Urban Structure and Parking Strategy Areas



The Town of Richmond Hill parking strategy report recommends the adoption of parking maximums. In the case of sites located within a Mobility Hub, the report recommends reducing existing parking rates by up to 30 percent.

1.2.4 CITY OF KITCHENER

The City of Kitchener recently undertook a comprehensive review of their Zoning By-law in 2018 and recommended that in some areas of the city, density bonuses be provided instead of Transportation Demand Management (TDM) strategies. The proposed new by-law is not yet approved by Council.

The parking requirements in the new by-law are lower for Planning Around Rapid Transit Stations, Urban Growth Centres (including City Centre) and for Mixed Use Zones than for other areas of the city. The by-law provides minimum and maximum parking requirements for multi-unit residential developments in these zones.

1.2.5 CITY OF HAMILTON

The City of Hamilton recently updated its *Zoning By-law No. 05-200* in 2018. The new by-law has lower parking requirements in the Downtown, Commercial Zones, Mixed Use Zones, and Transit Oriented Zones than in rest of the city. If the gross floor area (total area contained within the building) meets a minimum requirement, some commercial developments in these zones are not required to provide parking. The city has minimum and maximum parking ratios for multi-unit residential developments in the Transit Oriented Zones.

1.2.6 TOWN OF OAKVILLE

The Town of Oakville's *Zoning By-law 2014-014* outlines parking policies for areas including: Mixed-Use Zones, Growth Areas, and Downtown. The town has lower parking requirements in the Mixed-Use Zones and Growth Areas. Downtown commercial developments do not have to provide parking, but there is a minimum parking standard (no maximums) for residential uses in Downtown.

In the Bronte Village, Kerr Village Palermo Village, and Uptown Core Growth Areas, all non-residential uses are assigned a common (or “blended”) minimum parking ratio. The ratio varies across the areas from 2.5 to 4.2 spaces/100 m² of net floor area.

Part five of the Oakville *Zoning By-law 2014-04* mentions that “in the Growth Areas, the minimum numbers of parking spaces required are reduced to support the town’s strategic and policy objectives related to transit, growth management, and design.”¹

¹ Zoning By-law 2014-014, Town of Oakville, 2014

1.2.7 TOWN OF NEWMARKET

The Town of Newmarket is currently the northern limit of the expanding York Region Rapidway. The Rapidway will travel through the Newmarket Urban Centres Secondary Plan Area.

The town decided to develop an Area-Specific Zoning By-law for the Urban Centres Secondary Plan. As part of that exercise, the town commissioned a parking standard background study.

As the study area is to be highly transit-oriented, the report recommended both minimum and maximum parking rates. The study also recommended the following:²

- A 30 percent reduction in parking requirements, may be applied to both the minimum and maximum calculated parking supplies, for residential and non-residential land uses where it is demonstrated that:
 - The proposed development main entrance is within 500 m walking distance of either the GO Rail Station or Bus Terminal main entrances.
 - Adequate TDM infrastructure and programs will be in place to the satisfaction of reviewing agencies, in accordance with town's Urban Centres Secondary Plan policies and York Region Mobility Plan Guidelines for Development Applications.

Exhibit 1-8 shows the Newmarket communities and land use, and Exhibit 1-9 shows the town's transit and road facilities.

² Parking Standards Background Study, Town of Newmarket, 2016

OPA # 4 - 22 and 28 Main St N

Inset A: Complementary Use Area & Transitional Area

OPA # 3 - Northwest corner of Roxborough Rd and Queen St

OPA # 6 - 649, 693, 657 Queen St

Town of East Gwillimbury

Township of King

Town of Whitchurch-Stouffville

Town of Aurora

OPA # 16 - Marianneville Developments - former Glenway Gold Course

OPA # 2 - 372 Eagle St

OPA # 3 - Northwest corner of Roxborough Rd and Queen St

OPA # 6 - 649, 693, 657 Queen St

OPA # 5 - Northeast corner of Leslie St and Stackhouse Rd

OPA # 14 - 1166 and 1186 Nicholson Rd

OPA # 13 - 429 and 445 Harry Walker Parkway

OPA # 1 - 873 Gorham St

OPA # 12 - 955 and 995 Mulock Dr

OPA # 15 - 536 and 550 Mulock Cr

OPA # 8 - 665, 675, 688, 695 Stonehaven Ave

OPA # 10 - Urban Centres Secondary Plan

Oak Ridges Moraine (Official Plan Amendment 28)
The lands labelled Oak Ridges Moraine are subject to policies of Official Plan Amendment 28

Legend

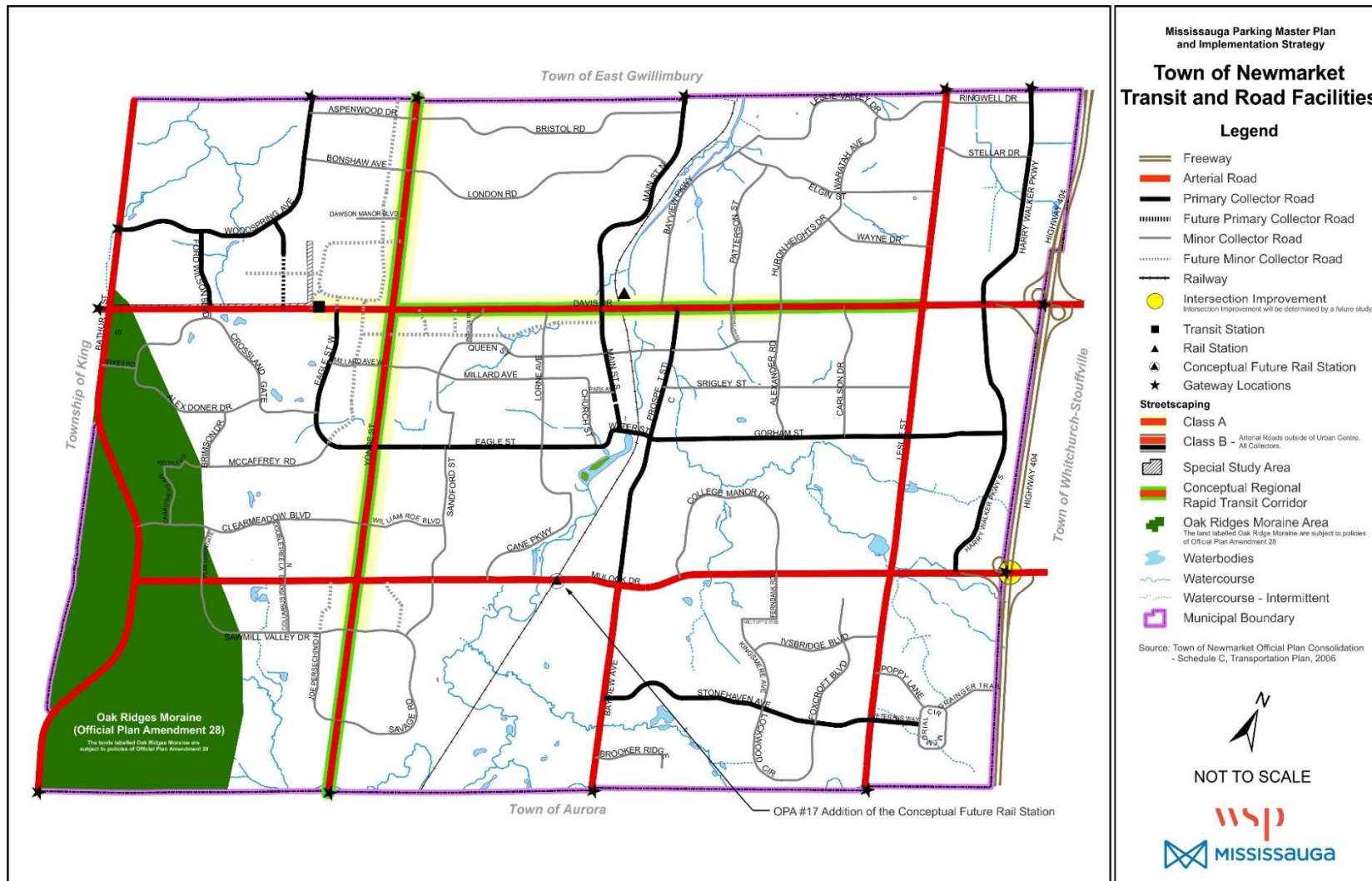
- Staple Residential
- Emerging Residential
- Major Institutions
- Business Park - General Employment
- Business Park - Mixed Employment
- Commercial
- Urban Centres and Corridors
- Historic Downtown Centre
- Newmarket Urban Centre Secondary Plan Area
- Parks and Open Space
- Natural Heritage System
- Oak Ridges Moraine
The lands labelled Oak Ridges Moraine are subject to policies of Official Plan Amendment 28
- Flood Plain
Flood Plan limits are shown for screening purposes only and may not reflect the most up-to-date data. The LSRCA should be contacted to confirm the actual flood plain limits & to obtain the most up-to-date data. A topographic survey may be required in order to determine the limit of predicted flooding at a specific site.
- Waterbodies
- Watercourse
- Watercourse - Intermittent
- Waste Disposal Assessment Area
- 500m Waste Disposal Assessment Area of Influence
- Inset A - Complementary Use and Transitional Areas
- Site Specific Amendments / OMB Referrals
- Yonge-Davis Provincial Urban Growth Centre Boundary
- Regional Water Wells
- Regional Boundary
- Railway
- Roads

Source: Town of Newmarket Official Plan Consolidation - Schedule A, Land Use, 2006

NOT TO SCALE

WSP
MISSISSAUGA

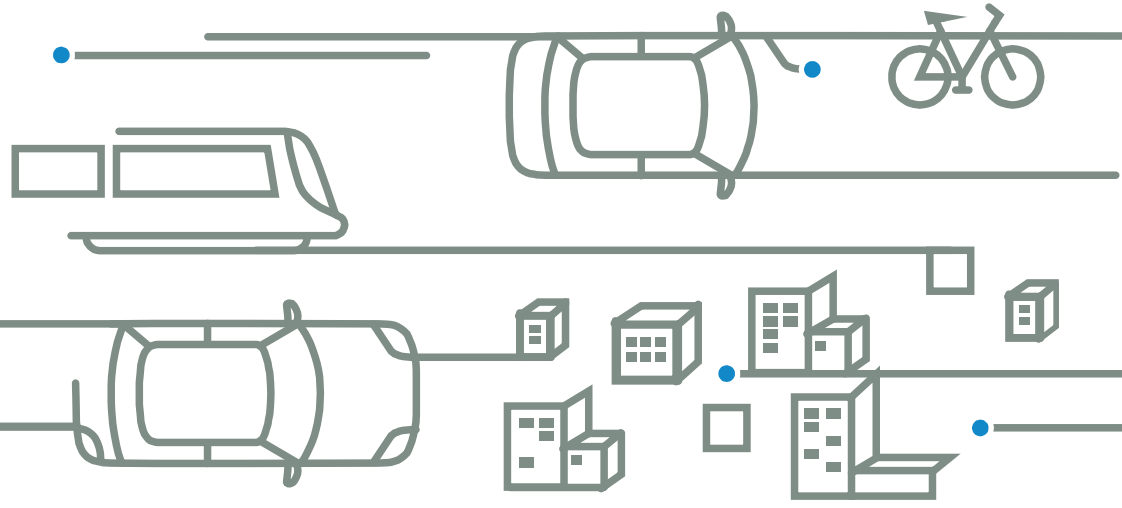
Exhibit 1-9 – Town of Newmarket Transit and Road Facilities



1.2.8 SUMMARY

Many jurisdictions around Mississauga and elsewhere have adopted the policy area approach to parking policy development. The planning structures found in Official Plans combined with the following six criteria are commonly used to determine the area (or precinct) boundaries:

- Transit Accessibility and Service Frequency
- Vehicle Ownership
- Availability of Alternative Travel Modes
- Public Parking Facilities
- Land Use
- Walkability



PARKING MATTERS



APPENDIX 2-2 THE CASE IN PRECINCTS IN MISSISSAUGA

Mississauga Parking Master Plan and
Implementation Strategy (PMPIS)

1 THE CASE FOR PRECINCTS IN MISSISSAUGA

This brief assesses the applicability of a precinct approach to parking management in the City of Mississauga.

Section 1.1 uses the criteria for selecting and defining precincts to assess the City to determine appropriate precinct areas. Section 1.2 presents the four precinct types, the rationale behind the selection of the precincts, and the policy target for the precincts.

1.1 CITYWIDE REVIEW OF PRECINCT CRITERIA

1.1.1 TRANSIT

EXISTING TRANSIT USAGE

The transit mode share in Mississauga has increased in recent years, according to a review of Transportation Tomorrow Survey data (TTS) as well as Census data, as shown in Exhibit 1-1. According to data from the TTS, the City's transit mode share increased from 8% in 2011 to 14% in 2016. The Census, which is a relatively more reliable data source due to its larger sample size, reported an even higher transit mode share of 18% in 2016.

From 2011 to 2016, MiWay ridership grew by more than 15%. Mississauga has the second highest local transit ridership per capita in the GTHA (after Toronto). Mississauga also generates the most GO Train ridership after Union Station, with 21,000 passengers per day.

Exhibit 1-1 – Travel Mode Share - 2011 to 2016

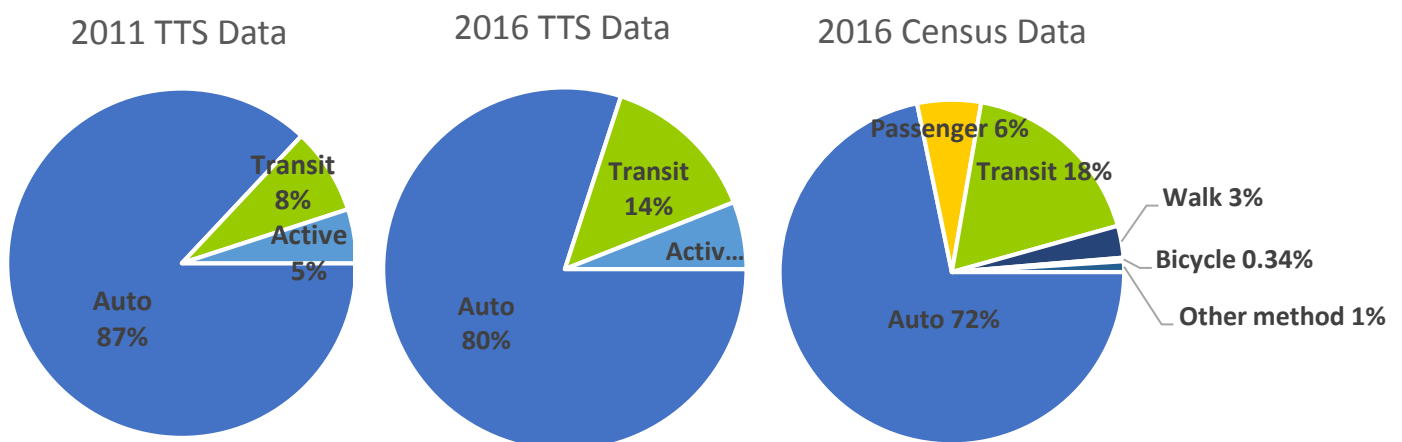


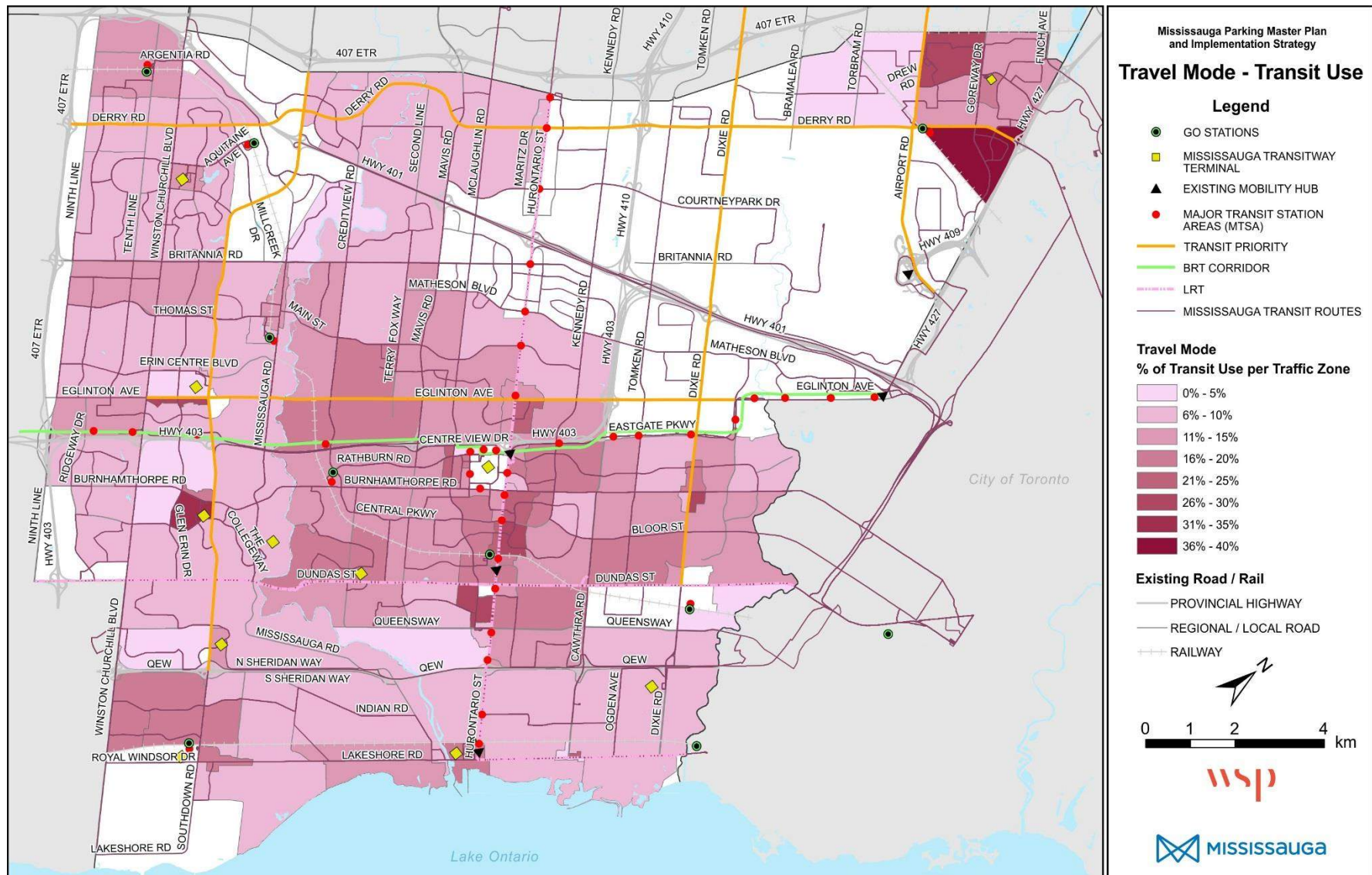
Exhibit 1-2 shows the transit percentage by traffic zone in 2016 based on TTS data. Several zones in the follow areas had an exceptionally high transit ridership (30 percent or more):

- Meadowvale
- Applewood-Rathwood Community Node
- The Downtown
- Malton
- Port Credit
- South Common
- Sheridan Park Corporate Centre

These areas are clearly primary locations for lower parking requirements.

The planned transit improvements shown in Exhibit 1-3 will increase the convenience of transit use in these areas in the future and likely increase transit ridership.

Exhibit 1-2 – Transit Mode Share by Traffic Zones - 2016



Source: Transportation Tomorrow Survey, University of Toronto, 2016. Transit rider data from Mississauga may differ.

FUTURE TRANSIT SERVICE

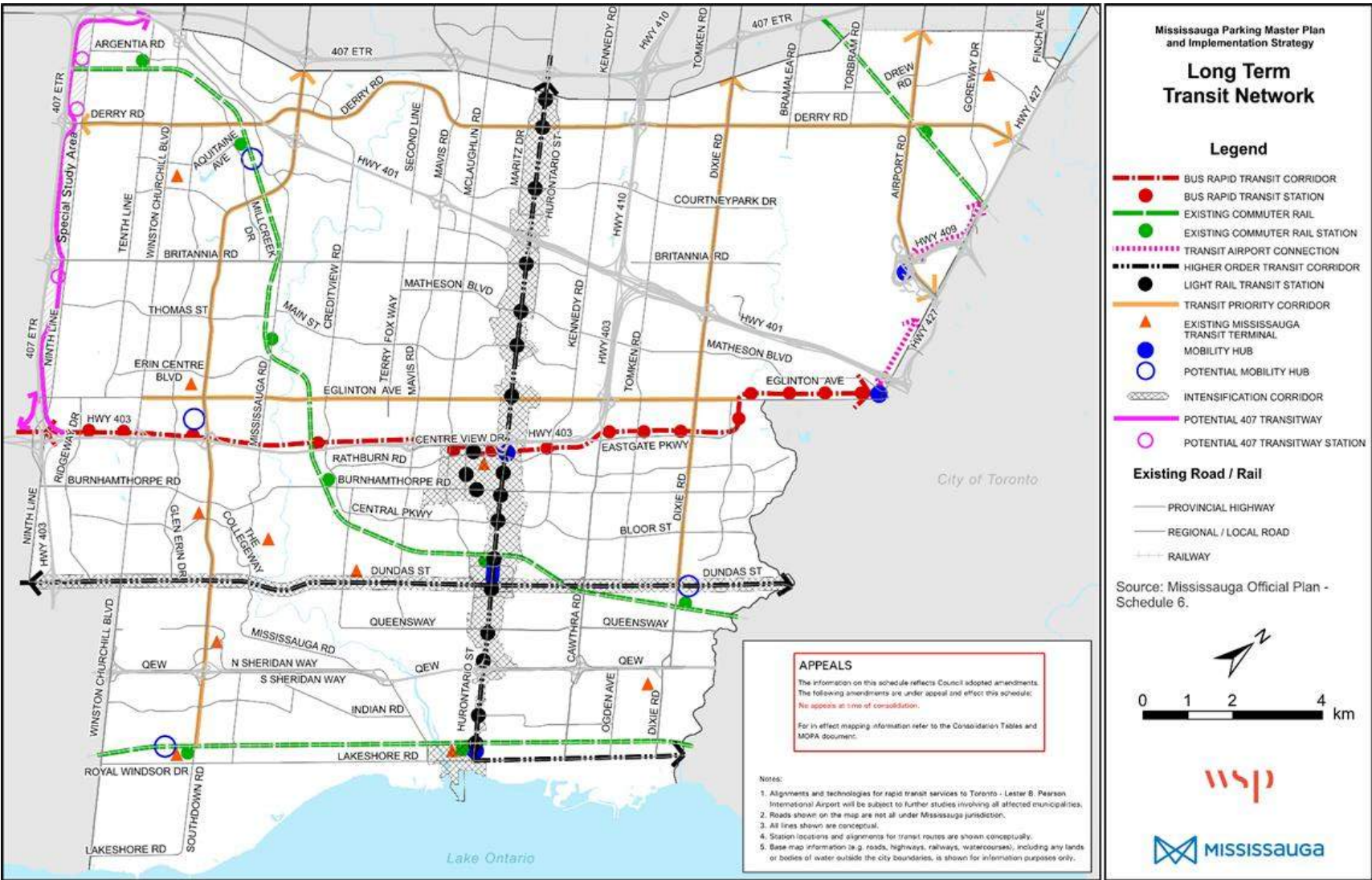
Exhibit 1-3 shows the planned Long-Term Transit service for the City. The plans include significant improvements in the number of transit routes, frequency, and reduced transit travel time.

Potential Improvements will include:

- Bus Rapid Transit on Highway 403.
- Hurontario Light Rapid Transit
- GO Regional Express Rail
- Higher-order transit on Dundas Street and Lakeshore Road East.
- MiWay 5 Strategy to improve transit service in next 5 years
- Transit Priority Corridor on north-south and east-west arterial roads.

Improved transit services including less transfers will allow residents and employees to travel to and from key areas of the City without the use of an automobile and will reduce parking demand in areas well served by transit.

Exhibit 1-3 – MOP Long-Term Transit Network



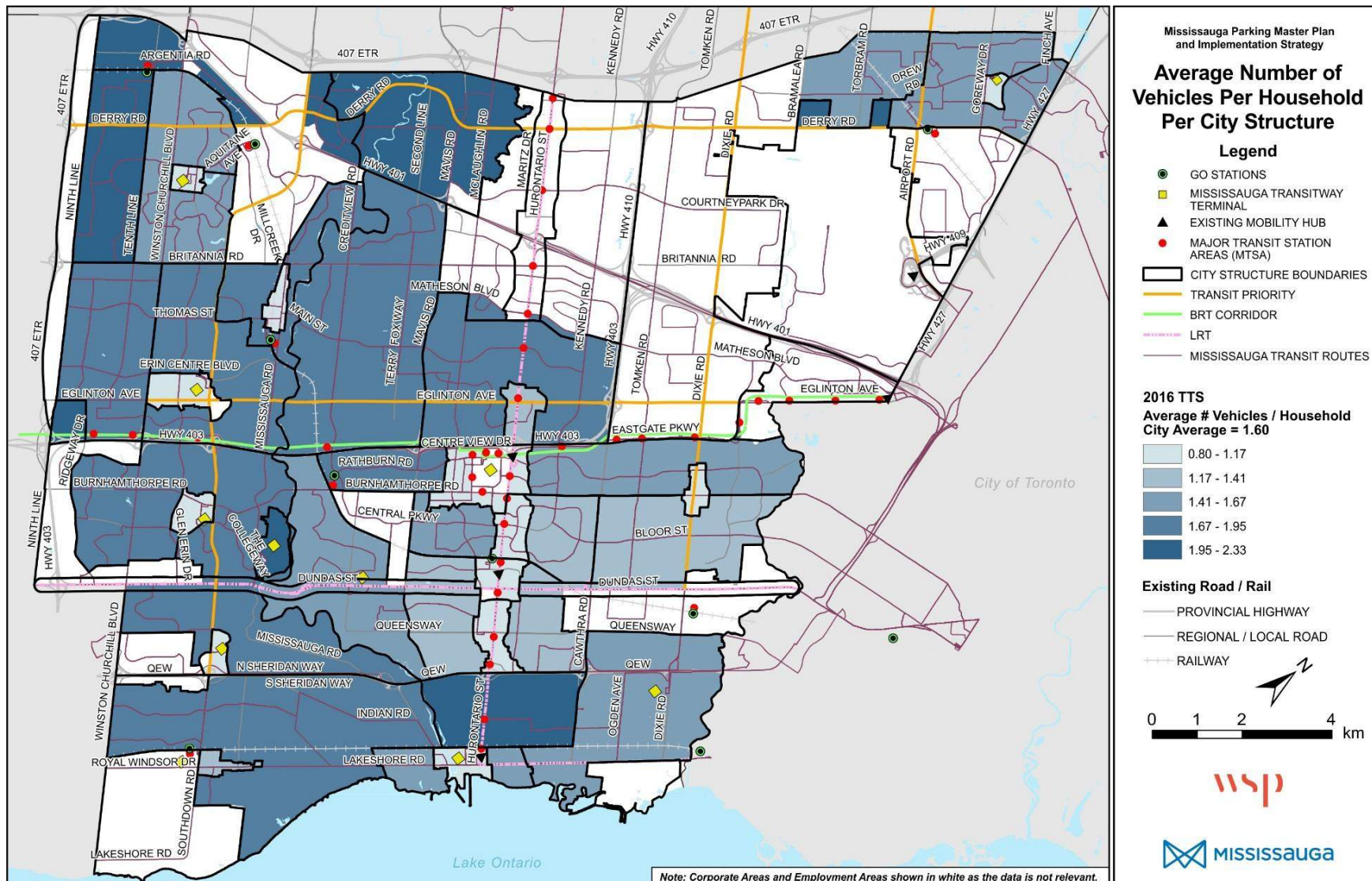
1.1.2 VEHICLE OWNERSHIP

Vehicle ownership in Mississauga has been declining over the last five years. Exhibit 1-4, however, shows that most households still have more than one vehicle. Vehicle ownership per household averaged 1.6 in 2016.

Exhibit 1-5 also shows that vehicle ownership is low in the Downtown and the Community Nodes, the areas with the most frequent transit services. Such areas are likely to generate less demand for parking.

Areas farther from transit service or where transit service is less convenient have much higher vehicle ownership rates and consequently higher parking demand.

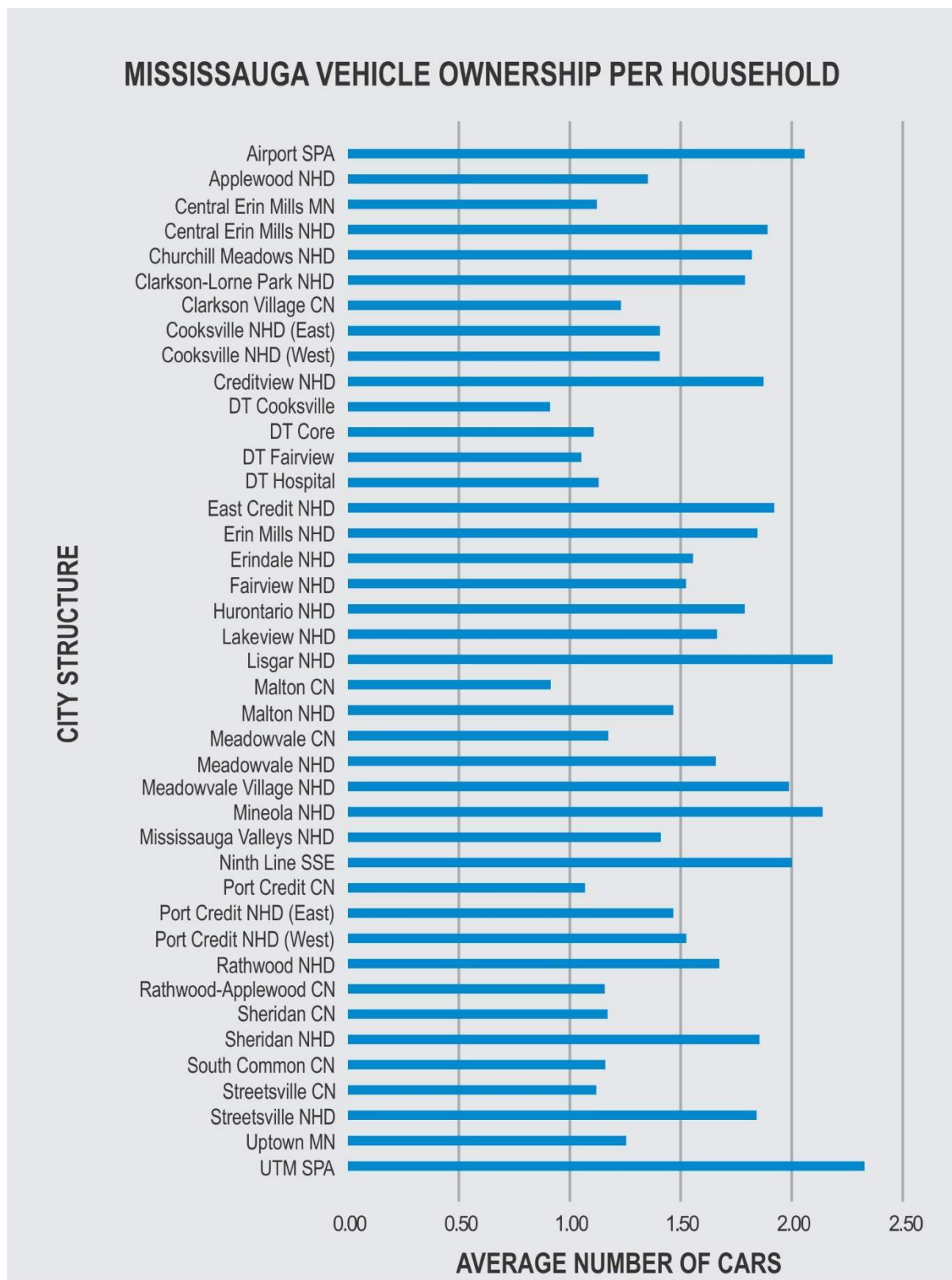
Exhibit 1-4 – Number of Vehicles per Household - 2016



Source: Transportation Tomorrow Survey, University of Toronto, 2016

Note: Data not available for uncolored areas.

Exhibit 1-5 – Vehicle Ownership per Household by Character Area – 2016



Source: Transportation Tomorrow Survey, University of Toronto, 2016

1.1.3 PUBLIC PARKING FACILITIES

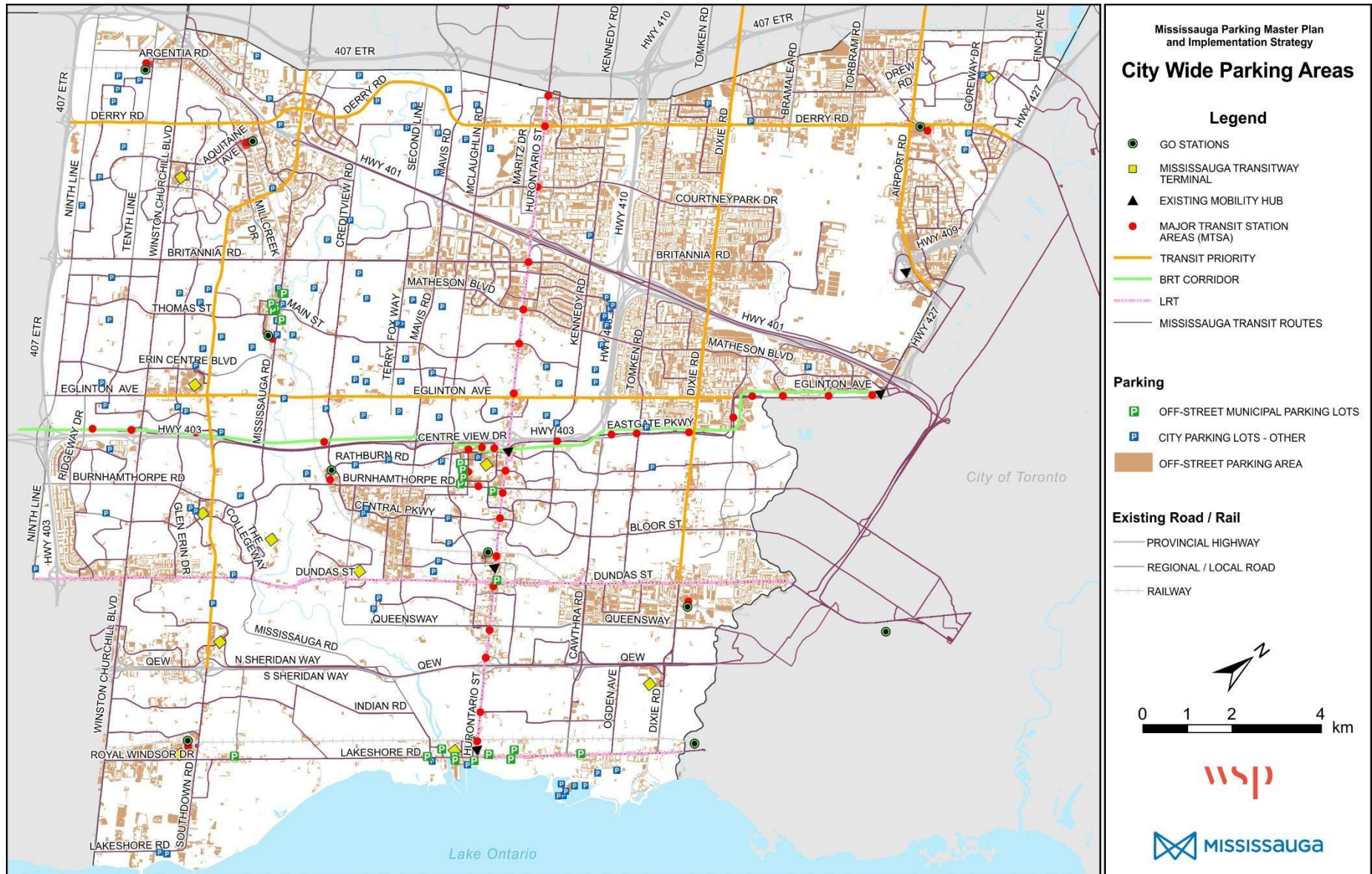
The location and size of public parking facilities can be an important factor when considering parking policies. The availability of public parking facilities can reduce the need for on-site parking as multiple users can share the same parking facilities at different times of the day. For example, an office complex located next to a municipal parking lot can have reduced on-site parking with spill-over demand being accommodated in the public lot during office hours. The same public lot can serve nearby retail or restaurant land uses that typically experience peak parking demand in the evening hours. The same principle can be applied to residential buildings. Visitor parking can be accommodated in public parking. Subject to certain conditions, additional resident parking can also be accommodated in public parking in a mixed-use environment.

Exhibit 1-6 shows the location of parking facilities throughout the City. The green P indicates an off-street municipal parking lot. These lots cluster at certain locations especially:

- Streetsville Community Node
- Downtown Core
- Downtown Cooksville
- Port Credit Community Node

The location of municipal parking lots could support reduced on-site parking in a mixed-use environment.

Exhibit 1-6 – City Wide Parking Areas



1.1.4 LAND USE

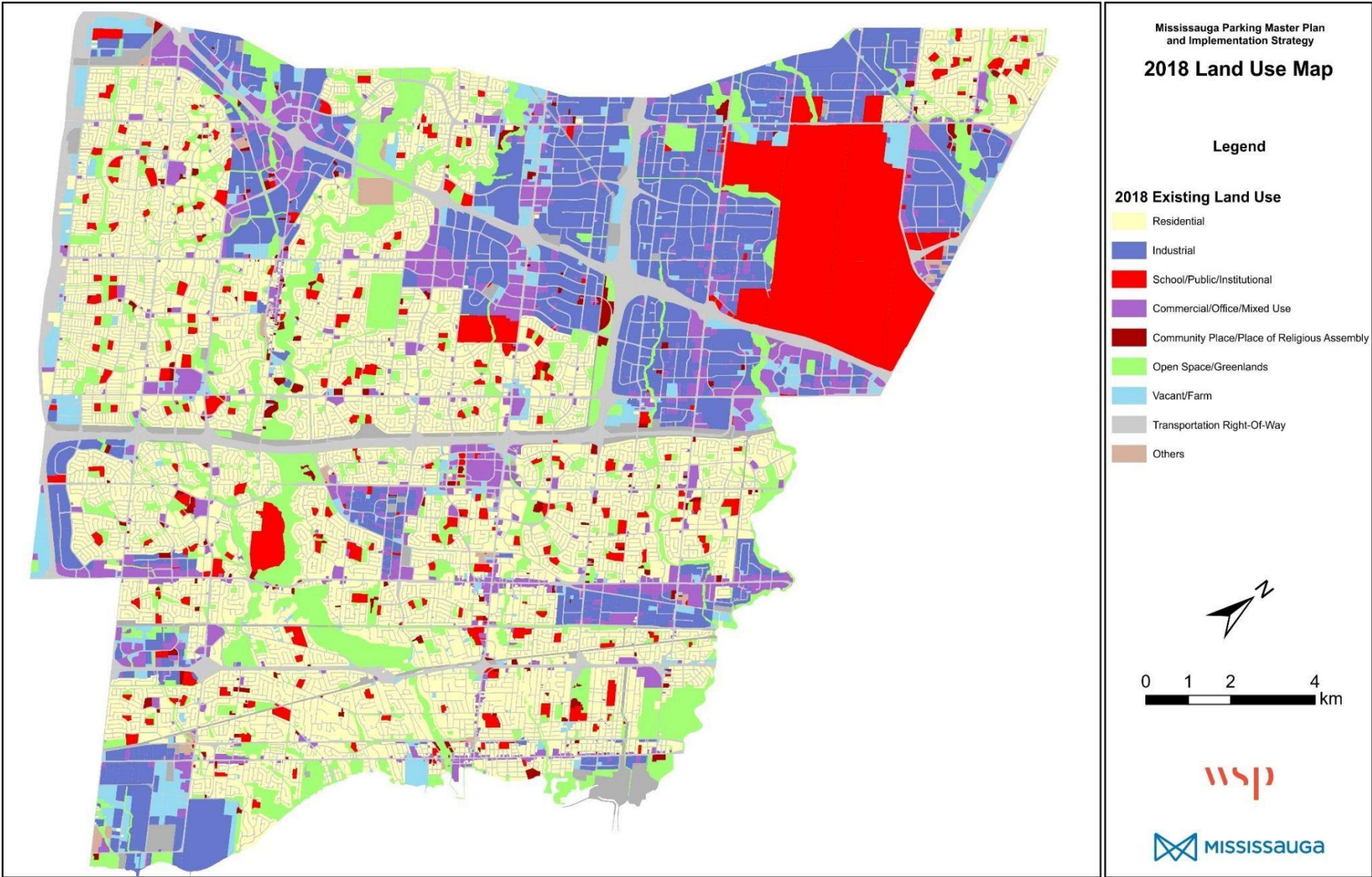
Land use is an important factor in determining and controlling parking demand. Mixed-use areas provide an opportunity for reduced on-site parking and the sharing of parking supply especially for linked trips (A trip made by an individual who visits more than one proximate establishment during a single trip).

Mixed-use areas have the most potential for reducing the need for automobile travel and the related demand for parking. In a mixed-use area where citizens can live, work and play, travel needs can be met by walking or transit trips.

Exhibit 1-7 shows the City's land use pattern in 2018. Single land uses dominate most areas, but there are mixed-use areas in:

- Downtown Core
- Downtown Cooksville
- Most Community Node
- Major Nodes
- Some Corporate Centres

Exhibit 1-7 – City Land Use Map - 2018



1.1.5 DWELLING TYPE

As different dwelling types have traditionally had different levels of parking demand, dwelling types and their location can impact parking policies.

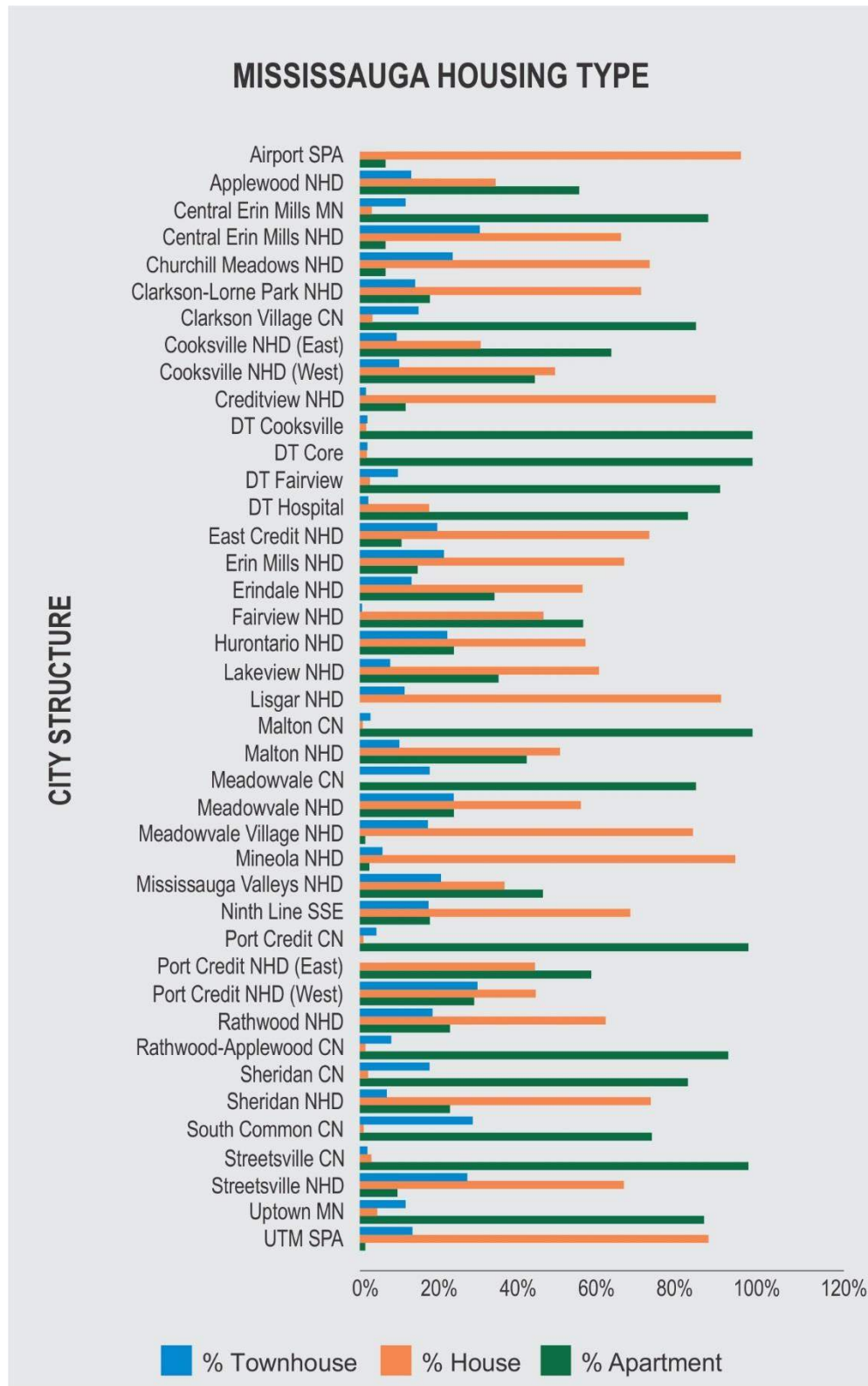
Exhibit 1-8 shows the percentage of houses, townhouses, and apartments by Character Area in 2016.

Exhibit 1-9 shows the percentage of Single-family and semi-detached units per City Structure based on 2016 Census data. 49 percent of the City's housing stock consist of single-family and semi-detached housing units. However, there are fewer single-family and semi-detached housing units in the:

- Downtown areas
- Most Community Nodes
- Major Nodes

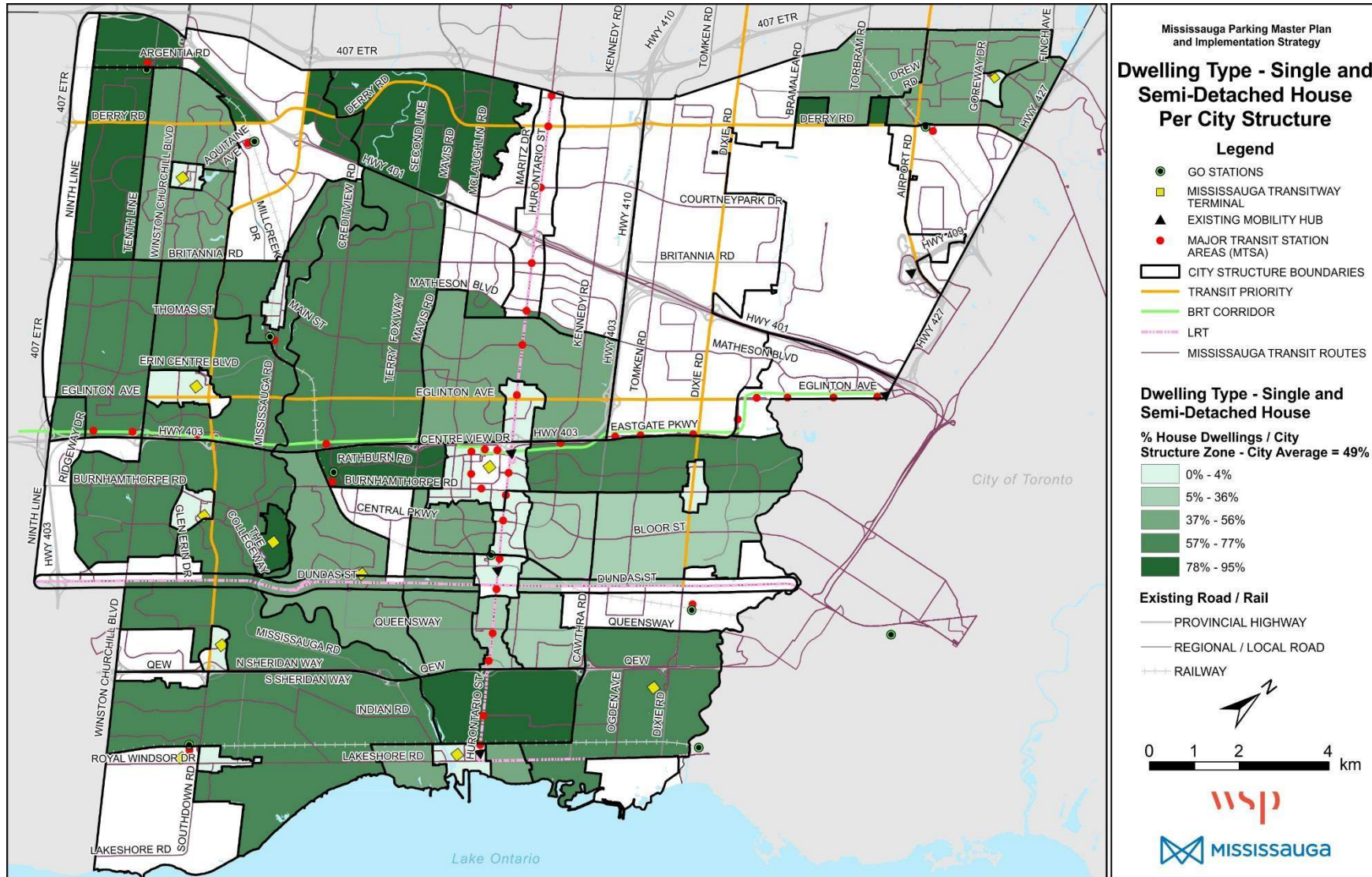
This can indicate lower parking demand and the opportunities exist for lower parking requirements in these areas.

Exhibit 1-8 – Housing Type by Character Area - 2016



Source: Transportation Tomorrow Survey, University of Toronto, 2016

Exhibit 1-9 – Dwelling Type - Percentage of Single and Semi-detached Housing - 2016



Source: Census Profile, Statistics Canada, 2016

1.1.6 AVAILABILITY OF OTHER TRAVEL MODES

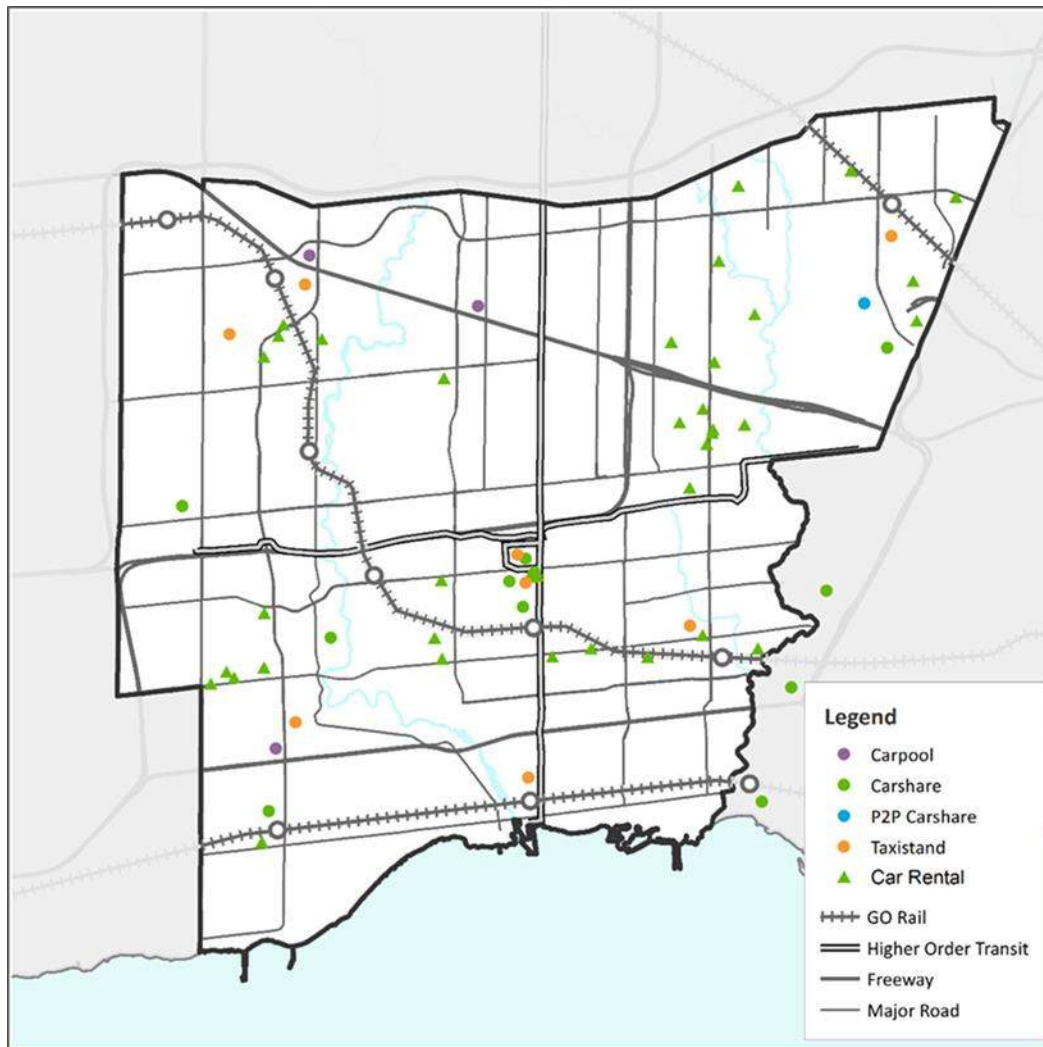
In recent years, the increased availability of non-personal vehicles has had an impact on the demand for parking spaces. With more people using these services, personal vehicle ownership is declining, especially among young people. Reduced vehicle ownership reduces the need for parking spaces both at the point of origin and destination.

Exhibit 1-10 shows the location of carpool, carshare, taxi stand, and car rental facilities. The locations are scattered across the City with some clustering in the Downtown and at some Community Nodes. This Exhibit does not include Uber, but in March 2017 City of Mississauga staff estimates 60,000 Uber trips per week are occurring in the City. An estimated 25,000 individuals are registered with Uber as drivers and can conduct business in Mississauga.¹

These services reduce the need for individual vehicle ownership and can reduce parking demand especially into the heavy destination areas such as the Downtown and some Major Nodes.

¹ City to Propose Terms for Legalization of Uber in Mississauga, Rachael Williams, 2017

Exhibit 1-10 – Taxi Stands and Shared Vehicle Locations



Source: *Mississauga Moves Transportation System Assessment*, Steer Davies Gleave, 2017

1.1.7 WALKABILITY

“Walkability” reflects overall walking conditions in an area. Walkability considers the quality of pedestrian facilities, roadway conditions, land use patterns, community support, security, and general comfort of walking. At the level of a specific community, the relative location of common destinations and the quality of connections between them (land use accessibility) is very important.²

Mississauga was designated a Silver WALK Friendly Community in 2014.³

Walk Score, a private company that provides walkability services, currently ranks Mississauga the fourth most walkable large city in Canada with a Walk Score of 59. Walk Score is a walkability index based on the distance to amenities such as grocery stores, schools, parks, libraries, restaurants, and coffee shops.⁴

Error! Reference source not found. shows that walkability varies across the City. Parts of the Downtown areas and Major Nodes have much higher scores, while other area is below the City average as shown in Exhibit 1-12.

The ability to walk conveniently and safely in the City is critical because almost all modes of travel begin and end with a walking trip. If appropriate walking facilities are not present, residents and employees will be less likely to take transit. If residents cannot walk short distances to shops and school, they will drive. Both sets of circumstances are likely to affect the demand for parking spaces with the more walkable area requiring fewer parking spaces.

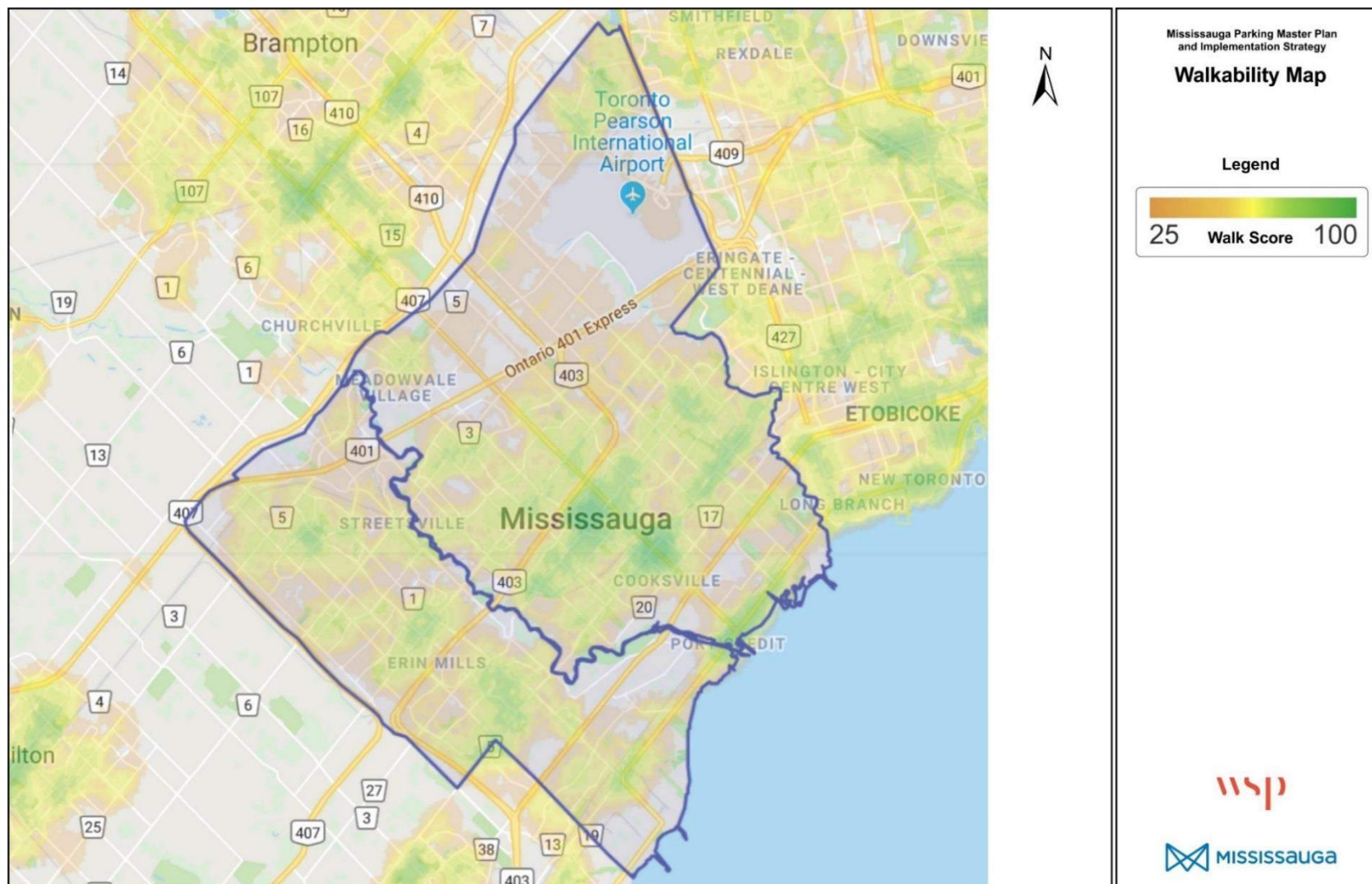
Many on-going city initiatives are designed to address current gaps in walkability in the City. The City has developed policies designed to improve walkability significantly for new developments and redevelopments. As result, improvements in walkability are anticipated for the City over the next five years.

² Walkability Improvements, Victoria Transport Policy Institute, 2017

³ Mississauga, Walk Friendly Ontario, 2014

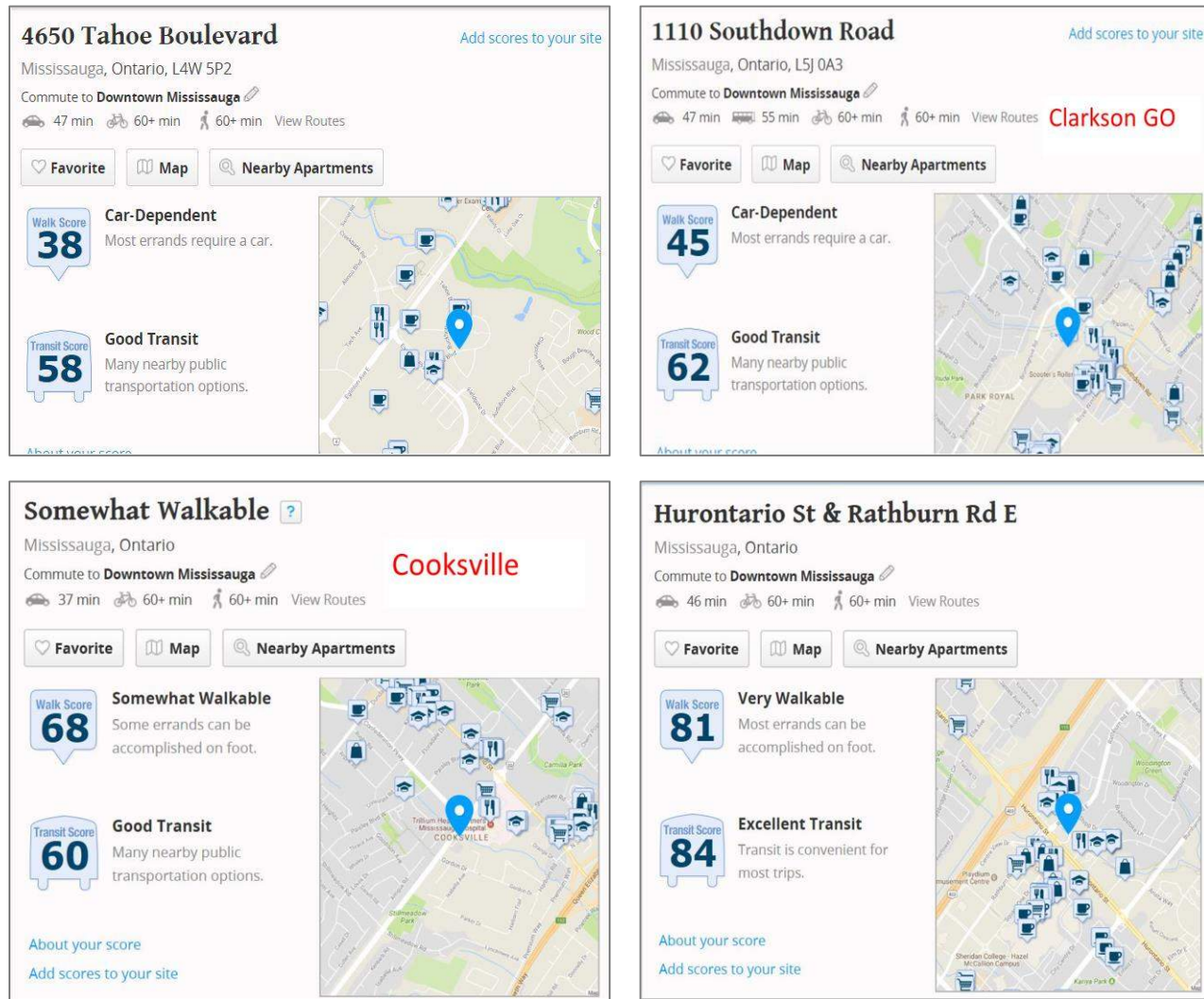
⁴ Walking the Walk, CEO for Cities, 2009

Exhibit 1-11 – Mississauga Walkability Index - 2018



Source: *Living in Mississauga, Walk Score, 2018*

Exhibit 1-12 – Walkability Score-Select Locations - 2018



Source: Living in Mississauga, Walk Score, 2018

1.1.8 SUMMARY

The review of precinct criteria shows a wide range of current and future transit, public parking, Transportation Demand Management (TDM) measures, environmental built form/land use, and walkability across the City. As the various elements discussed impact parking demand, supply, and management differently, recommendations for parking precinct areas must be based on careful consideration. The following sections discusses the recommendation for using Character Areas and the results of this analysis as the basis for defining the City's parking precincts.

1.2 PRECINCT BOUNDARIES AND POLICIES

This Section discusses how four parking precinct areas emerged from an analysis of the City's Character Areas. The four precincts are known as One, Two, Three, and Four. The Section discusses the precinct area boundaries, the rationale for each precinct, the parking policy targets for each precinct, and potential parking management strategies for each precinct.

The parking precincts were determined by examining the Character Areas' current and future:

- Land use
- Built form
- Transit availability
- Availability of public parking
- TDM measures
- MOP's planning objectives

The parking requirements within each Precinct will be determined by a future Zoning By-law requirements review conducted by the City.

1.2.1 PRECINCT ONE

LOCATION

Precinct One comprises:

- Downtown Core
- Downtown Cooksville
- Port Credit Community Node

RATIONALE

A. TRANSIT

- Precinct One areas are existing mobility hubs:
 - **Mississauga City Centre** – Mobility Anchor
 - **Cooksville GO** – Mobility Gateway
 - **Port Credit GO** – Mobility Gateway
- Precinct One areas have the highest current and future level of transit service with intersecting Transit Corridors and Commuter Rail:
 - **Downtown Core:** Hurontario LRT and Highway 403 BRT Corridor.
 - **Downtown Cooksville:** Hurontario LRT, Dundas BRT Corridor, and Commuter Rail Station.
 - **Port Credit Community Node:** Hurontario LRT and Commuter Rail Station. This node is also part of the potential Lakeshore transit service as identified in the Transit Strategy of the Lakeshore Connecting Communities Master Plan study which recommended starting with conventional or enhanced bus service and progressing to LRT or streetcar over time as growth increases along the Lakeshore Corridor. An additional factor is the planned improvement GO services using Port Credit GO Station. The Lakeshore West GO line will benefit from the Metrolinx RER Corridor Projects that will introduce a 15-minute, two-way service between Aldershot and Union Station.

B. PUBLIC PARKING

- Precinct One areas have the largest supply of publicly available parking facilities with:
 - Several municipal parking lots
 - Several privately operate parking facilities
 - Metered on-street parking spaces

C. MIXED LAND USE

- Precinct One areas contain the largest mix of complementary major land uses that foster the ability to live, work and play in the same area. The major land uses are:
 - Residential
 - Commercial
 - Office

D. WALKABILITY

- Precinct One areas have a significantly higher Walk Score than the City average. They are “very walkable” areas where most errands can be accomplished on foot.

E. TRANSPORTATION DEMAND MANAGEMENT

- Precinct One areas already have several TDM measures in place. These measures include:
 - Convenient and frequent transit service
 - Carshare locations
 - Taxi stands
 - Car rental locations
 - A mix of primary, secondary On-road, and off-road facilities
 - In the future, additional several TDM measures will be added through City initiatives such as those recommended in the City’s recent several TDM Strategy and Implementation Plan. Such initiatives include bicycle parking regulations and standards, transit passes, and on-road active transportation infrastructure.

F. VEHICLE OWNERSHIP AND HIGH-DENSITY RESIDENTIAL

- Precinct One areas currently have some of the lowest vehicle ownership rates per household in the City (typically lower than the City average of 1.6 vehicles per household). Precinct One areas also currently have the highest concentrations of high residential density in the form of multi-unit complexes (condominiums and apartments).

POLICY OBJECTIVES

Precinct One areas have the City’s highest confluence of critical parking factors that result in the lowest parking demand. Precinct One areas are centered on transit, they have the largest supply of publicly available parking facilities, the most mixed-use areas, Walk Scores that are significantly higher than the City average, well established TDM measures, vehicle ownership rates that are lower than average, and the highest residential densities.

It is recommended that Precinct One areas should have the lowest parking requirements and the highest level of parking management strategies. It is recommended that parking maximums for most land uses should be considered in these areas.

A variety of parking management measures including Price Responsive approach should be adopted.

1.2.2 PRECINCT TWO

LOCATION

Precinct Two comprises:

- Downtown Fairview
- Downtown Hospital
- Uptown Major Node
- Gateway Corporate Centre
- Major Transit Station Areas at:
 - Airport Corporate Centre
 - Clarkson
- Dixie Community Node
- Hurontario Intensification Corridor

RATIONALE

A. TRANSIT

- Precinct Two locations have very good transit service. They are located on a higher-order transit corridor, BRT corridor and or commuter rail:
 - **Downtown Fairview, Downtown Hospital, Uptown Major Node and Gateway Corporate Centre and Hurontario Intensification Corridor:** Hurontario LRT.
 - **Major Transit Station Areas at the Airport Corporate Centre:** Highway 403 BRT.
 - **Dixie Community Node:** to be served by planned Dundas BRT Corridor. The Dundas Connects Master Plan was presented at the City's Planning and Development Committee meeting on April 30, 2018. The plan called for endorsement of BRT on Dundas Street with 20 bus stops one of which is Dixie.

Within five years, Metrolinx' s RER Corridor Projects will increase service to every 15 minutes or better between Milton and Toronto. The 30 percent increase in service will benefit all stops on the Milton line including Dixie Station.⁵

The City's Official Plan Schedule 6 identifies Dixie Road north of Dundas Street as a Transit Priority Corridor indicating that transit improvements are planned for Dixie Road. The service improvements will serve Dixie Station.
 - **Major Transit Station Areas Clarkson:** Like Port Credit Station (Precinct One), Clarkson Station is on the Lakeshore West GO line and will benefit from the planned 15-minute, two-way service between Aldershot and Union Station.

⁵ Milton GO Line, Metrolinx, 2017

B. PUBLIC PARKING

- Precinct Two areas currently lack public parking.
- The Clarkson GO station supplies almost 3,500 parking spaces and the Dixie GO station has approximately 1,000 parking spaces. The spaces at both stations are for GO patrons only.
- The nearest municipal parking lot to Clarkson GO station is located on Clarkson Road North and provides approximately 135 parking spaces, but the lot is approximately 1.5 km from Clarkson GO station and outside the 500m radius area designated as a Major Transit Station Area.

C. MIXED LAND USE

- Precinct Two areas include some mixed-use developments. The main examples in Precinct Two are Downtown Fairview, Downtown Hospital, and Uptown Major Node. All three are on the Hurontario Intensification Corridor.
- Areas inside the Major Transit Station Area at Airport Corporate Centre and at Clarkson also have a good mix of commercial and office uses with some industrial land uses nearby. These locations are expected to continue to offer a good mix of land uses as they grow and redevelop.
- Dixie Community Node has a good mix of land uses, but the Dundas Connect Master Plan recommends that this area be one of the seven Focus Areas along Dundas. Each Focus Area will be increasing its mix of land uses and will have the greatest increase in population and jobs along the corridor.

D. WALKABILITY

- Precinct Two areas (like Precinct One areas) have a significantly higher Walk Score than the City average.
- Walk Score rates the **Hurontario corridor** as “very walkable.” The corridor has a much higher ranking than the City average.
- Areas within **Highway 403 Major Transit Stations at Airport Corporate Centre** (Tahoe, Etobicoke Creek, Spectrum, Orbitor, and Renforth) and the **Clarkson GO Station** all receive better than average scores for transit service, but rate lower on walkability than the City average. These areas are “car-dependent” and most errands require a car.⁶
- Areas included in **Dixie GO Station** have the highest Walk Scores for locations around Major Transit Stations. The areas are “somewhat walkable.” This Walk Score is consistent with the City average and indicates that some errands can be accomplished on foot. The Dundas Connect Master Plan has proposed significant improvements in pedestrian connectivity for areas around **Dixie GO Station**.

E. TRANSPORTATION DEMAND MANAGEMENT

- Precinct Two areas have limited TDM measures, but City initiatives are likely to introduce additional measures.

⁶ Living in Mississauga, Walk Score, 2018

F. VEHICLE OWNERSHIP AND HIGH-DENSITY RESIDENTIAL

- Precinct Two areas' vehicle ownership rates are around the City average of 1.6 vehicles per household. Precinct Two areas do not have the highest residential density, but some areas are those the City's second highest densities.

POLICY OBJECTIVES

Precinct Two areas have higher parking demand that is higher than demand in Precinct one, but lower than the City average. Precinct Two parking demand is reduced by access to good transit service, the availability of some public parking, the presence of some mixed-use development, a range of walkability scores, and at least some TDM strategies already in place. Precinct Two areas have average vehicle ownership rates and most have average residential density.

It is recommended that parking maximums be considered for certain land uses in Precinct Two.

Similar to Precinct One a variety of parking management measures should be included but Area Management approach would best suit most areas.

1.2.3 PRECINCT THREE

LOCATION

Precinct Three comprises:

- Major Nodes:
 - Erin Mills
 - Lakeview
- Community Nodes:
 - Streetsville
 - Clarkson
 - Malton
 - Meadowvale
 - South Common
 - Sheridan
 - Rathwood-Applewood
- Airport Corporate Centre outside the Major Transit Stations
- Dundas Intensification Corridor
- Other Major Transit Stations not included in Precinct One or Precinct Two. These include a possible Lakeshore Station on the Lakeshore corridor of Hurontario LRT between Hurontario Street and the Mississauga boundary.

RATIONALE

Precinct Three areas all have or will have reasonably good transit service, but the areas lack some of the other supporting elements that reduce parking demand.

A. TRANSIT

- Precinct Three areas have or will have a reasonably good level of transit service on a higher-order transit corridor, BRT Corridor and or commuter rail. Transit infrastructures in Precinct Three are very similar to Precinct Two. The key additional infrastructure for will be the future Dundas Street BRT and the possible Lakeshore BRT or LRT.

B. PUBLIC PARKING

- Precinct Three areas have only limited public parking. Streetsville is an exception.

C. MIXED LAND USE

- Precinct Three includes varying levels of mixed-used development. Precinct Three areas with a high mix of land use include:
 - Dundas Corridor around Dixie Road
 - Erin Mills
 - Clarkson
 - Lakeshore east of Hurontario Street
 - Highway 403 corridor around Airport Corporate Centre
- As growth takes place, areas like the Dundas and Lakeshore corridors will intensify and more mixed-use development will occur.

D. WALKABILITY

- Precinct Three areas have a range of Walk Scores. Locations like Streetsville, South Common and Malton are “very walkable,” areas like Meadowvale are “somewhat walkable” and areas like Lakeview remain “car-dependent.”

E. TRANSPORTATION DEMAND MANAGEMENT

- Precinct Three areas have some TDM measures, but the measures are limited.

F. VEHICLE OWNERSHIP AND HIGH-DENSITY RESIDENTIAL

- Precinct Three areas typically have higher than average vehicle ownership rates, but not the highest vehicle ownership rates in the City.

POLICY OBJECTIVES

Precinct Three includes areas good transit service, parking demand that may be higher than the City average or reduced by the good transit, “very walkable” or “somewhat walkable” Walk Scores, limited TDM measures, and higher than average vehicle ownership rates.

It is recommended that an appropriate level of minimum parking requirements should be set for Precinct Three areas. The minimum parking requirements should not be the highest in the City.

It is recommended that appropriate parking management strategies be adopted for Precinct Three but Site-Focused approach will likely address most sites.

1.2.4 PRECINCT FOUR

LOCATION

Precinct Four includes all areas of the City not included in Precincts One, Two or Three. It all includes the Special Purpose Areas.

Precinct Four includes:

- All Neighbourhoods
- Corporate Centres:
 - Meadowvale
 - Sheridan Park
- Employment Areas:
 - Churchill Meadows
 - Western Business Park
 - Southdown
 - Mavis-Erindale
 - Lakeview
 - Dixie
 - Gateway
 - Northeast

RATIONALE

Precinct Four areas have limited transit service, the City's lowest transit ridership and Walk Scores, and the City's highest vehicle ownership. significant improvements in transit infrastructure are not expected in the near future for Precinct Four areas. Built form is not expected to change enough to result in a measurable reduction in parking demand. Precinct Four areas are expected to remain largely car-dependent.

As the City grows, however, some locations may develop to the point that they become mixed-use areas where walking is a real alternative mode and parking demand is reducing. In that case, some would take a while to be reclassified as Precinct Three or even Precinct Two.

POLICY OBJECTIVES

Precinct Four includes the areas where parking demand could be among the highest in the City, due to limited transit service; inadequate Active Transportation infrastructure where walking to some errands is not convenient. Therefore, an appropriate level of minimum parking requirements is needed and appropriate parking management strategies.

It is recommended that appropriate parking management strategies be adopted for Precinct Four but Site-Focused approach will likely address most sites.

1.2.5 SPECIAL PURPOSE AREAS

LOCATION

MOP designates Toronto Lester B. Pearson International Airport and the UTM as Special Purpose Areas (See Section 3).

The City has no jurisdiction over the Special Purpose Areas, but works with the operators and key stakeholders to influence travel options and parking management at these locations. The areas are currently market responsive.

1.3 SUMMARY

This Section summarizes the parking policy framework and the proposal to establish four parking precincts, each precinct reflecting different circumstances and approaches to parking provision and management.

Exhibit 1-13 summarizes the main characteristics of the four proposed precinct areas.

Exhibit 1-14 shows the locations of the four parking precinct policy areas.

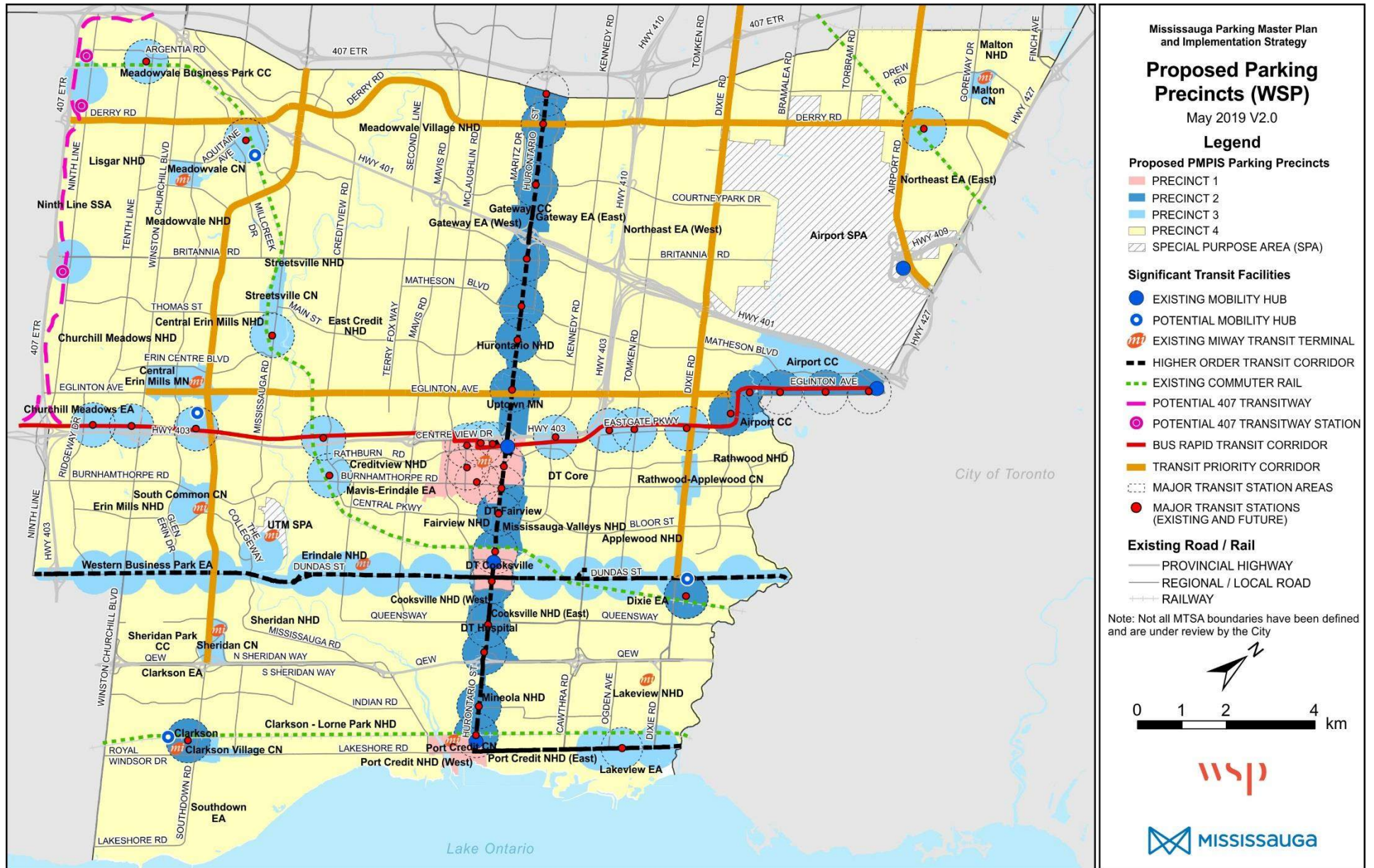
Exhibit 1-13 – Parking Precincts (based on MOP Schedules 9 and 2)

	Schedule 9							Schedule 2
Precinct	Downtown	Major Node	Community Node	Neighbourhood	Corporate Centre	Employment Area	Special Purpose Area ⁴	Intensification Corridors and MTSAs ²
ONE	<ul style="list-style-type: none"> •DT Core •DT Cooksville 		<ul style="list-style-type: none"> •Port Credit 					
TWO	<ul style="list-style-type: none"> •DT Fairview •DT Hospital 	<ul style="list-style-type: none"> •Uptown 	<ul style="list-style-type: none"> •Dixie 		<ul style="list-style-type: none"> •Gateway 			<ul style="list-style-type: none"> •MTSAs inside Airport Corporate Centre •Huronario Intensification Corridor (outside Precinct One) •MTSA in Clarkson
THREE		<ul style="list-style-type: none"> •Erin Mills •Lakeview¹ 	<ul style="list-style-type: none"> •Streetsville •Clarkson •Malton •Meadowvale •South Common •Sheridan •Rathwood-Applewood 		<ul style="list-style-type: none"> •Airport (outside MTSAs) 			<ul style="list-style-type: none"> •Dundas Intensification Corridor³ •Other MTSAs, including Lakeshore³
FOUR				<ul style="list-style-type: none"> •All 	<ul style="list-style-type: none"> •Meadowvale •Sheridan Park 	<ul style="list-style-type: none"> •Churchill Meadows •Western Business Park •Southdown •Mavis-Erindale •Lakeview •Dixie •Gateway •Northeast 		
Special Purpose Area							<ul style="list-style-type: none"> •University of Toronto Mississauga •Airport 	

Notes:

1. Lakeview Major Node: Pending Council Approval. The proposed land use plan is expected to be approved by Council on July 4.
2. City has a Major Transit Station Area (MTSA) review underway; other areas may be identified
3. Subject to other ongoing City studies (i.e.: Lakeshore Connecting Communities, MTSA review)
4. Special Purpose Areas: locations where the City has very little influence and parking is already subject to market pricing

Exhibit 1-14 – Locations of Proposed Precinct Policy Areas for Parking



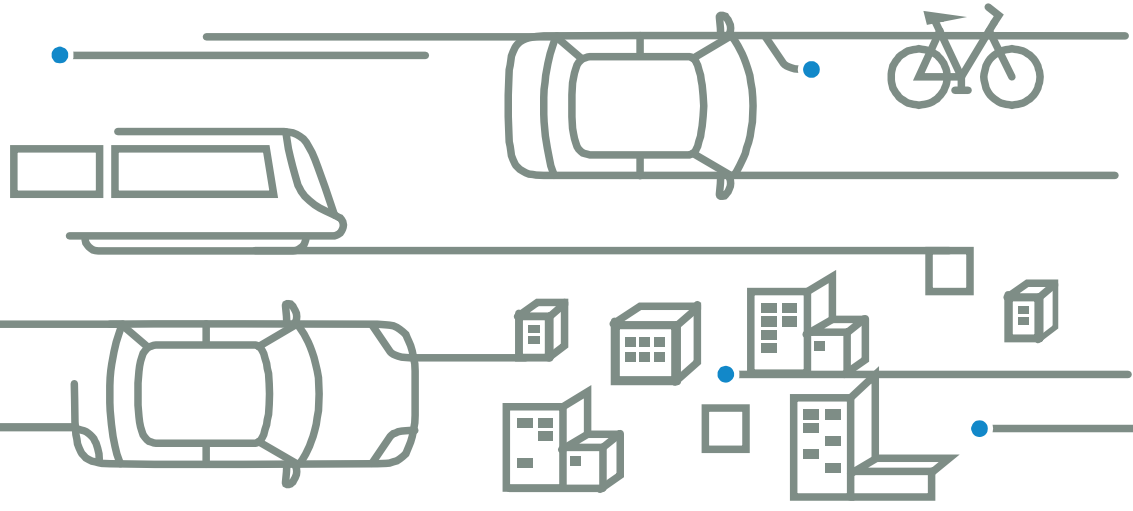
1.3.1 GUIDING POLICY

The City should adopt a robust citywide parking policy framework that reflects the role and influence of parking in city building. The policy framework should define the parking precincts and the approaches to parking provision and management in each precinct.

1.3.2 RATIONALE

A parking policy framework is required for four main reasons:

- To adopt a unified overview of citywide parking provision and management in Mississauga.
- To take into account the variety of different areas in the City especially the differences in transit and municipal parking availability.
- To align decisions about land use, transit, parking provision, and management strategies with the City's vision for a multimodal city.
- To regard city-managed parking facilities as a valuable resource that should be managed proactively.



PARKING MATTERS



APPENDIX 2-3 PARKING DEMAND MANAGEMENT AND OUTREACH

Mississauga Parking Master Plan and
Implementation Strategy (PMPIS)

1 PARKING DEMAND MANAGEMENT AND OUTREACH

This section explores and defines how parking demand management can improve transportation and land use outcomes in Mississauga. It suggests that demand management is often overlooked and increasingly important aspect of parking. Outreach activities and programs help to raise awareness of and give effect to the parking demand management measures explored in this Section.

Historically, municipalities and other tiers of government have been heavily involved in supply-side solutions to parking issues. This supply-side involvement has included both the direct provision of parking and the indirect provision of parking. Demand management represents a deliberate break from supply-based transportation practices towards a new policy paradigm that involves a wide range of disciplines including behavioural economics, social marketing and more comprehensive and sustainable development planning practices.

The Institute for Transportation and Development Policy (ITDP) defines demand management as a “series of strategies aimed at changing people’s travel behaviour (how, when, and where people travel) in order to increase the efficiency of transportation systems and achieve specific sustainable development public policy.”

Transportation Demand Management (TDM) is an umbrella term that is typically used to refer to the full suite of demand management strategies at a whole-of-transportation system level. Recently, the City has made important inroads into identifying a number of TDM measures for implementation through a new TDM Plan. Parking demand management – on the other hand – is a term that is sometimes used to specifically refer to a subset of TDM measures that target parking demand at an individual site or district level.

The determinants of parking demand, which are discussed in further detail in this Section, mean that targeted, localized parking demand management measures, can have far-reaching knock-on TDM benefits for the City as a whole. For example, a strategy that successfully reduces parking demand at a particular site can also help to reduce traffic congestion across multiple parts of the city, particularly where the peak periods for parking demand and road-use either overlap or happen in quick succession.

As confirmed through the public engagement conducted during the PMPIS project, it is clear that Mississauga’s parking needs are changing, particularly as the population grows and new transportation alternatives for people and goods are developed and implemented. To reflect changing parking needs over time, it is important to ensure that City parking policy and practices are fully aligned with the broader objective of providing real transportation choices for residents, workers and visitors. This contemporary approach to parking policy goes beyond simply considering the supply of off-street and on-street parking places. It is predicated on more seriously examining how managing parking demand can contribute to the City’s transportation objectives and the PMPIS policy framework.

Section 1.1 discusses the existing context for parking demand management, Section 1.2 explores the opportunities presented by parking demand management, Section 1.3 explores future directions, and Section 1.1 provides a summary of the discussion and recommendations for the parking policy framework.

1.1 EXISTING CONTEXT

The existing context for parking demand management in Mississauga is discussed under three headings: general background; opportunity cost; and the transportation demand management strategy.

1.1.1 GENERAL BACKGROUND AND PREMISE

Most people readily appreciate why parking demand does not always match the available parking supply for a given location. They recognize that when existing parking supply is exhausted, it is not always easy to find or create additional parking supply to meet additional demand.

The provision of additional parking typically involves an increasing marginal cost for each space added. For example, the cost of adding each parking spaces increases as each new space is added. Surface parking requires large tracts of land, which is often expensive to purchase. Decked or underground parking requires is more space-efficient from a capacity perspective, however on a per space added basis; that is the *marginal cost*, the costs of physical structures are several magnitudes higher than surface parking. These costs can escalate quickly as spaces are added, making expansions time-intensive and cost-prohibitive.

It is useful to consider the question of how to increase parking supply from the perspective of the parking facility owner. Adding parking at a location depends on three factors:

- identifying a source of funding (capital).
- finding and allocating additional space or land for the new parking spaces.
- engaging appropriate personnel to design, construct and maintain the additional parking.

As noted above, as the City becomes more ‘built out’ capital costs for new parking tend to increase. Depending on where a parking facility is in the asset management cycle, the operating costs can also compound. As this scenario is increasingly common in Mississauga, property owners have to weigh up what to do when existing parking capacity reaches its limits.

Decisions made by parking facility and land owners under current policy settings create a situation where increases in parking tend to occur infrequently and unevenly. The City applies the standard approval process to individual development applications when a site is considered for development, but the process tends to focus on a relatively narrow set of site-specific considerations rather than the broader impacts on the transportation system. As noted in the introduction, greater consideration of parking demand management measures at the development application level potentially has knock-on effects to the transportation system as a whole.

The central premise of demand management is straightforward: if workable alternatives such as making more efficient use of existing supply or improving transportation alternatives can be shown to cost less money and provide a greater level of benefit than expanding parking supply, it is clear that the City should adopt the relevant demand management policies for the benefit of the whole community.

Demand management is therefore an important tool. The extent to which City policy responds to evolving parking needs and aligns these needs with the City's broader goals and objectives effectively becomes a public statement of the relative importance of parking demand management as a tool for dealing with future transportation challenges.

1.1.2 PARKING SPACES AND OPPORTUNITY COSTS

To avoid a parking “supply shortage,” the development planning process of many municipalities triggers statutory compliance with by-laws that require a generous amount of off-street parking. Parking “oversupply” describes a situation where the available parking is used to full capacity for only for a fraction of the day, and “underutilized” for the remainder for the day, week or even the year.

In locations where adjacent or nearby properties supply all their own parking with no sharing, the result is often more parking than necessary for the overall location. The surplus spaces represent development decisions that prioritize parking above other possible uses. The direct cost and the ‘opportunity cost’ of such decisions require careful analysis (see sidebar on Opportunity Costs and Parking).

Many cities continue to use minimum parking requirements (certain number of parking spaces per unit of development) with a view to ensuring sufficient on-site parking, and many cities still base their parking requirements on a site’s “peak of the peak” (highest peak use parking demand in a given day, week or longer period). The objective is to avoid the problem of parking in surrounding streets, but the approach has been criticized as being a “set it and forget it” attitude that ignores the opportunity cost associated with dedicating significant amounts of land or significant parts of a building to parking.

Opportunity Costs and Parking

To illustrate how opportunity cost can work in parking, consider the following simple example: in order to improve the level of access to (in terms of number of people accessing and utilizing) a MiWay Transit Terminal and increase ridership of the connecting MiExpress bus, the City has the choice between increasing the frequency of MiLocal buses that service the Transit Terminal, or alternatively constructing additional park and ride parking spaces to allow more people to commute by private vehicle to the transit terminal and then transfer to the MiExpress bus.

The opportunity cost of choosing to construct park and ride spaces can be expressed in terms of the foregoing the potential increased MiLocal ridership achievable through extra buses, the additional MiExpress ridership boost that could have been achieved above and beyond the ridership generated by the park and ride facility by running more MiLocal buses, as well as other land use benefits that could have been derived from increasing the frequency of feeder buses to the transit terminal on the land where the parking would be located.

Broadly speaking, these opportunity costs include: improved transit-oriented development opportunities, greater levels of walking and cycling and associated health benefits and a lower level of ongoing subsidies required to operate for park and ride. This example shows that the opportunity cost of any decision to prioritize parking over pursuing other alternatives can be high and should be carefully considered.

In Mississauga, the City uses a ‘regularly reoccurring peak parking demand’ (rather than an extreme peak such as Christmas shopping) to set the minimum parking requirement. The peak demand requirement can vary widely from location to location.

Regulations that require landowners to plan for peak demand (or a variation) often ignore the cost of providing the parking and how the parking area is used (or not used) at other times of the day. Land set aside exclusively for parking may be underused for significant portions of the day, week or year. The costs of providing and maintaining the parking are passed on to patrons, consumers and employers, particularly where parking is provided ‘free’ of charge to the end user.

The simple example in the sidebar on Opportunity Costs and Parking highlights many key issues and questions in parking demand management:

- Supply-side policy approaches to parking have wider transportation and land use implications that go beyond considering only the capital and operational costs of providing parking.
- Demand management provides an alternative approach to the narrowly framed question “How much parking is needed for this development?” Demand management expands the discussion to include:
 - “How much parking is suitable for this entire area?”
 - “What role could demand management play to ensure parking is utilized throughout the day and not just in the peak periods?”
 - “What other transportation alternatives (transit, walking and cycling, carpooling, ridesharing, etc.) could be promoted as part of this development to ease parking demand, particularly during peak periods?”
- Surface parking is a major land use in Mississauga where it is estimated that 15 per cent estimate of the city’s total land area is currently used for parking. This high percentage indicates the need to make greater use of demand management policy and its potential as a catalyst for creating a more efficient transportation and land use system.

These issues and questions are highly relevant to Mississauga’s current concerns and future directions. They are explored in greater detail in the next Sections.

1.1.3 TRANSPORTATION DEMAND MANAGEMENT STRATEGY

The Mississauga TDM Strategy and Implementation Plan (TDM Plan) was completed in early 2018. The TDM Plan outlines a TDM vision based on four policy objectives. The plan also provides a range of short, medium, and long-term TDM measures to be implemented during the coming years. The TDM measures are designed to help the City to achieve the location-specific modal split targets being considered by the Transportation Master Plan (TMP) due in 2019.

To monitor progress, the TDM Plan also includes a monitoring program. The monitoring program is designed to establish a benchmark of current-day performance for the transportation system in Mississauga and also to provide the basis for establishing longitudinal trends, including the ability to link the performance of TDM measures to ‘hard data.’

An accompanying Action Plan provides additional guidance on how and when to implement each of the TDM measures recommended. The guidance outlines the key benefits of each measure for the transportation system and provides a high-level estimate of the resources likely to be required to implement each measure.

To ensure a coordinated response to demand management in Mississauga, the PMPIS policy framework was designed from the outset to be consistent with the objectives of the TDM Plan. For example, the TDM Plan and the PMPIS share the ‘integration and efficiency’ policy objectives.

Exhibit 1-1 summarizes the TDM measures recommended in the TDM Plan. The Plan has four main categories of measures: 1) changes to travel times, 2) workplace measures, 3) TDM supportive infrastructure and policy, and 4) municipally-delivered programs.

1. **Changes to Travel Times:** measures that vary the departure and arrival times for journeys.
2. **Workplace Measures:** policies that lower the barriers for organisations wishing to embrace TDM, especially where it involves win-win solutions
3. **TDM Supportive Infrastructure and Policy:** measures that provide the best physical conditions for TDM by enhancing and promoting alternatives to driving, such as the Mississauga Transitway, bike parking, pedestrian connections, and carpool parking space
4. **Municipally-Delivered Programs:** support community-based social marketing to promote TDM.

Exhibit 1-1 shows details of each measure, the body responsible, and the primary objectives. Responsibility for implementing and monitoring each TDM measure will be assigned to the City, community organizations and employers, and will depend on the location and type of measure. For example, under the Plan the City is given responsibility for monitoring the impact of the TDM measures by using both data available to the City and establishing arrangements to collect and analyze data with participating organizations. Further details on the likely effectiveness of the measures and why they were chosen can be found in the TDM Plan.

Exhibit 1-1– TDM Measures Recommended in the 2018 TDM Plan

What is the measure?		Who will deliver?	Primary Objectives			
			Reduce demand for travel	Reduce parking demand	Reduce peak network demand	Mode shift
Changes to Travel Times	Change in Work Arrangements	Public and Private Sector Employers	✓	✓	✓	✓
Workplace Measures	Carpooling (Ride matching, Guaranteed Ride Home)	Smart Commute Mississauga, Smart Commute Pearson Airport Area, Region of Peel, Metrolinx		✓	✓	
	Transit Passes	Developers, Property Owners		✓	✓	✓
	Bicycle Parking	City, Property Owners		✓	✓	✓
	Pricing Parking	Property Owners, City	✓	✓		✓
TDM-Supportive Infrastructure and Policy	Park and Ride Facilities at Transit Stations	MiWay, GO Transit			✓	✓
	Accessible connections and amenities	City of Mississauga, Property Owners		✓		✓
	On-road Active Transportation Infrastructure	City, Region of Peel			✓	✓
	Change Parking Demand Through Supply and Restrictions	City	✓	✓	✓	✓

What is the measure?	Who will deliver?	Primary Objectives			
		Reduce demand for travel	Reduce parking demand	Reduce peak network demand	Mode shift
Transit Priority Lanes	City				✓
Bicycle Parking Regulations and Standards	City		✓	✓	✓
Development Application Requirements and TDM Plan Outline as part of Transportation Impacts Study (TIS)	City	✓	✓		
Municipally Delivered Programs and Policy	Community Outreach and Engagement	✓	✓		
	School Travel Planning and Support	✓		✓	
	Youth Initiatives	✓			✓
	Land Use Policy	✓	✓	✓	✓

The following recommendations from the TDM Plan should be incorporated as part to the Parking Demand Management Measures of the PMPIS:

- should work with its departments, community organizations and local
- employers to assign responsibility for implementing and monitoring each of the parking demand management measures recommended in the TDM Plan.
- As recommended in the TDM Plan, the TDM Working Group should be given responsibility for coordinating the timing and programming of parking demand management measures in each Precinct.
- The City should commit to periodic reporting of TDM measures to measure their performance over time and allow for adjustments where necessary.

1.2 PARKING DEMAND MANAGEMENT: THE OPPORTUNITY

Before outlining the City's parking demand management opportunities, it is helpful to briefly consider parking demand management's two goals.

The two goals are:

1. To integrate parking with broader transportation and land use aspirations in Mississauga
2. To improve the efficiency with which space devoted to parking is used

Recommendations pertaining to the implications of integrating parking with the City's transportation and land use aspirations, and the importance of considered analysis of land use policy and existing transportation patterns in order to make an informed assessment of the role that parking can take in shaping Mississauga as the city continues to urbanise.

The discussion below examines three areas of opportunity in parking demand management: using TDM measures to increase urban mobility with less infrastructure (Section 1.2.1), using parking management to consider parking supply holistically (Section 1.2.2), and using policy and strategy to influence parking demand (Section 1.2.3).

1.2.1 USING TDM MEASURES TO INCREASE URBAN MOBILITY WITH LESS INFRASTRUCTURE

Various North American cities have shown that robust land use policy coupled with strong TDM measures is an important prerequisite and catalyst for adding capacity to the transportation system with existing or less infrastructure. The ability to add more urban capacity to cities is often broadly equated with increased urban mobility.

Through the success of their targeted policies and actions, some cities have demonstrated that the ability of the transportation system to become more efficient over time is often dependent on a strong land use plan. To common features of these cities are regulations and policy incentives that promote and support land uses and mobility to be built and facilitated at a human-scale. Regulations that restrict or prevent excessive road and parking space dedicated to private vehicles play an important role in allowing urban mobility to increase over time.

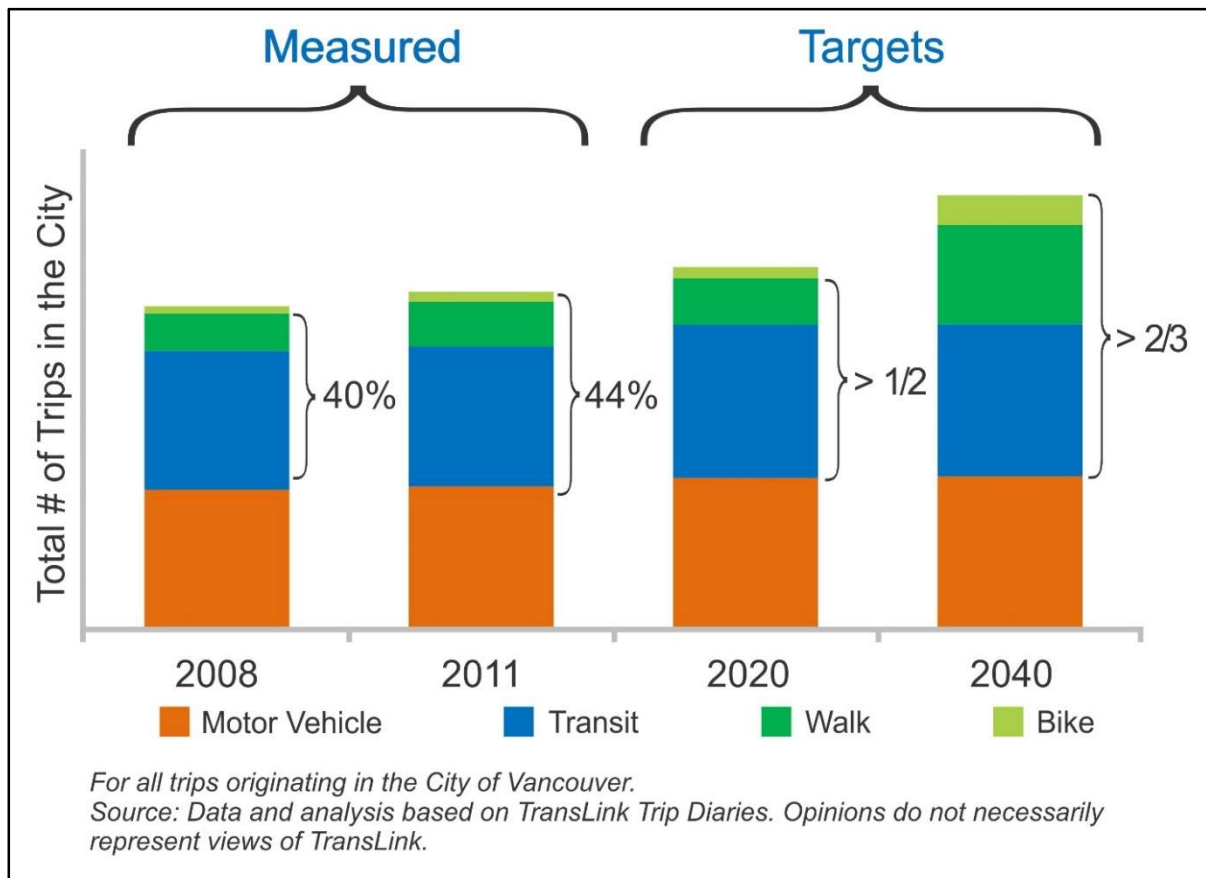
Well known examples of “doing more with less” in North America include the “bullseye smart growth concept” in Arlington, VA, the “Blueprint Denver” in Denver, CO and “Vancouverism” in Vancouver, BC. In each case, the cities have clearly demonstrated that it is possible to move more people and goods in, out and around urban areas with fewer resources.

Exhibit 1-2 shows modal split estimations for the City of Vancouver in 2018 and 2011. The exhibit shows that transit, walking and cycling accounted for 40 percent of trips in 2008 and this grew to 44 percent of all trips in 2011. Exhibit 1-2 also shows modal split targets for 2020 and 2040, with targets in place to expand sustainable modes and limit auto trips.

The City of Vancouver’s 2014 Transportation Monitoring Report Daily found that real progress is being made towards these targets with automobile trips declining to 918,000 in 2014 (from 980,000 in 2013). Transit, walking and cycling transit trips rose to 905,000 in 2014 (from 893,000 in 2013). Not illustrated but quoted in this report is the volume of total motor vehicle travel, which has declined 16.5 percent since 2007. Per capita reductions are even larger: average annual vehicle-kilometers per resident declined 26 percent, from 6,340 in 2004 to 4,680 in 2014.

The City of Vancouver’s increase in non-motorized trips is attributed to the success of sustained demand management policies which have accommodated more trips without expanding road space or significantly increasing parking supply. TDM policies such as revisions to off-street parking requirements, the reallocation of road space for traffic calming purposes and accommodate protected cycling infrastructure, the introduction of paid parking, and the promotion of alternative modes (walking, cycling, transit) have seen the automobile mode share decline to about half of all trips originating within the City of Vancouver. (In most North American cities, the automobile mode share varies with the characteristics of the city, but it is usually about 80 percent.)

Exhibit 1-2 – Modal Split (2008 and 2011) and Modal Split Targets (2020 and 2040) for City of Vancouver



Source: 2014 Transportation Monitoring Report, City of Vancouver, 2015

1.2.2 USING PARKING MANAGEMENT TO CONSIDER PARKING SUPPLY HOLISTICALLY

The primary function of parking is simply to store a vehicle until it is used again. If all parking is considered part of the same transportation system, parking supply and demand issues must clearly expand beyond the type of ownership (public/private) or the location (off-street or on-street) to encompass all parking within the transportation system.

In dense urban mixed-use environments, parking space competes with many other land uses. The prioritization of uses for space needs to be deliberate, clear, fair, consistent, and transparent. Modern parking management needs make the effective use of strategies that consider and address all aspects of parking demand and supply and not regard site-based off-street parking regulations as de-facto parking policy. There is a real need to afford greater respect for and attention to real-world commercial imperatives and hidden parking subsidies that distort parking demand in the planning process. Parking policy and regulations that change the basis on which parking is planned and operated can assist with removing barriers to managing parking supply holistically.

1.2.3 USING POLICY AND STRATEGY TO INFLUENCE PARKING DEMAND

Land use and transportation policies and strategies that are designed to influence parking demand possess two characteristics:

- The demand for parking is a derived demand, i.e., it is a consequence of the demand for something else. At its core, parking demand is indicative of demand for access to a particular location. This then manifests itself in what we can observe at a location: a common desire to find a place to store a vehicle while the vehicle is not in use.
- The total demand for parking is not a constant; it varies by location and time of day.

Understanding these characteristics is essential to developing appropriate incentives and policies to promote effective and cost-efficient alternatives that can decrease parking demand. Where parking demand can be reduced in absolute terms, public and private resources become available for other purposes, for example, additional disposable income or additional investment in infrastructure.

At a finer level of detail, parking regulations such as shorter time limits can have effects such as: increasing turnover which in turn allows a greater number of users to access the same amount of parking. Drivers may also be inclined to switch to transit if the alternative exists.

These examples suggest that relatively simple changes may open powerful opportunities to use TDM measures to affect the demand for parking at a given location and or time of day.

As people may not think of their individual decisions as making a significant impact on the overall transportation network, outreach and education will be important to the success of the new approach. The need for change must be easily understood and clearly relatable to people's own travel decisions.

1.3 FUTURE DIRECTIONS

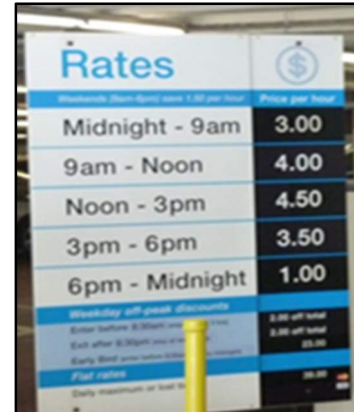
This Section outlines selected future TDM measures in more detail. The selected measures are: dynamic pricing (Section 1.3.1), carsharing (Section 1.3.2), bicycle parking (bicycle parking requirements; design standards and guidelines) (Section 1.3.3), examples of other parking demand management measures (transit passes/parking cash out; shuttle service; bicycle facilities and programs (Section 1.3.4), and communications and outreach (Section 1.3.5).

As noted in the introduction, given that the City is involved in parking both directly and indirectly, the City may decide to implement TDM measures alone or in collaboration with other organizations. Section 13 discusses the Implementation Plan.

1.3.1 DYNAMIC PRICING

Dynamic pricing (also known as performance pricing) in parking management refers to a strategy that aims to use pricing to keep parking utilization as close as possible to 85 per cent throughout the day to ensure parking facilities are being used as efficiently as possible at all times. The strategy uses changes in the price for parking to achieve the desired utilization. Prices are set to reflect observed demand and then periodically adjusted (in defined increments, typically between 25 cents and \$1) to reflect consumer responses.

A dynamic pricing strategy is considered particularly useful for high demand areas such as Precinct One and Two where it can help to spread peak parking demand and encourage the use of cost-effective alternatives particularly in peak periods.



Time Period	Price per hour
Midnight - 9am	3.00
9am - Noon	4.00
Noon - 3pm	4.50
3pm - 6pm	3.50
6pm - Midnight	1.00

Recommendation:

- It is recommended that the City undertakes an analysis to determine the benefits and costs of implementing dynamic or escalating on-street pricing in each precinct.

1.3.2 CARSHARING

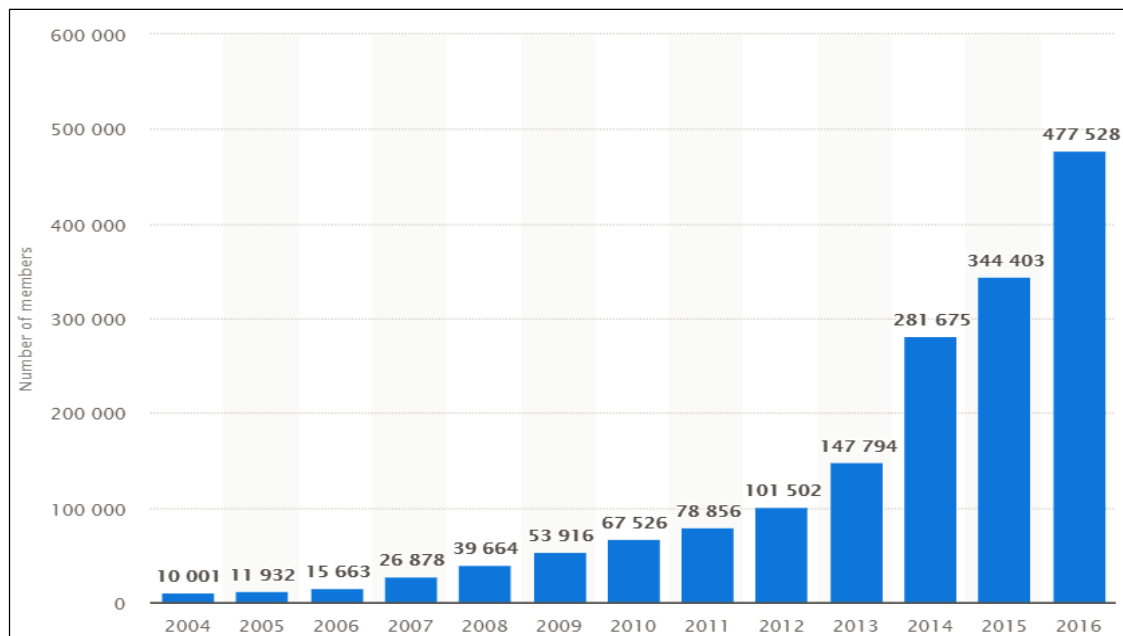
Carsharing is a form of short-term car rental used primarily for incidental trips, but also for some planned journeys by motor vehicle. To allow customers keyless access, carsharing vehicles are equipped with electronic systems usually a fob or a mobile phone app. Carshare vehicles are typically rented by the minute or hour and include fuel and insurance costs.

Various carsharing business models operate in Canada and elsewhere. Zipcar and Enterprise Carshare vehicles are typically owned by the company and must be used for a round-trip. For example, the vehicle must be returned to its initial parking location. Car2GO vehicles are also owned by the company, but Car2GO offers one-way rentals as part of its “floating” model. For example, the vehicle may be picked up at one designated parking area and returned to a different one. The Zipcar/ Enterprise Carshare model and the Car2GO all require an agreement to use a landowner’s parking area. The business model offers competitive pricing when compared to traditional private vehicle ownership.

Turo and Getaround use a different model: peer-to-peer carsharing. Both businesses have developed platforms that connect car owners with renters.

Exhibit 1-3 shows the exponential growth in carsharing in Canada from 2004 to 2016. In 2016, nearly half a million Canadians were members of a carsharing program.

Exhibit 1-3 – Growth in Carsharing Membership in Canada 2004-2016



Source: Number of Carsharing Members in Canada from 2004 to 2016, Statista, 2016

Shaheen and Martin (2011) showed that households that North American households participating in a survey about their car ownership habits owned an average of 0.47 vehicles per household prior to joining. After joining the carsharing system, the average dropped to 0.24. Other benefits reported included a sizeable shift towards a carless lifestyle and more efficient use of fuel (carsharing vehicles were on average 10 miles per gallon more efficient than the vehicles the carsharers' had owned). Although the results start from a low base of ownership, they nonetheless demonstrated the power of carshare to successfully substitute for car ownership, helping to reduce residential demand for parking.

A worldwide review of carsharing by Deloitte (2015) found that most carsharers' area niche transportation option for certain demographic groups, but carsharing was nonetheless assisting households to forego vehicle purchases. It also noted that the congestion-relief potential of carsharing rises with the number of carsharing services. According to one estimate, each carsharing vehicle reduces the need for 9 to 13 private automobiles. It is expected that changing consumer preferences will facilitate continued growth of carsharing services into the future and potentially reduce parking demand, particularly in the residential context.

Recommendations:

- The City should negotiate arrangements with various carshare providers to allow carsharing in locations throughout the City including municipal parking lots and on-street parking spaces. To encourage residents to use the carsharing vehicles, the City could offer incentives such as waiving the parking fee for short-term parking.
- The City should encourage additional carsharing providers, and should consider additional business models such as one-way “floating” services.
- As part of the upcoming Zoning By-law review, the City should consider replacing some conventional parking spaces with on-site carshare spaces in all large-scale retail, office and residential developments. The City should determine the appropriate ratios between conventional and carsharing parking spaces. The highest level of carsharing incentives should apply to Precincts One and Two.

1.3.3 BICYCLE PARKING

Bicycle parking can provide a convenient and cost-effective alternative to vehicle parking. Bicycle parking may be long-term or short-term. Long-term bicycle parking is generally reserved for residents of buildings. Facilities may include enclosed and secure bicycle racks or bicycle storage lockers. Short-term bicycle parking is generally considered for visitors to locations with easily accessible bike racks available to the public. Such locations provide a measure of passive surveillance.

The following Section summarises many key considerations when planning and designing bicycle parking, including the bicycle parking requirements recommended as part of the TDM Plan.

BICYCLE PARKING REQUIREMENTS

Each Precinct will require appropriate minimum bicycle standards. Minimum bicycle parking requirement should consider, but not be limited to:

- Long-term bicycle parking spaces (for residents) and short-term bicycle parking spaces (for visitors)
- Showers and change facilities

The Zoning By-law review should consider parking rates for bicycle parking.

Exhibit 1-4 – Bicycle Parking Requirements Recommended by the TDM Plan

Land Use	Recommended Bicycle Parking Requirements	
	Class “A” (Secure Long-Term)	Class “B” (Racks, Short-Term)
Residential – Multi-Unit	0.8 space / unit	Minimum of 6 spaces
Retail	0.5 / 500 m ² (GFA)	1 / 500 m ² GFA
Business Office	0.5 / 500 m ² (GFA)	0.5 / 500 m ² (GFA)
Medical Office	0.5 / 1000 m ² (GFA)	1/ 1000 m ² (GFA)
Employment	0.5 / 1000 m ² (GFA)	Minimum 2 spaces
School, Post-secondary	1/15 students	1 / 10 students
School, Elementary and Secondary	1/15 students	1/15 students
Institutional	0.5 / 1000 m ² (GFA)	0.5 / 1000 m ² (GFA)

DESIGN STANDARDS AND GUIDELINES

On-site bicycle parking facilities need to consider several issues. Indoor facilities should address bike rooms, lockers, cages, change facilities, showers and signage. Outdoor facilities should address racks, covered parking and signage.

Additional issues include:

- Minimum space sizes (minimum length 1.8 metres; minimum width 0.6 metres; vertical clearance of at least 1.9 metres)
- Location (maximum of 15 metres from a main entrance in a well-lit area)
- Points of contact. Single bicycle racks and racks that can accommodate multiple bicycles should have two points of contact. Single racks, for example, may use an inverted “U” or post-and-ring style.
- Long-term bicycle parking. Long-term bicycle parking should be in a bicycle locker or in a secure cage/bike room with facilities for locking the bicycles.



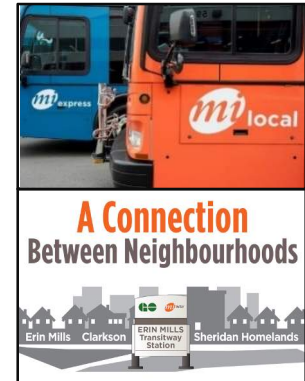
1.3.4 OTHER PARKING DEMAND MANAGEMENT MEASURES

This Section discusses three additional parking demand management measures: transit passes/parking cash out, shuttle service and bicycle facilities and programs. These three demand management measures are outside of the direct control of the Municipal Parking staff, but considered to have potential. The measures will require collaboration and coordination with other departments.

TRANSIT PASSES/PARKING CASH OUT

Increased transit ridership is a critical part of reducing parking demand. The City should continue to work with transit agencies to increase transit service and connections to major hubs, transit stations and employment nodes.

As an incentive for commuters to use transit, the City could investigate a parking cash-out program that allows employees to opt out of being offered a 'free' employer-subsidized parking space and instead receive the equivalent benefit in cash.



SHUTTLE SERVICE

Both Sheridan College and the University of Toronto offer a shuttle service between campuses. In some cases, there is only 20 minutes between services. Some services are free and others are offered at a subsidized price that is attractive when compared to the cost of parking on-site. To reduce parking demand at high demand locations, the City should help Sheridan College and the University of Toronto to expand their shuttle services, and should encourage other organizations to offer similar services where possible.



BICYCLE FACILITIES AND PROGRAMS

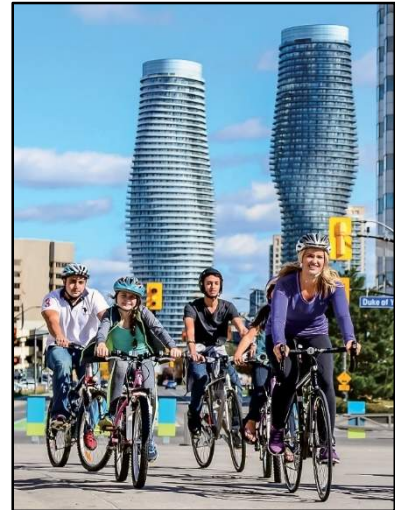
Encouraging cycling (and other alternatives modes of transportation) can reduce the demand for vehicle parking particularly for single occupant vehicle trips over short distances. Active transportation infrastructure needs to be safe, comfortable, connected, and convenient to encourage more travel by bicycle.

Cycling uptake is closely related to factors such as on- and off-street bicycle route facilities that cater to all ages and abilities, and the availability of secure bike storage options particularly at employment areas and popular destinations.

The success of bikeshare in Hamilton and Toronto and the rapid pace of technological change and reduction in transportation costs to users and to society has demonstrated that there is significant potential for bikeshare in Mississauga.

Fourth generation bikeshare systems now offer designated pick-up and drop-off areas without the need for docking stations ('geofencing').

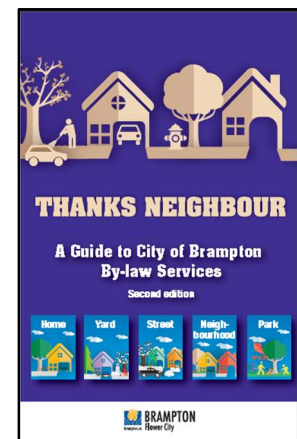
Integrated bike share access and fares with conventional transit can assist with journeys from a transportation hub to a final destination to and from the home ('last mile' journeys). As Mobility as a Service (MaaS) monthly subscription operating models that offer access to a range of last mile offerings are now becoming more widespread, this can assist with reducing the demand for parking. MaaS is being increasingly offered at competitive prices relative to the costs of automobile ownership and this offers significant potential to replace existing private vehicle trips.



1.3.5 COMMUNICATIONS AND OUTREACH

The feedback from residents during the consultation phases of the PMPIS project included comments about the need for the City to improve its processes and tactics for communicating information about parking-related policies, bylaws and procedures to residents and businesses. As the PMPIS is proposing a considerable number of changes, the City should create a parking communications and outreach program to inform and educate citizens and businesses about the PMPIS principles and proposed changes.

It is recommended that the City develop communications material similar to that developed by the City of Brampton developed to explain Brampton's Zoning By-law and various typical issues faced by residents. The front cover of Brampton's "Thanks Neighbour" guide is shown on the right.



1.4 SUMMARY

1.4.1 GUIDING POLICY

Mississauga parking policy should be consistent with the parking policy framework presented in Section 4 and TDM measures recommended in the TDM Plan and summarized in Exhibit 1-5. The new policy should use a phased approach for implementation.

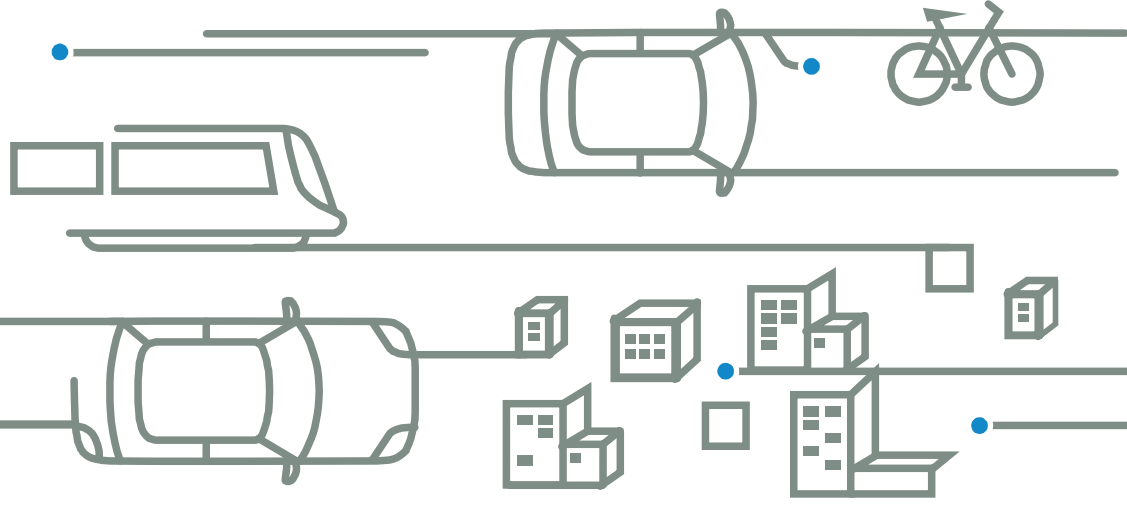
Successful implementation of the TDM Plan's parking demand management measures requires policy alignment with the goals of the TDM Plan and PMPIS. The goals are: 1. to improve the efficiency of the transportation system, and 2. to integrate transportation with land use. It is clear that the City needs to make demand management a formal part of the City's parking policy framework with clear incentives and mandates for private organizations and other community partners to work together and with the City to achieve the parking vision for each parking policy precinct.

Exhibit 1-5 shows that almost all the TDM measures are expected to be most effective in Precincts 1 and 2. Most are expected to have medium effectiveness in Precinct 3, and most are expected to have low effectiveness in Precinct 4. The expected effectiveness of the measures varies considerably in the Special Purpose Areas.

Implementation also requires prioritization of the proposed measures. Insofar that an high-level assessment of each of the individual TDM measures can be made on a precinct-by-precinct basis, Exhibit 1-5 also prioritizes these using three-point scale (1, 2, 3) for each Precinct and the Special Purpose Areas. It should be noted however that implementation of each of the TDM measures in each the precincts is likely to be guided by PMPIS parking policy framework priorities than the measures themselves, as the need for a suite of TDM measures to assist with parking management is more likely to be apparent in those precincts with the most pressing parking issues.

Exhibit 1-5 – Estimated Effectiveness of Parking Demand Management Measures by Precinct

TDM Measure			Ranked 1, 2, 3	Parking Policy Precinct				
				Precinct 1	Precinct 2	Precinct 3	Precinct 4	Special Purpose Areas
TDM Objectives	Changes to Travel	Changes in Work Arrangements	2	High	High	Medium	Low	Low
	Workplace Measures	Carpooling incl. Ride matching	1	High	High	High	Low- Medium	Medium
		Transit Passes	2	High	Medium	Medium	Low	High
		Bicycle Parking	2	High	High	Medium	Low	Low
		Pricing Parking	2	High	High	Medium	Low	High
	DM-Supportive Infrastructure and Policies and Policy	Accessible Connections and Amenities	2	High	High	Medium	Low	Low
		Bicycle Parking Regulations and Standards	1	High	High	High	Low	Low
		Development Application Requirements and TDM Plan Outline as part of Transportation Impact Study (TIS)	1	High	High	High	Low	Medium
	Municipally Delivered	Community Outreach and Engagement	3	Medium	High	Medium	Low	Low
		Land Use Policy	1	High	High	Medium	Medium	Low- Medium



PARKING MATTERS



APPENDIX 3-1 BENCHMARKING EXERCISE – COMPARING PARKING STANDARDS IN MISSISSAUGA AND OTHER MUNICIPALITIES

Mississauga Parking Master Plan and
Implementation Strategy (PMPIS)

1 BENCHMARKING EXERCISE: COMPARING PARKING STANDARDS IN MISSISSAUGA AND OTHER MUNICIPALITIES

1.1 EXISTING CONTEXT

The City of Mississauga's *Zoning By-law 225-2007* "regulates the use of land, buildings, and structures and directs how to implement the relevant Section of the Mississauga Official Plan". Part 3 of the by-law is concerned with parking, loading, and stacking lane regulations. The Zoning By-law prescribes standards for the provision, location and dimension of parking spaces, parking supply requirements for a range of land uses, shared parking standards for mixed-use developments, and accessible parking requirements.

The last comprehensive review of zoning by-law parking standards was completed in the 1980's. In 2007, when the by-law was last consolidated, a benchmarking exercise was completed and some standards underwent minor changes. Other standards have been updated on a piecemeal basis over time.

The Zoning By-law specifies parking supply requirements for 14 residential land use categories and 51 non-residential land and mixed-use developments (office, retail, service, restaurant, overnight accommodation, and or residential components). The Zoning By-law also provides a shared use parking formula for sites that can share parking between various activities on the site. The shared use parking formula considers parking occupancy for each activity in the morning, noon period, afternoon, and evenings for weekday and weekends.

Section 1.1 is divided into seven main subsections:

- Zoning By-law Motor Vehicle Parking Standards (Section 1.1.1)
- Accessible Parking Requirements (Section 1.1.2)
- Bicycle Parking Standards (Section 1.1.3)
- Parking Design Standards (Section 1.1.4)
- Shared Parking (Section 1.1.5)

1.1.1 ZONING BY-LAW MOTOR VEHICLE PARKING STANDARDS

The Existing Policy and Best Practices Review conducted for the PMPIS, parking provision regulations have historically required a certain minimum number of parking spaces per land use for new development projects and expansion projects. The details in the Zoning By-law that sets out the City's motor vehicle parking standard are commonly known as "minimum parking requirements."

Parking requirements are typically expressed as a ratio (For example, 1 parking space per dwelling or 1 parking space per 100 sq.m. of the Ground Lease Agreement.

Section 1.1.1 discusses four topics:

- Benchmarking exercise: comparing parking standards in Mississauga and other municipalities.
- Lowering the minimum number of required parking spaces.
- Parking requirements in areas with mature transit service.
- Minimum and maximum parking requirements.

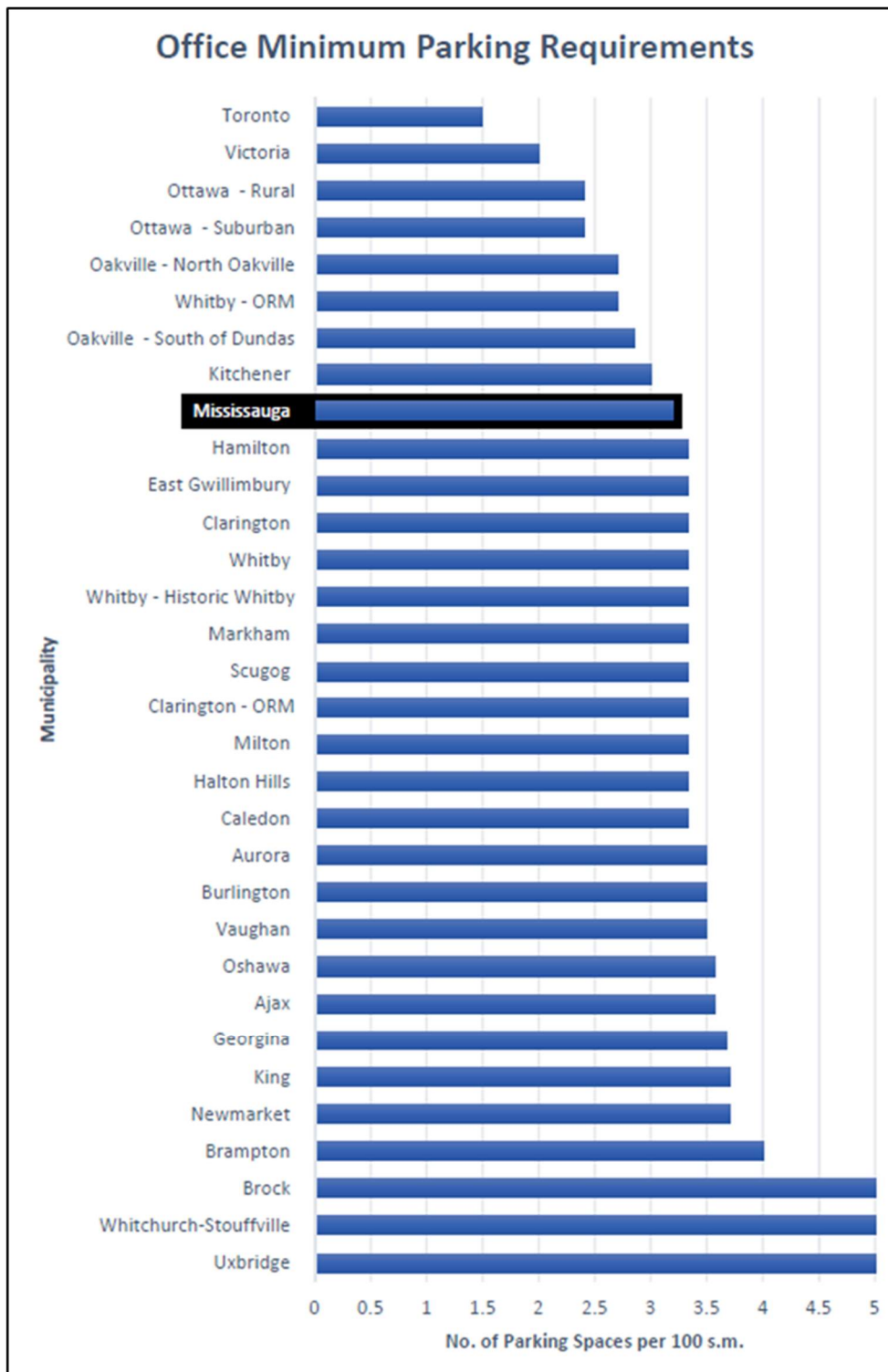
BENCHMARKING EXERCISE: COMPARING PARKING STANDARDS IN MISSISSAUGA AND OTHER MUNICIPALITIES

Mississauga's current parking requirements generally covers the entire City with some exceptions such as:

- The Downtown Core has separate residential apartment rates as well as some non-residential like retail and restaurant are lower than the rest of the City.
- Some non-residential uses like retail and restaurant has a lower rate in mainstreets areas such as Streetville, Port Credit and Clarkson.

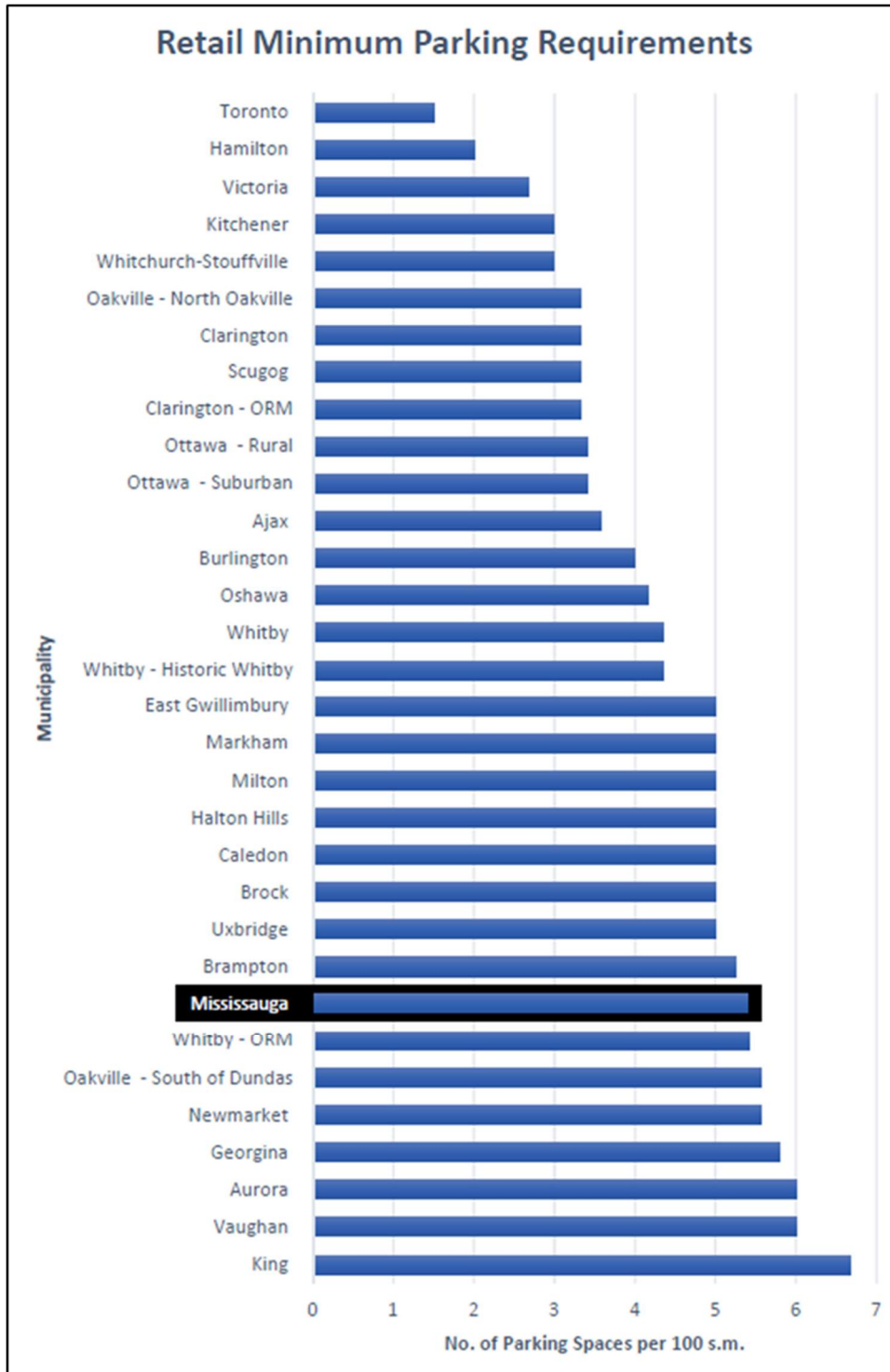
Exhibit 1-1 to Exhibit 1-10 show the results of a comprehensive benchmarking exercise that compares the zoning by-law parking requirements in Mississauga, other Greater Toronto Hamilton Area (GTHA) municipalities, Ottawa, Vancouver and Victoria. The Zoning By-laws of each jurisdiction are available online. The comparison includes downtown by-laws and citywide by-laws for office, retail, industrial, residential apartment, medical offices, and restaurants uses.

Exhibit 1-1 – Benchmarking of General (non-downtown) Office Minimum Parking Requirement in GTHA, Ottawa, Vancouver, and Victoria



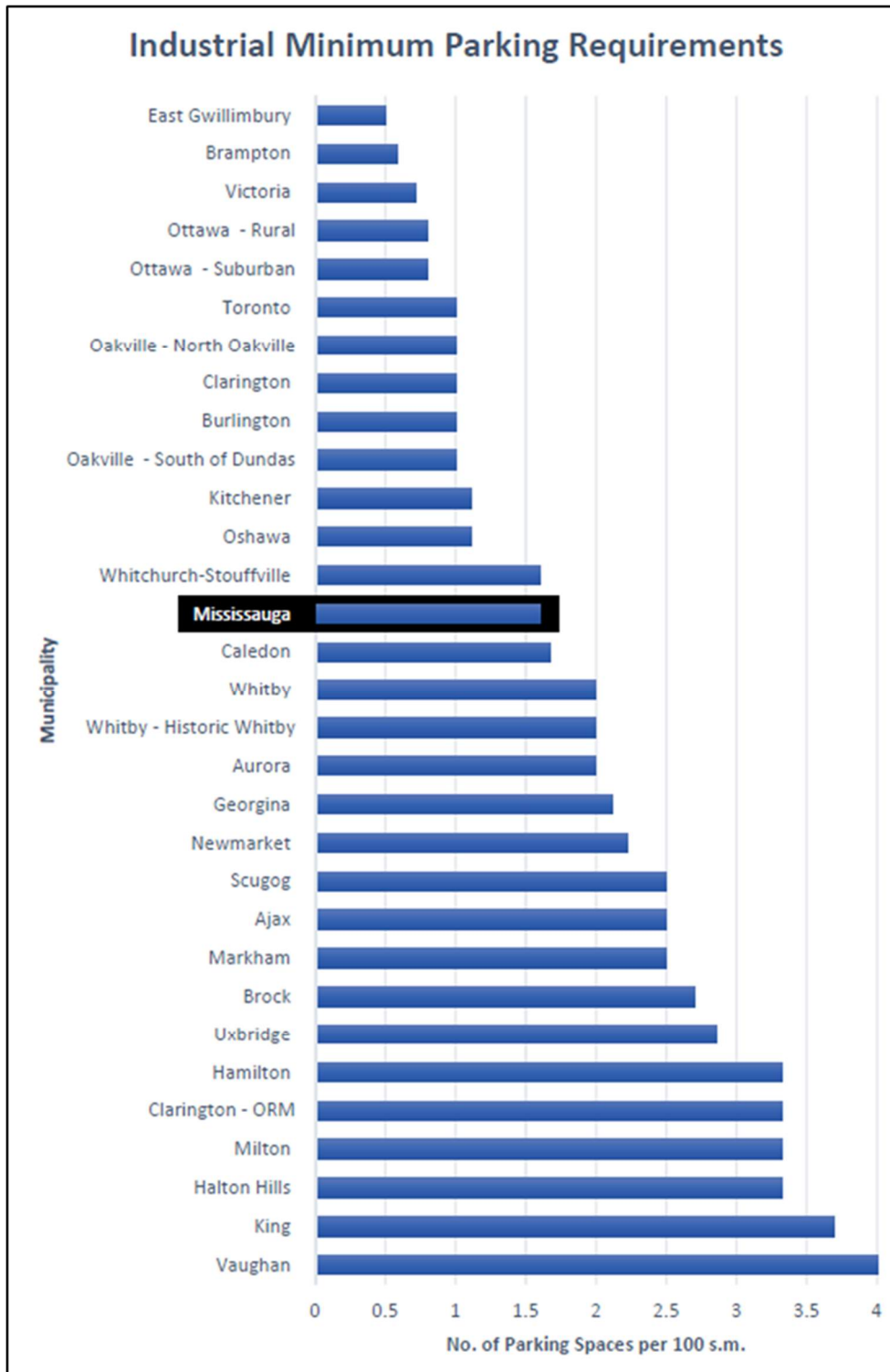
Source: Parking Requirement from Each Municipal Zoning By-law

Exhibit 1-2 – Benchmarking of General (non-downtown) Retail Minimum Parking Requirement in GTHA, Ottawa, Vancouver, and Victoria



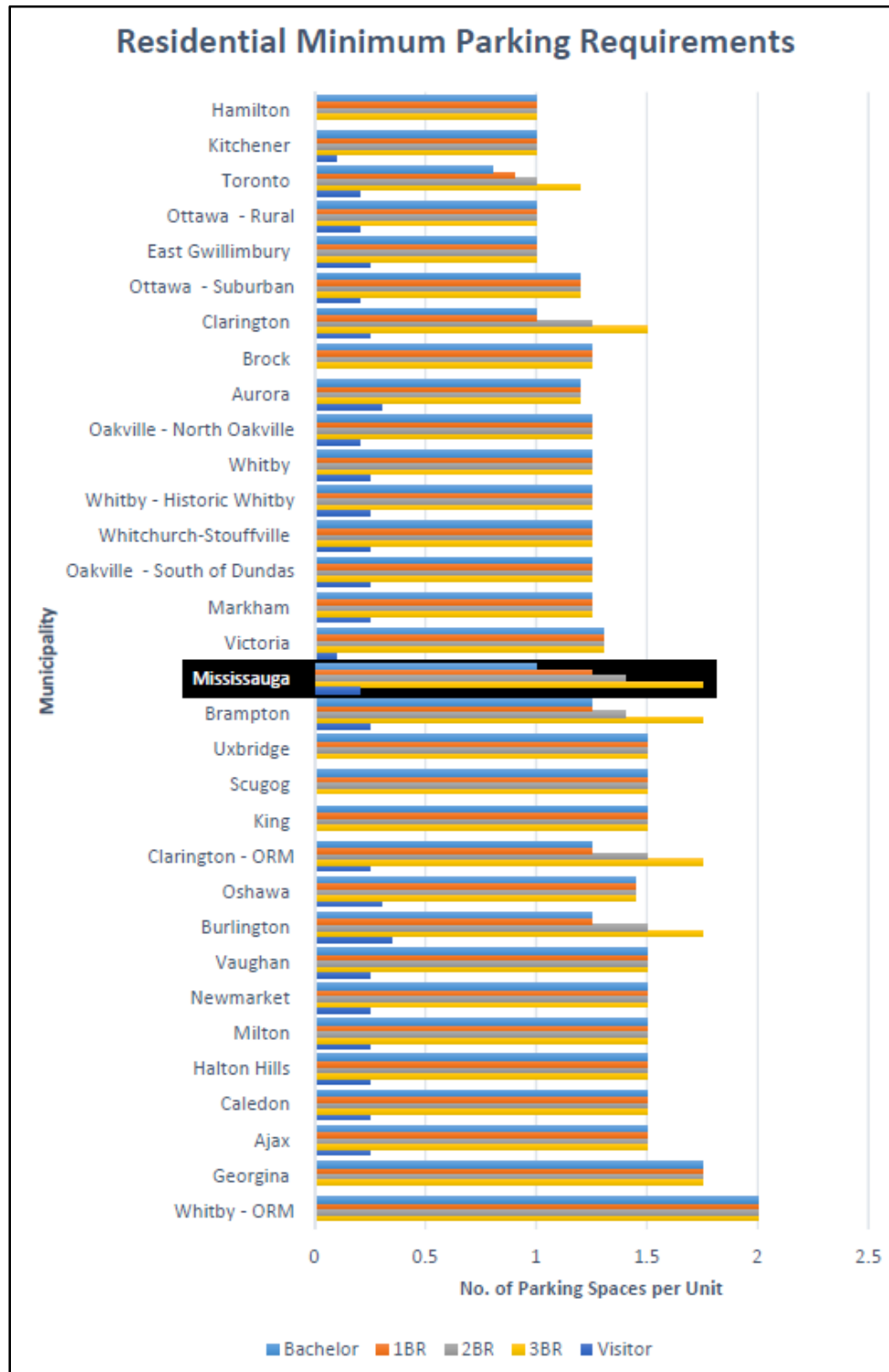
Source: Parking Requirement from Each Municipal Zoning By-law

Exhibit 1-3 – Benchmarking of General (non-downtown) Industrial Minimum Parking Requirements in GTHA, Ottawa, Vancouver, and Victoria



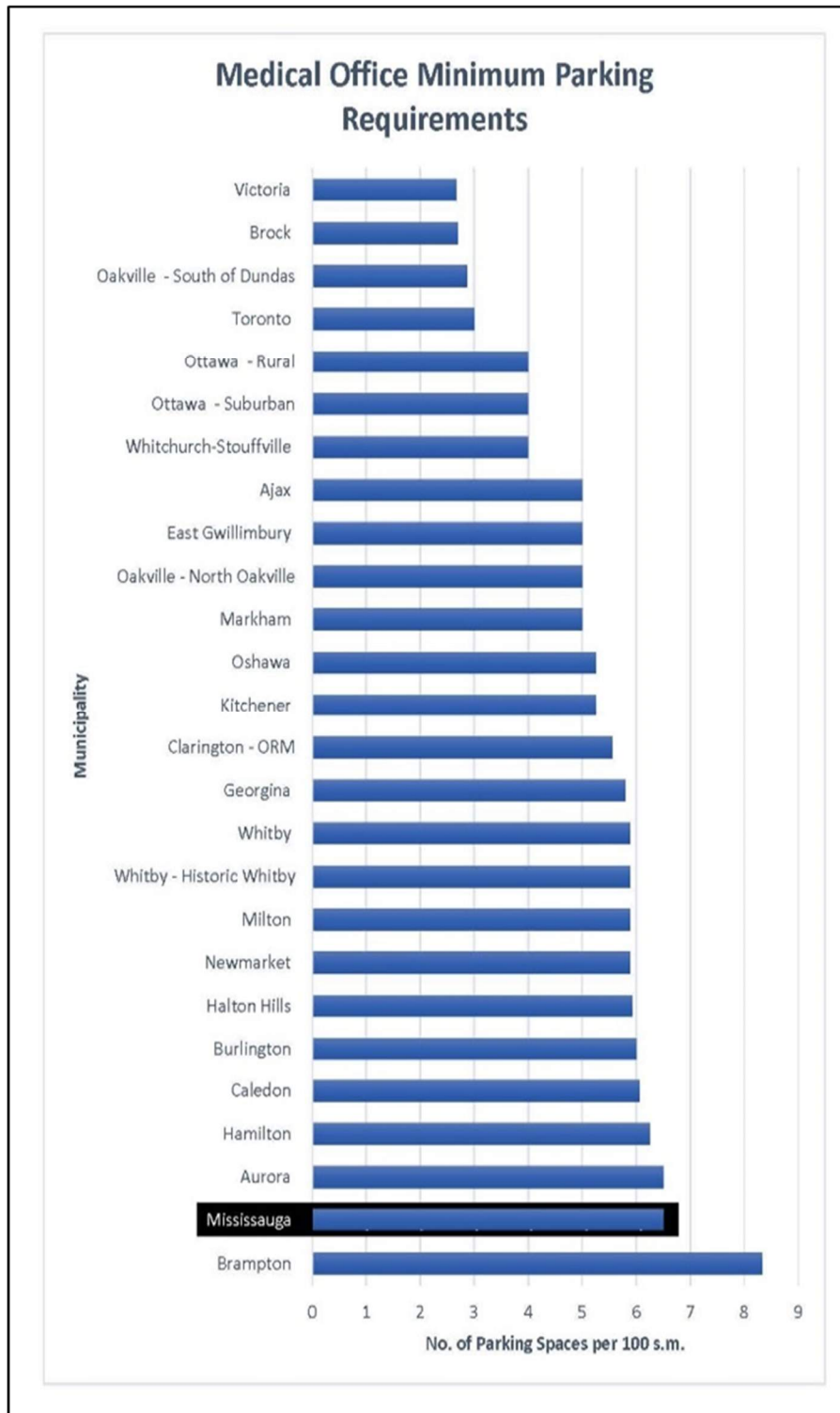
Source: Parking Requirement from Each Municipal Zoning By-law

Exhibit 1-4 – Benchmarking of General (non-downtown) Residential Minimum Parking Requirements in GTHA, Ottawa, Vancouver, and Victoria



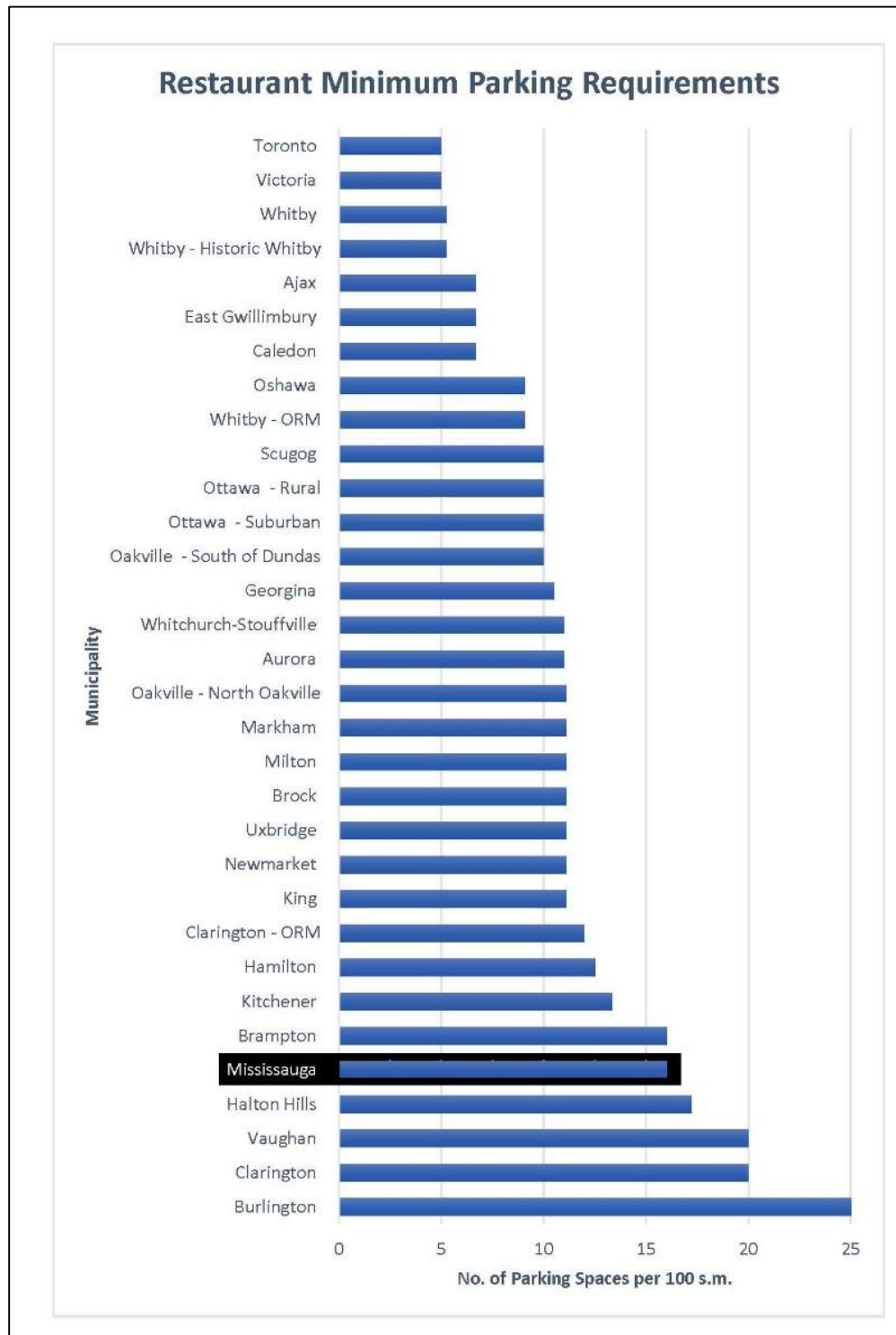
Source: Parking Requirement from Each Municipal Zoning By-law

Exhibit 1-5 – Benchmarking of General (non-downtown) Medical Office Minimum Parking Requirements in GTHA, Ottawa, Vancouver, and Victoria



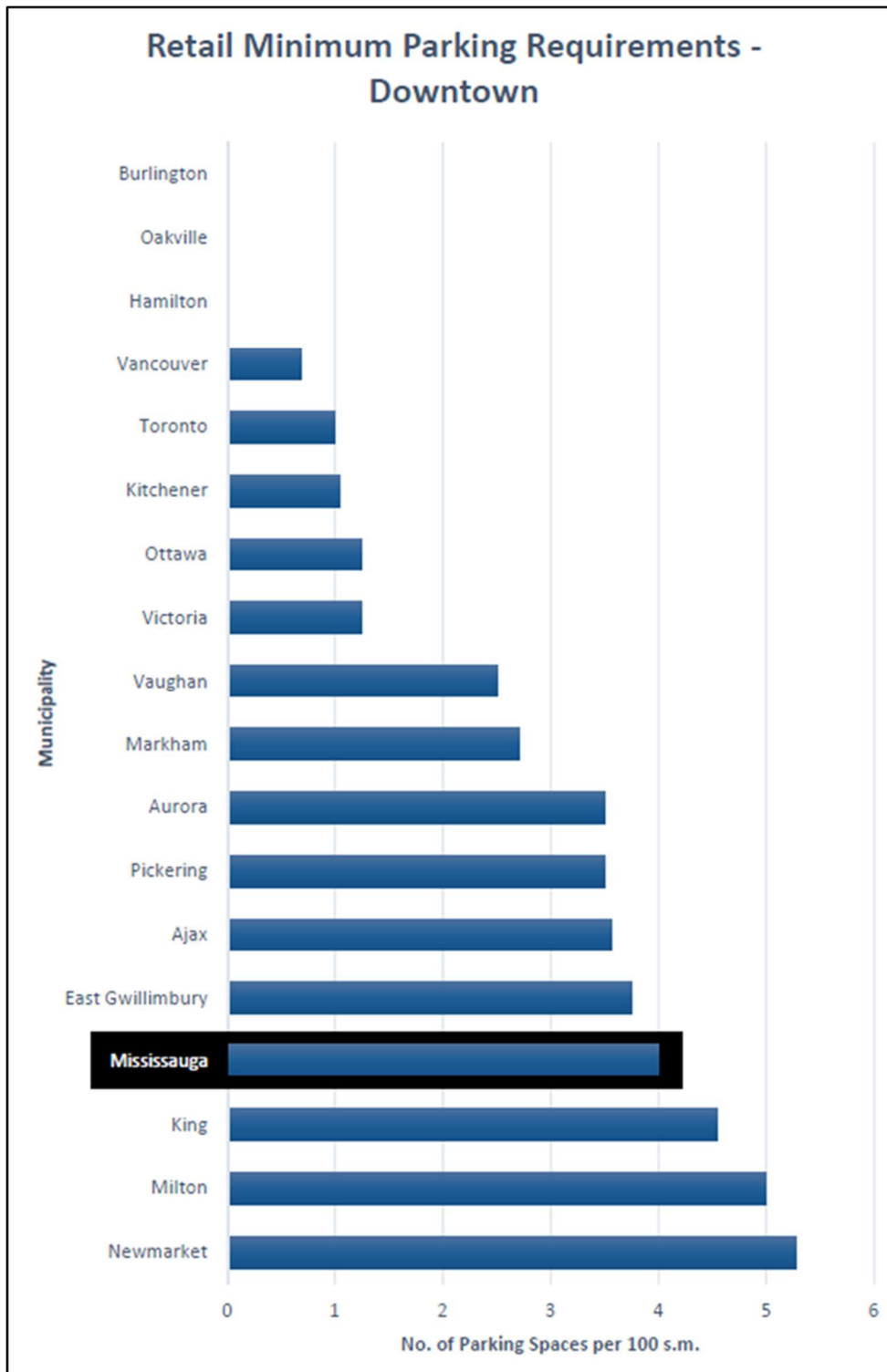
Source: Parking Requirement from Each Municipal Zoning By-law

Exhibit 1-6 – Benchmarking of General (non-downtown) Restaurant Minimum Parking Requirements in GTHA, Ottawa, Vancouver, and Victoria



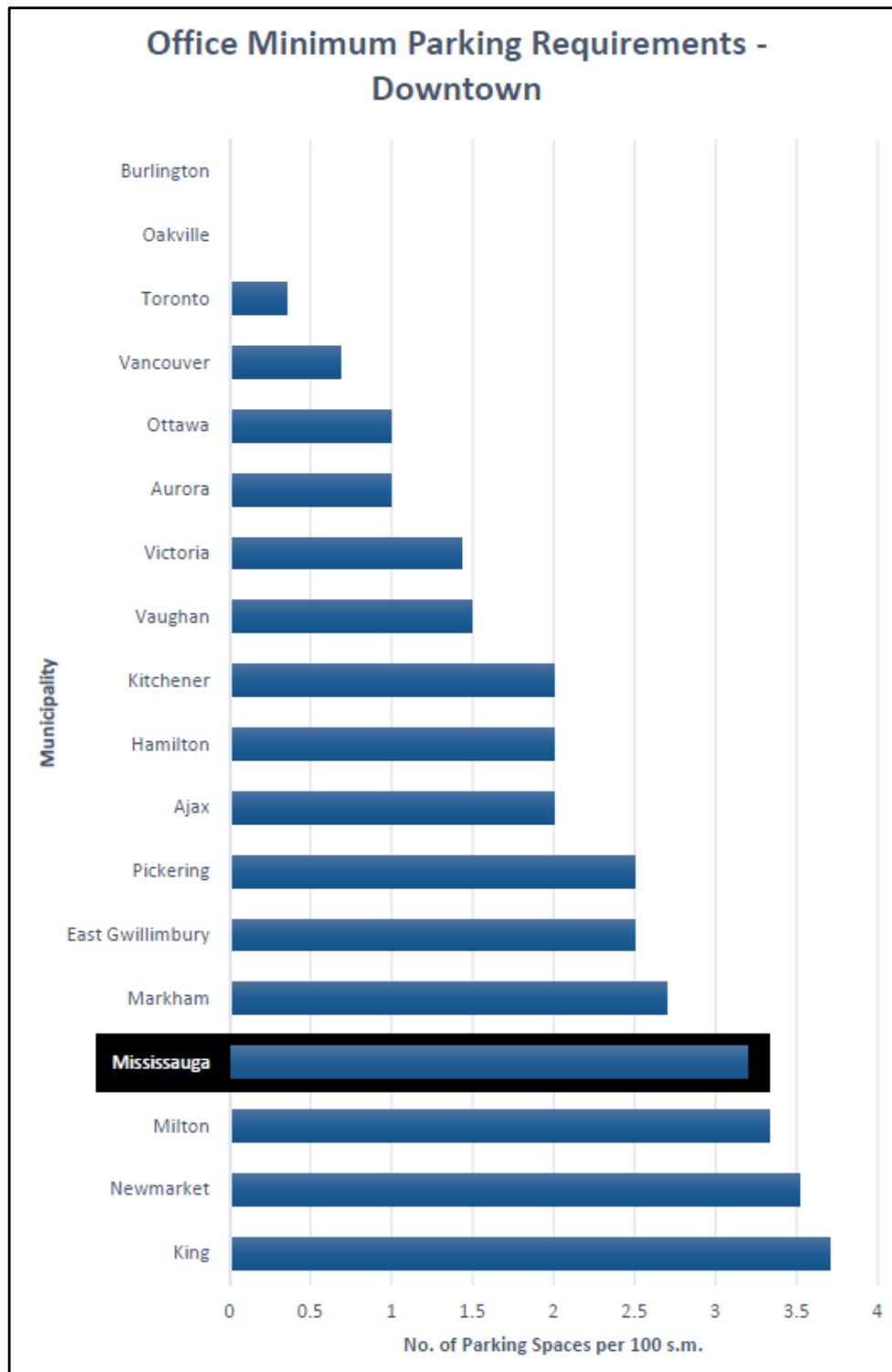
Source: Parking Requirement from Each Municipal Zoning By-law

Exhibit 1-7 – Benchmarking - Downtown Minimum Parking Requirements for Retail in GTHA, Ottawa, Vancouver, and Victoria



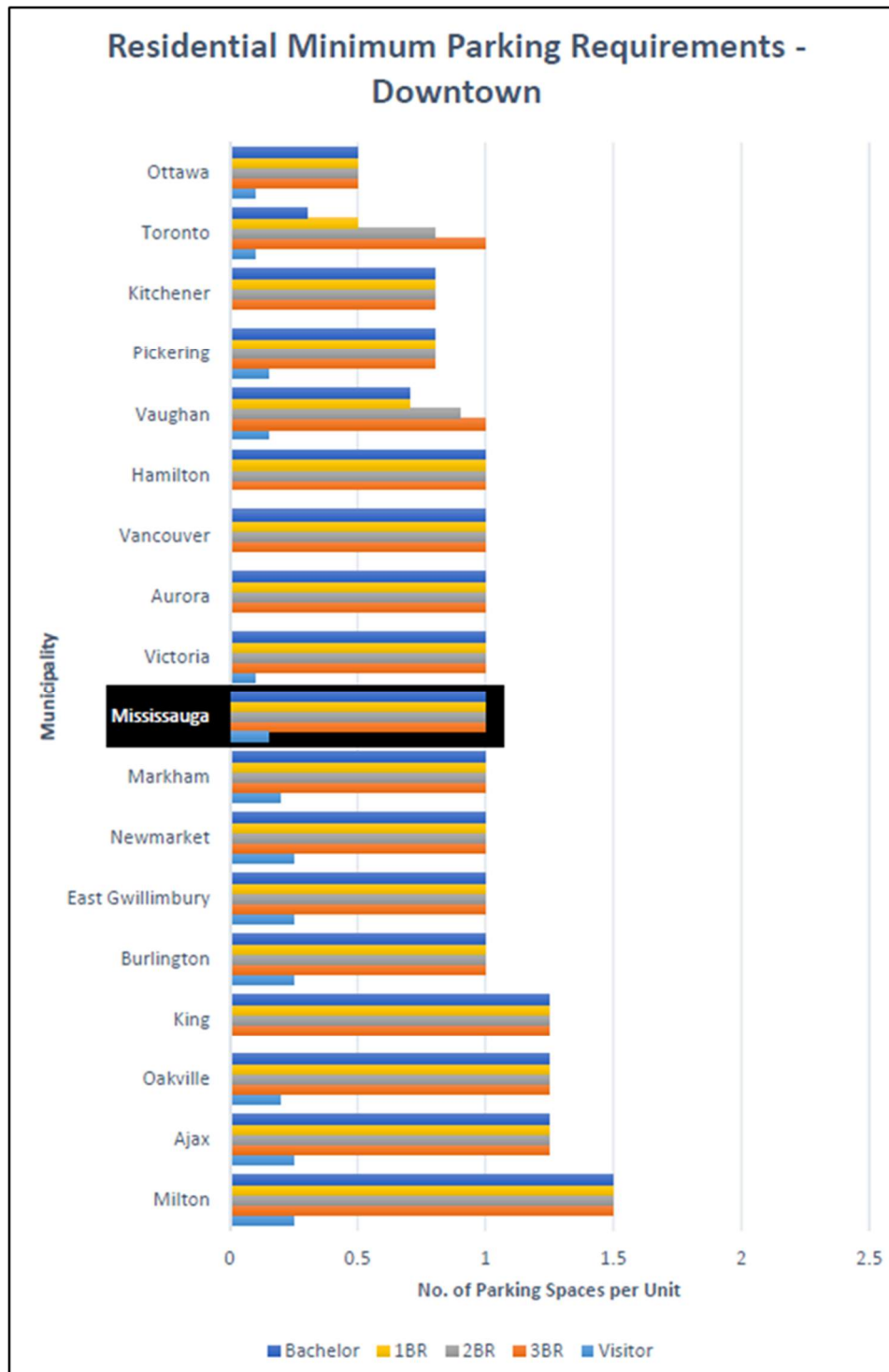
Source: Parking Requirement from Each Municipal Zoning By-law

Exhibit 1-8 – Benchmarking - Downtown Minimum Parking Requirements for Office in the GTHA, Ottawa, Vancouver, and Victoria



Source: Parking Requirement from Each Municipal Zoning By-law

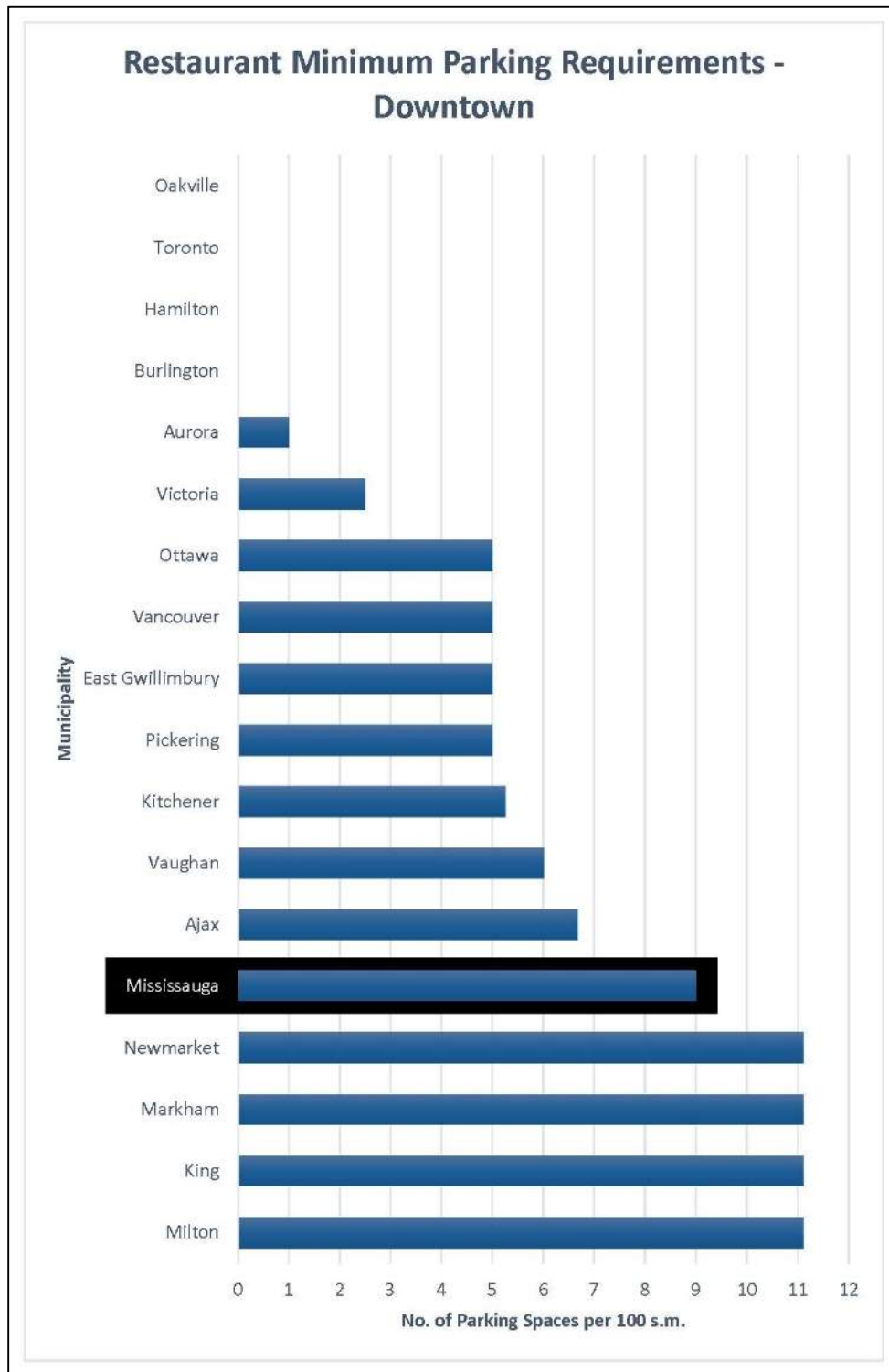
Exhibit 1-9 – Benchmarking - Downtown Minimum Parking Requirements for Residential in GTHA, Ottawa, Vancouver, and Victoria



Source: Parking Requirement from

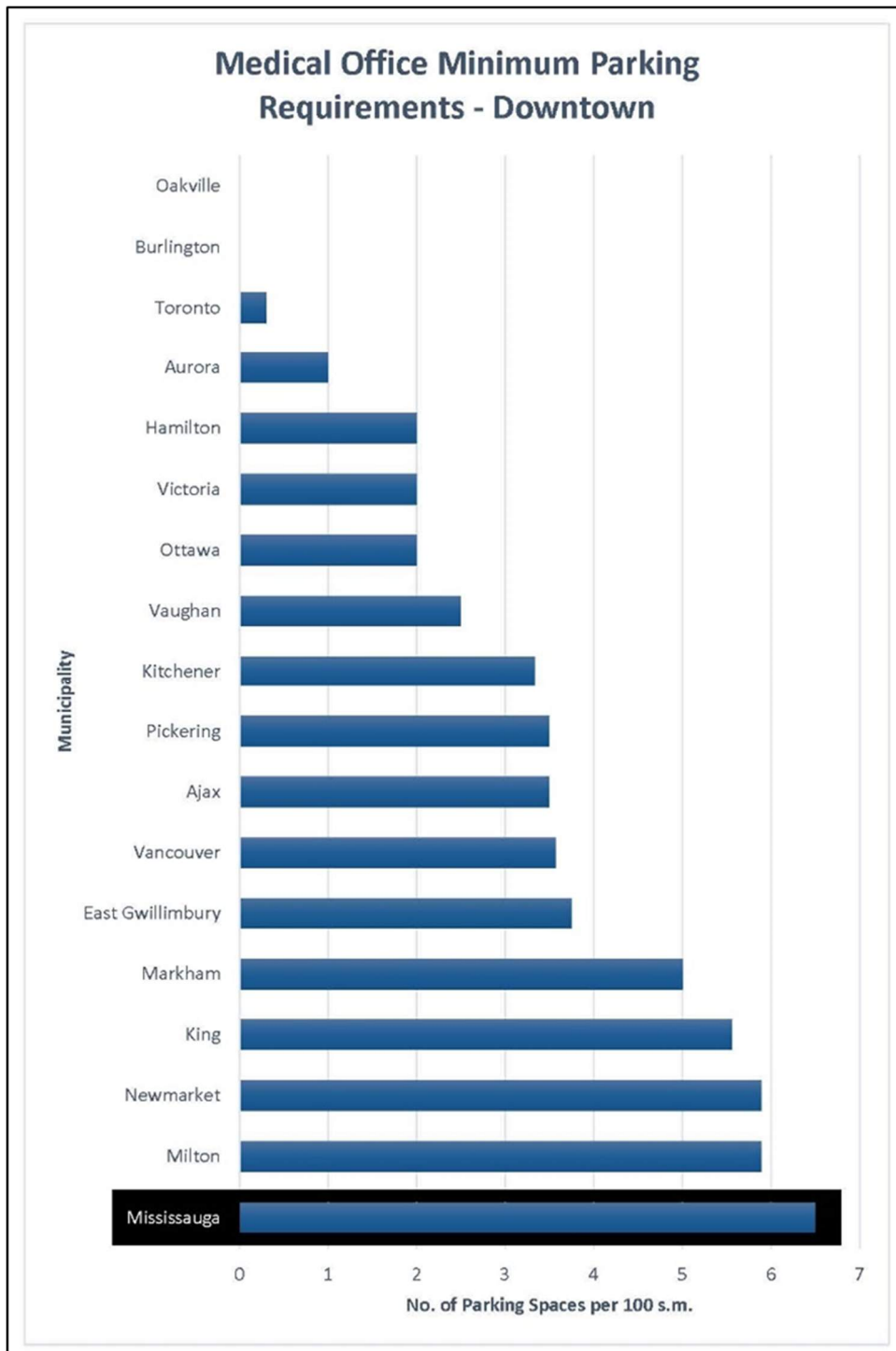
Each Municipal Zoning By-law

Exhibit 1-10 – Benchmarking - Downtown Minimum Parking Requirements for Restaurants in GTHA, Ottawa, Vancouver, and Victoria



Source: Parking Requirement from Each Municipal Zoning By-law

Exhibit 1-11 – Benchmarking - Downtown Minimum Parking Requirements for Medical Office in GTHA, Ottawa, and Vancouver



Source: Parking Requirement from Each Municipal Zoning By-law

Exhibit 1-1 to Exhibit 1-11 how that Mississauga's minimum parking requirements are generally typical of those adopted in the GTHA, Ottawa, Vancouver, and Victoria, but some municipalities have consistently lower parking requirements than those of Mississauga. The municipalities with lower parking requirements are typically urban in character and in the process of implementing significant transit infrastructure improvements.

Different areas of the City have different characteristics which create different parking demands. In addition, the City's vision for the different areas may differ. Rather than distinguishing between only the Downtown and the rest of Mississauga, the role, function and supply of parking should clearly reflect the differences between the various areas of the City.

LOWERING THE MINIMUM NUMBER OF REQUIRED PARKING SPACES

The City has already noted the need and desirability of lowering the minimum number of parking spaces in certain areas depending on the proposed land use, proximity to transit, other available parking supply, and TDM measures adopted for a site. Reductions have been implemented in the main street areas of Port Credit, Streetsville and Clarkson with land uses such as residential apartment, retail and restaurant. As these reductions occurred in response to developers' applications for parking reductions, they occurred on a piecemeal and random basis.

Exhibit 1-12 provides an example of lowered parking rates for apartments. The rates were proposed by City staff who conducted a detailed review of parking. The average reduction from the current Zoning By-law rates is 26 percent.

Exhibit 1-12 – The City's Staff Recommendations for Lowered Parking Requirement for Condominium Apartments for MTSA's along the Hurontario LRT

Apartment	Bachelor		1-Bedroom		2-Bedroom		3-Bedroom	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Parking Typology Range	0.70 -0.90	1.05-1.12	0.8-1.0	1.20-1.25	0.9-1.20	1.35-1.5	1.10-1.50	1.65-1.85
Recommended Rate (Midpoint of Minimum Range selected)	0.8		0.9		1.0		1.3	
Current City of Mississauga Zoning By-Law	1.0		1.25		1.4		1.75	
Percent Reduction	20%		28%		29%		26%	

Source: City of Mississauga Memorandum, June 12, 2015

In addition, City staff has also recommended, for the Hurontario LRT corridor outside the Downtown Core, a visitor parking standard of 0.15 spaces per unit or a shared parking approach for condominium apartment development with non-residential uses; whichever, is greater.

Parking rates may also be lowered as the result of an application to the Committee of Adjustment for a variance. This Committee has reduced parking requirements for numerous developments and a variety of land uses.

For parking variances which are deficient by 10 percent or less a satisfactory Letter of Justification is required by the City. However, for variances greater than 10 percent the application must include a satisfactory Parking Utilization Study.

The examples of piecemeal changes to current parking standards are an indication that parking standards require a systematic review.

PARKING REQUIREMENTS IN AREAS WITH TRANSIT SERVICE

Outside the Downtown area, the current Zoning By-law does not consider transit availability although transit availability could result in lower parking demand.

Exhibit 1-13 compares Mississauga's city-wide and downtown parking requirements (parking space per residential unit) with the parking requirements for transit areas in eight other municipalities. The Exhibit shows that the parking requirements for the transit areas are lower than Mississauga's current parking requirements. For parking variance application which are deficient 10% or less, a satisfactory Letter of Justification is required. If the variance is for greater than 10% deficiency, the applicant must provide a satisfactory "Parking Utilization Study".

Exhibit 1-13 – Comparison of Mississauga’s City-Wide and Downtown Parking Requirements with Parking Requirements for Transit Areas in Eight Other Municipalities

Zoning By-Law		Bachelor	1 BR	2 BR	3+ BR	Resident (Blend)	Reduction from Mississauga
Vaughan	VMC	0.85	0.85	0.95	1.15	0.95	5-30%
Toronto	Policy Area 4	0.70	0.80	0.90	1.10	0.88	12-35%
Edmonton	TOD (with LRT)	0.70	0.80	1.00	1.25	0.94	6-30%
Hamilton	Transit Oriented Corridor					1.00	0-26%
Markham	Markham Centre					1.00	0-26%
East Gwillimbury	500m of GO Station					1.00	0-26%
Waterloo (Draft)	Uptown and Station Areas (with LRT)					0.78-0.87	22-36%
Ottawa	Inner City, 400-800 walk from Rapid Transit					0.50	50-63%
	Suburban, 400-800m walk from Rapid Transit					1.0-1.2	0-15%
Mississauga	City Wide	1.0	1.25	1.4	1.75	1.35	
	Downtown					1.00	

MINIMUM AND MAXIMUM PARKING REQUIREMENTS

The City of Mississauga’s current parking standards are based on a minimum parking requirement. The original reason for municipalities’ setting of minimum parking requirements was to ensure that parking spaces were available to satisfy the peak demand for free parking. However, in recent years, there is a shift towards reducing or eliminating minimum parking requirements in certain areas. It is recognized that parking requirements add substantially to development costs, limit development potential, disproportionately impose costs on non-users and the disadvantaged, and often run counter to efforts to promote sustainable measures such as transit availability, Active Transportation facilities and off-site parking facilities.

The most vocal critic of minimum parking requirements is Prof. Donald Shoup at UCLA in California. He has provided substantial research and empirical analysis to support his views. He points out that "Parking requirements enable everyone to park free at

everyone else's expense, and no one knows that anyone is paying anything. Parking is free, however, only because everything else costs more. Parking requirements are well-intentioned, but good intentions don't guarantee good results or compensate for unintended harm."¹

The City's existing Zoning By-law regulates minimum parking requirements on a site basis and does not stipulate a maximum number of parking spaces for any land use. Many municipalities have adopted maximum parking requirements for some land uses. The maximum depends on a site's location, transit availability, travel demand management measures, Active Transportation facilities, and public parking supply.

Exhibit 1-14 below lists municipalities with maximum parking requirements for non-residential land uses and or residential land uses. The table also shows additional detail about specific land uses/areas with maximum parking requirements.

¹ Shoup, D. *Parking, and the City*, 2018, Planners Press, p. 6

Exhibit 1-14 – Municipalities with maximum parking requirements for non-residential land uses

Non-residential Land Uses	Residential Land Uses
Ajax - Downtown Central Area	Ajax - Downtown Central Area
Burlington - Mixed Use Corridor	Burlington - Intensification Areas (IBI Recommended)
Burlington - Intensification Areas	Markham - Markham Centre
Markham - Markham Centre	Newmarket - Urban Centre Zones
Newmarket - Urban Centre Zones	Newmarket - Historic Downtown Urban Core Zone
Newmarket - Historic Downtown Urban Core Zone	Newmarket - Urban Centres
Newmarket - Urban Centres	Oakville - North Oakville
Oakville - North Oakville	Toronto - PA2/Bicycle Zone 2
Oakville - Midtown	Toronto - PA3
Toronto - PA2/Bicycle Zone 2	Toronto - PA4
Toronto - PA3	Toronto - PA1/Bicycle Zone 1
Toronto - PA4	Vaughan - Vaughan Metropolitan Centre
Toronto - PA1/Bicycle Zone 1	Vancouver - General
Vaughan - Vaughan Metropolitan Centre	Ottawa - Area A - Central
Vancouver - I-3	Ottawa - Area A - Central, 600m of a Rapid Transit Station
Vancouver - Downtown	Ottawa - Area B - Inner City, 400-800m walk from Rapid Transit
Vancouver - General	Ottawa - Area C - Suburban, 400-800m walk from Rapid Transit
Ottawa - Area A - Central	Ottawa - Area D - Suburban, 400-800m walk from Rapid Transit
Ottawa - Area A - Central, 600m of a Rapid Transit Station	Hamilton - Mixed Use Zone
Ottawa - Area B - Inner City, 400-800m walk from Rapid Transit	Hamilton - Transit Oriented Corridor
Ottawa - Area C - Suburban, 400-800m walk from Rapid Transit	Kitchener - Urban Growth Centre
Ottawa - Area D - Suburban, 400-800m walk from Rapid Transit	Kitchener - General
Kitchener - Urban Growth Centre	Kitchener - Mixed Use Zone
Kitchener - General	
Kitchener - Mixed Use Zone	

1.1.2 ACCESSIBLE PARKING REQUIREMENTS

Table 3.1.3.1 of the City of Mississauga Zoning By-law 0225-sets out the number of accessible parking spaces required by land use and location. The By-law table is summarized in Exhibit 1-15. Exhibit 1-15 compares the City's requirements with the requirements of the Accessibility for Ontarians with Disabilities Act (AODA). As shown there is no difference in the Table indicating the City's requirements matches the AODA requirements.

It is important to note that the AODA requirements are minimum standards, but additional accessible spaces are encouraged in developments where a higher than average number of accessible users is anticipated. Examples of such developments include seniors' housing, seniors' facilities and hospitals.

Exhibit 1-15 – Accessible Parking Spaces Requirements

Total Number of Required Parking Spaces	Minimum Number of Accessible Parking Spaces (Mississauga)	Minimum Number of Accessible Parking Spaces (AODA)
12 or less	1	1
13 – 100	4% of the total ^{1&2}	4% of the total ^{1&2}
101 – 200	1 space plus 3% of the total ²	1 space plus 3% of the total ²
201 – 1000	2 spaces plus 2% of the total ²	2 spaces plus 2% of the total ²
More than 100	11 spaces plus 1% of the total ²	11 spaces plus 1% of the total ²

Notes:

1. Where only 1 accessible parking space is required, a Type A accessible parking space shall be provided.
2. Where more than 1 accessible parking space is required:
 - if an even number of accessible parking spaces is required, an equal number of Type A and Type B accessible parking spaces must be provided.
 - if an odd number of accessible parking spaces is required, an equal number of Type A and Type B accessible parking spaces must be provided and the odd space may be a Type B accessible parking space.

Source: Zoning By-law 0225-2007, City of Mississauga, 2007

1.1.3 BICYCLE PARKING STANDARDS

Mississauga currently has no enforceable bicycle parking standards.

Bicycle parking requirements were recommended in the first Mississauga Cycling Master Plan (2010) and in the recently completed 2017 Mississauga TDM Strategy and Implementation Plan. As the mandatory provision of bicycle parking and end of trip facilities for cyclists is considered a contribution to encouraging cycling and can reduce the demand for vehicular parking, the City should adopt a provision for bicycle parking and end of trip facilities for cyclist.

It is recommended that:

- The current Zoning By-law be revised to include bicycle parking requirements for relevant land uses. The requirement should be differentiated by location as per the proposed Precinct system.

1.1.4 PARKING DESIGN STANDARDS

Part 3 of the City's Zoning By-law 225-2007 sets out parking design standards for minimum parking space and aisle width. Exhibit 1-16 compares the By-law's standards to the standards set out by the Transportation Association of Canada (TAC), AODA and the City's 2015 Facility Accessibility Design Standard.

Exhibit 1-16 shows that the City's By-law standards are the same as the other standards except for minimum parking space dimensions and minimum dimensions for parallel parking space. The 2015 Facility Accessibility Design Standard for minimum parking space dimensions are 5.2m by 2.4m which is slightly narrower in width than AODA and the minimum dimensions for parallel parking space is 5.75m by 4.6m, which is wider in width but shorter in length compared to AODA.

As the City's current parking design standards for parking spaces comply with typical industry recommendations and government specifications or guidelines, revisions are not necessary at this stage.

Exhibit 1-16 – Parking Design Standards Review

	Mississauga By-law 225-007 provision Dimension(s)	TAC	AODA	2015 Facility Accessibility Design Standard
Minimum Parking Space Dimensions	5.2m x 2.6m ¹	5.2m x 2.6m ¹	5.2m x 2.6m ¹	5.2m x 2.4m (Accessible)
Minimum Dimensions for Parallel Parking Space	6.7m x 2.6m	6.7m x 2.6m	6.7m x 2.6m	5.75m x 4.6m ² (Accessible)
Parking Space Aisle Width	7.0m	7.0m	7.0m	N/A
Parking Space Aisle Width (One-way, parking angle not exceeding 60°)	5.5m	5.5m	5.5m	N/A
Type A Accessible Parking Space Dimensions	5.2m x 3.4m ²	5.2m x 3.4m ²	5.2m x 3.4m ²	5.2m x 3.4m ²
Type B Accessible Parking Space Dimensions	5.2m x 2.4m ²	5.2m x 2.4m ²	5.2m x 2.4m ²	5.2m x 2.4m ²

Notes:

1. Width increased to 2.75m if the length of one side of parking space abuts a structure that extends 1m or less into the front and or rear of the parking space, 2.9m if both sides
2. A 1.5m wide access aisle abutting the entire length (or width for parallel parking spaces) of the accessible parking spaces need to be maintained

Source: Zoning By-law 0225-2007, City of Mississauga, 2007

The Zoning By-law requires parking spaces be provided and clearly identified and marked by permanent lines and markings painted on the paved surface. Parking spaces must also be maintained.

1.1.5 SHARED PARKING

Where peak parking time periods for the same, adjacent or nearby parking spaces vary due to the mix of land uses, it may be possible to implement Shared Parking to reduce the total number of parking spaces required at the site. For example, land uses such as offices, restaurants, retail, and institutional may be able to share the parking supply if the peak parking demand for the different land uses occurs at different times of the day. The parking requirements of office and institutional land uses may peak for the 9 a.m. and 5 p.m. (Monday to Friday) period, restaurants may peak in the evening with a smaller increase at mid-day, and retail may peak in the evening and on weekends with increases in the afternoon. In such situations, parking requirements can be determined by examining the peak parking demand of each land use and then calculating peak parking demand if shared parking is implemented. The number of parking spaces required is reduced compared with applying the minimum requirement for each land use.

Exhibit 1-17 shows peak parking occupancy rates for ten major land uses for three time periods on weekdays and at weekends.

Exhibit 1-17 – Peak Parking Occupancy Rates per Land Use

Land Use	Monday to Friday	Monday to Friday	Monday to Friday	Saturday & Sunday	Saturday & Sunday	Saturday & Sunday
	8am-5pm	6pm-12am	12am-6am	8am-5pm	6pm-12am	12am-6am
Residential	60%	100%	100%	80%	100%	100%
Office/Warehouse /Industrial	100%	20%	5%	5%	5%	5%
Commercial	90%	80%	5%	100%	70%	5%
Hotel	70%	100%	100%	70%	100%	100%
Restaurant	70%	100%	10%	70%	100%	20%
Movie Theatre	40%	80%	10%	80%	100%	10%
Entertainment	40%	100%	10%	80%	100%	50%
Conference/Convention	100%	100%	5%	100%	100%	5%
Institutional (non-church)	100%	20%	5%	10%	10%	5%
Institutional (church)	10%	5%	5%	100%	50%	5%

Source: Shared Parking Facilities Among Multiple Users, Victoria Transport Policy Institute, 2015

However, *Shared Parking by the Urban Land Institute* (ULI) provides a comprehensive list of peak parking periods for different land uses, this the typical industry standard for shared *parking*. The list is reproduced in Attachment 1.

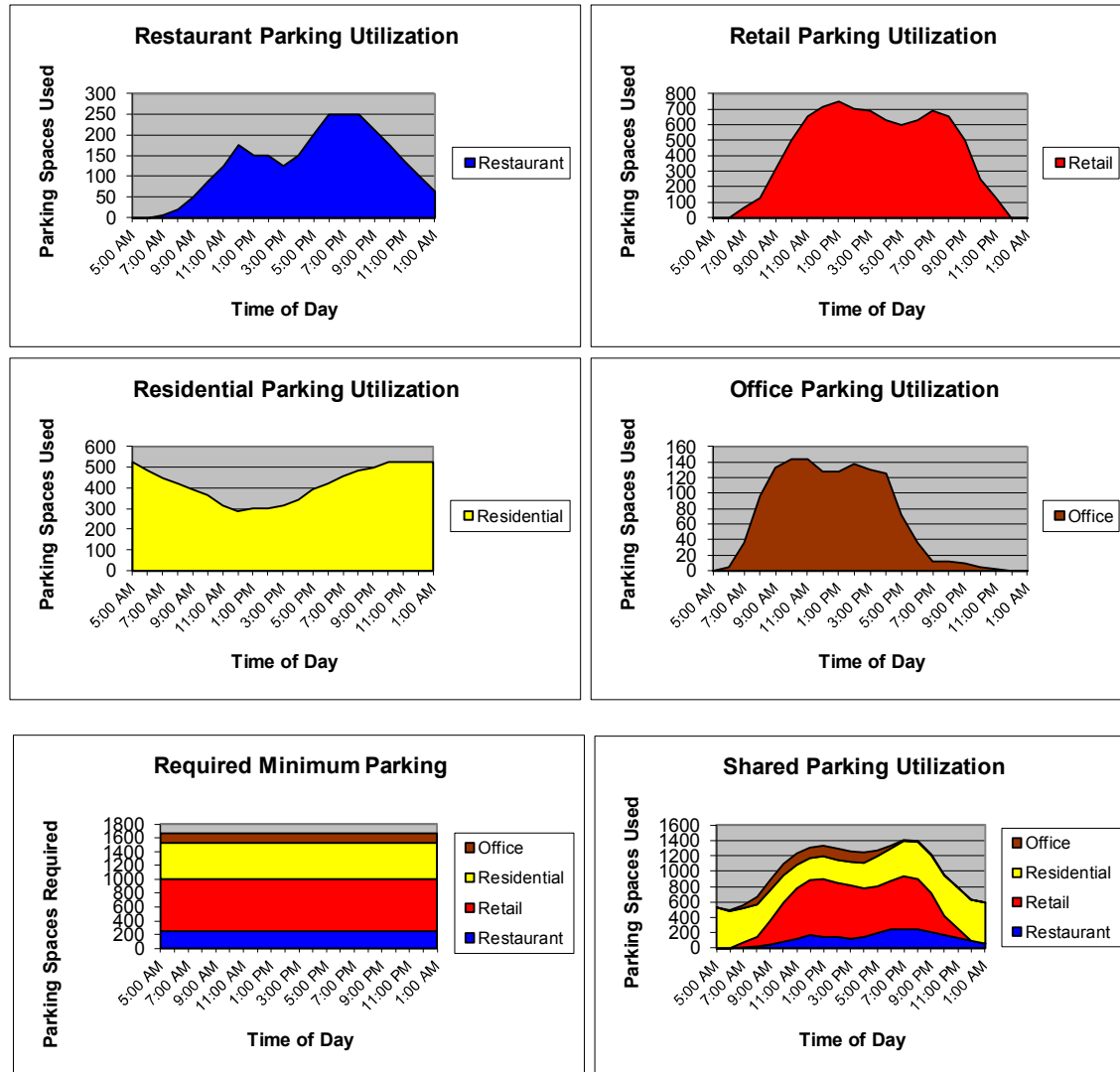
Exhibit 1-18 is an example showing daily parking for patterns for restaurant, retail, residential, and office land uses, the minimum number of parking spaces according to the standard for each land use, the combined demand for parking through the day, and the calculations for determining the number of shared parking spaces required to satisfy the demand.

The example indicates that applying typical Zoning By-law minimum parking standards for each land use results in a site parking requirement of 1,670 spaces. The shared parking approach requires 1,409 spaces, a saving of 261 spaces or 16 percent.

Exhibit 1-18 shows that shared parking achieves an estimated reduction in impervious cover of 7,747 sq. m, a significant saving and reduction in the environmental impact of parking. Such savings can be achieved on-site or on an area-wide basis.

Exhibit 1-18 – Calculating Shared Parking

How and When Each Use Type Utilizes Required Parking



	Size of Project	Parking Requirement	Spaces Required
Retail	300,000 (sq. ft. GFA)	2.50 (per 1000 sq. ft. GFA)	750
Restaurant	50,000 (sq. ft. GFA)	5.00 (per 1000 sq. ft. GFA)	250
Office	50,000 (sq. ft. GFA)	2.89 (per 1000 sq. ft. GFA)	145
Residential	350 (# bedrooms)	1.50 (per bedroom)	525

Results:

Total Spaces following Minimum Requirements: 1,670
Total Spaces if Shared Parking is Permitted: 1,409
Total Reduction in Spaces using Shared Parking: 261
(Estimated Reduction in Impervious Cover: 7,747 Sq. M)

Source: <https://metro council.org/Communities/Services/.../Shared-parking-calculator.aspx>

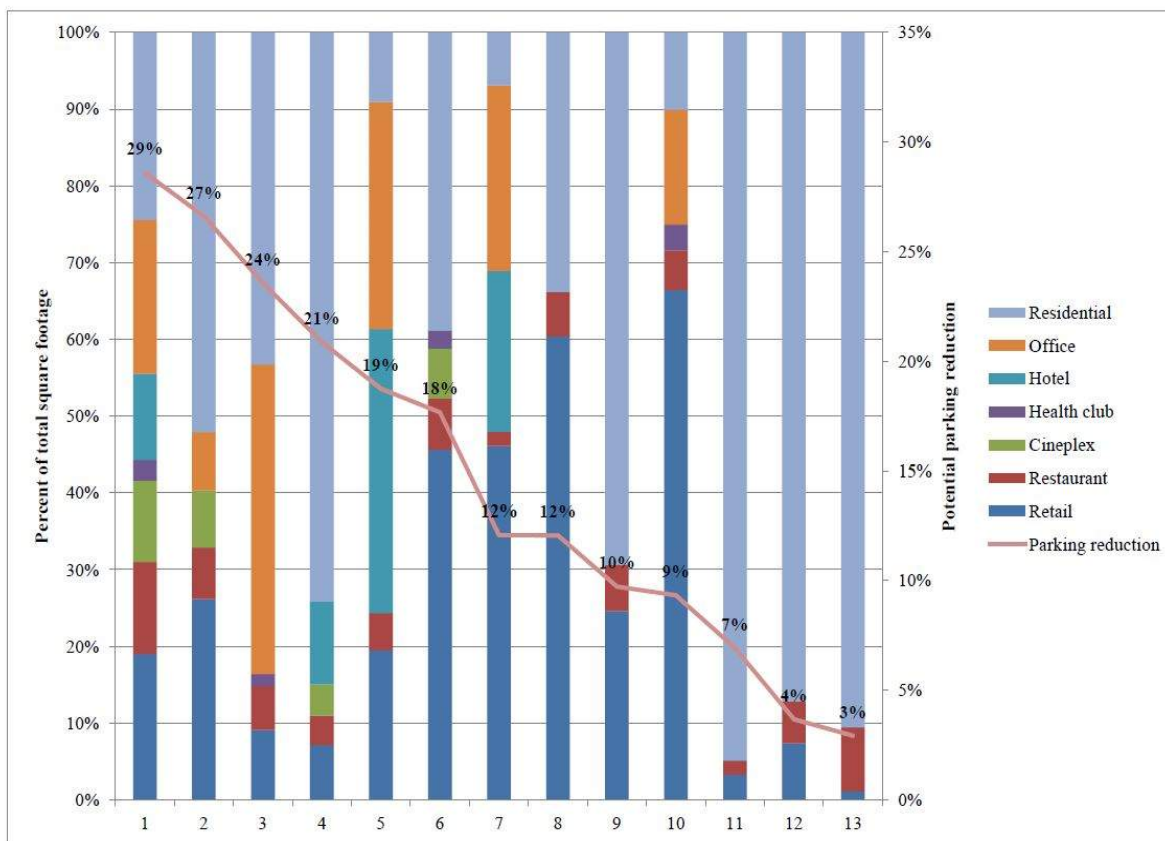
Exhibit 1-19 provides 13 case study examples of how shared parking can reduce the number of parking spaces required. The example is based on the ULI shared parking values. Each case study is based on different land use combinations.

The left vertical axis shows the percentage of total square footage. The right vertical axis shows the potential percentage reduction in parking space achieved by using a shared parking approach rather than a minimum parking standard approach.

There is great variation in the savings achieved in the different case studies. For examples, Case study 1 achieves a 29 percent reduction whereas Case study 13 achieves a reduction of 3 percent.

The case studies suggest that a diverse mix of uses can significantly reduce the number of parking spaces required in a development.

Exhibit 1-19 – Case studies Comparing Parking Requirements and Savings Achievable with 13 Land Use Combinations



Source: *Parking Strategies for Suburban Mixed-Used Developments*, Erin Michelle Puckett, 2013

The City of Mississauga understands the importance of shared parking and includes shared parking in the City's Zoning By-Law 0225-2007. Exhibit 1-20 shows the City's current shared parking table. The table identifies peak parking occupancy and is used to allow sites where the parking demand of different land uses peaks at different times to share parking spaces.

Exhibit 1-20 – Shared Parking Table, Zoning By-Law 0225-2007

Column	A	B	C	D	E
Line 1.0	TYPE OF USE	PERCENTAGE OF PEAK PERIOD (WEEKDAY)			
		Morning	Noon	Afternoon	Evening
1.1	Office / Medical Office / Financial Institution	100	90	95	10
1.2	Retail Centre / Retail Store / Personal Service Establishment (0379 – 2009)	80	90	90	90
1.3	Restaurant / Convenience Restaurant / Take-out Restaurant	20	100	30	100
1.4	Overnight Accommodation	70	70	70	70
1.5	Residential – Resident Residential - Visitor	90 20	65 20	90 60	100 100

Source: Zoning By-law 0225-2007, City of Mississauga, 2007

Retail areas are commonly involved in requests for shared parking in mixed-use developments. Exhibit 1-21 compares Mississauga's shared parking retail space occupancy rates for four weekday time periods with the rates adopted by seven other municipalities. The Exhibit also shows the eight municipalities' average occupancy rate for each time period and the industry standard ULI Shared Parking occupancy rate. Exhibit 1-22 presents the same data in a set of bar graphs.

Exhibit 1-22 show that the City's shared parking rate for retail is generally higher than the rate adopted by the other municipalities (especially in the case of the morning and noon hours. The City's rates are, however, 5 to 10 percent lower than the ULI rates.

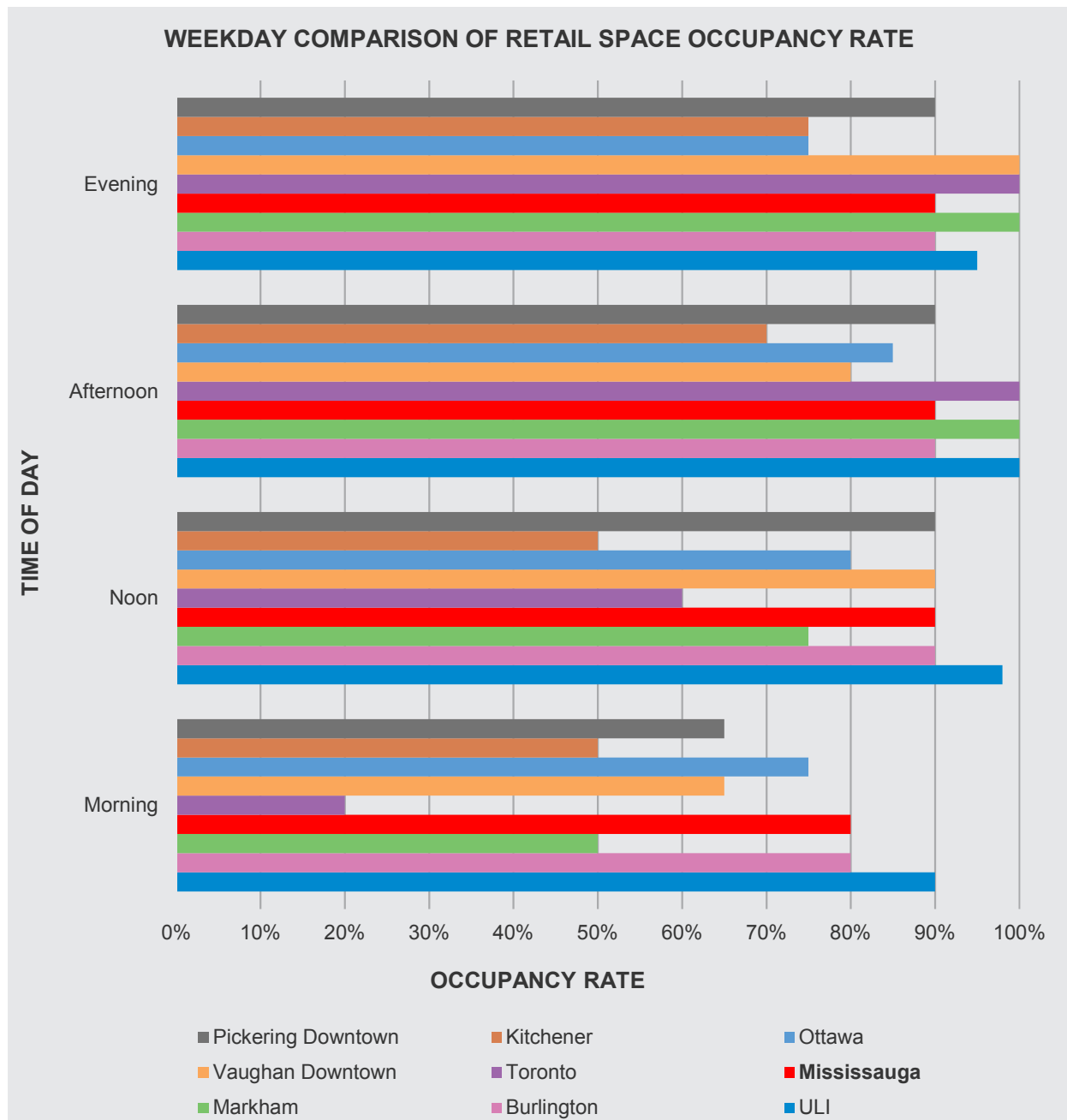
Further studies and investigations are needed to explain the reason(s) for the differences. These studies could be conducted during the Zoning By-law review. One possible reason is different definitions of individual land uses. It is clearly important to define land uses and land use categories clearly to avoid uncertainty in applying the parking rates. Fortunately, the City's is generally clear on parking percentages and shared parking for different land uses and land use categories. Some other municipalities are less clear.

Exhibit 1-21-Retail Space Parking Occupancy Rates for Four Weekday Time Periods: Comparison of Mississauga, seven Other Municipalities, and ULI Standard

Weekday Comparison of Retail Space Occupancy Rate				
Municipality	Morning (7:00-11:59am)	Noon (12:00-12:59 pm)	Afternoon (1:00-4:59pm)	Evening (5:00-9:00pm)
ULI	90%	98%	100%	95%
Burlington	80%	90%	90%	90%
Markham	50%	75%	100%	100%
Mississauga	80%	90%	90%	90%
Toronto	20%	60%	100%	100%
Vaughan Downtown	65%	90%	80%	100%
Ottawa	75%	80%	85%	75%
Kitchener	50%	50%	70%	75%
Pickering Downtown	65%	90%	90%	90%
Municipal Average	58%	76%	88%	90%

Source: *Municipal Zoning By-law*

Exhibit 1-22 – Retail Parking Weekday Utilization Comparison - Graph



Recommendations:

- The City's Zoning By-law review should examine current shared parking categories to determine whether additional land uses and land use categories should be added.
- The City should review current parking occupancy percentages to determine whether the percentages should conform to ULI percentages or be based on local rates derived from proxy surveys and or other local sources.

1.1.6 PAYMENT-IN-LIEU OF PARKING PROGRAMS

Payment-in-lieu (PIL) of parking refers to a program that relieves developers from building a portion of the parking supply stipulated in the Zoning By-law. Instead of providing the parking spaces, developers contribute to a fund intended to support the development of a centralized public parking lot or garage, or possibly other transportation improvements within the area. PIL is common in many cities' downtown and other urban areas where opportunities for building off-street parking are limited.

Payment-in-lieu policy is designed to support intensification by promoting modes of transportation that are more environmentally sustainable than driving. The intention is to reduce the need for parking spaces by encouraging people to take transit, walk, cycle or use ride-share services instead of driving to businesses and other destinations in the PIL area.

The key principle underlying PIL is the transfer of the responsibility to provide parking from the property owner to the municipality.

The factors considered when determining whether PIL is appropriate generally include one or more of the following:

- PIL will allow key planning objectives to be realized for the development and for the area.
- On-site parking is not physically possible or less desirable than shared public parking facilities.
- The local parking supply can accommodate the on-site parking deficiency without undue adverse impacts and without spill-over into residential areas.
- The municipality has developed a strategy to increase the supply of publicly accessible short-term parking in the area.
- The onus is on the applicant to justify PIL.
- The payment reflects an agreed portion of the cost of public parking assumed by the municipality.

A PIL program requires three elements to operate effectively:

- A PIL policy that lays out and adopts a consistent approach.
- A formal stipulation of the appropriate financial contribution from the body that administers the policy and collects the funds. An example might be a cost per parking space.
- A clear decision mechanism for the municipality's acceptance or rejection of each PIL application. The PIL application is usually part of the development application.

The following discusses PIL programs under four headings:

- Payment-in-lieu in Mississauga.
- Payment in lieu approaches in other Canadian municipalities.
- Comparison of Mississauga's payment-in-lieu fees with true cost of parking spaces.
- Application of payment-in-lieu in Mississauga and other Canadian municipalities.

PAYMENT-IN-LIEU IN MISSISSAUGA

The City's Payment-In-Lieu of Parking Program (effective April 2016) "permits a building owner or tenant to make an application to the City to provide payment-in-lieu of parking, exempting the owner or tenant from providing or maintaining parking facilities in accordance with the applicable Zoning By-law." The policy also states that "Monies accepted through the PIL program will be placed in the respective PIL reserve accounts and will be used for the acquisition, establishment and or maintenance of municipal parking facilities in the area from which funds were collected." The PIL Program is applicable in all areas of the city where municipal (on and or off-street) parking is provided. The City uses two evaluations schemes for PIL applications:

- Under **Part A**, an application for PIL is evaluated using criteria that assess the appropriateness of the proposed development and the adequacy of the existing public parking supply to offset the proposed on-site parking deficiency.
- Under **Part B**, the City may request PIL where limited or no municipal parking facilities are available. In this case, the evaluation will have regard for the City's interest in providing municipal parking, the viability of the site and its surrounding area during the interim before municipal parking becomes available, and the timing and adequacy of the future municipal parking supply to address the public parking needs to be created by the application of PIL.

The Planning and Building Department and its Commissioner are responsible for processing PIL applications, preparing the terms and conditions of PIL approval, and executing agreements for PIL of ten parking spaces or less. Authority from Council is required for the execution of agreements for PIL of more than 10 parking spaces. For applications not supported by the Planning and Building Department, a report from the Commissioner is prepared for consideration by the Planning and Development Committee and Council.

Exhibit 1-23 shows the PIL contribution formula for three categories of development.

Exhibit 1-23 – PIL Contribution Formula

Development Related to PIL Application		Developer/Proponent Contribution
Change in land use or conversion of an existing building/structure or part thereof.	Category 1: Up to 50 ² GFA	12.5% of the estimated cost of parking
	Category 2: Up to 200 ² GFA	25% of the estimated cost of parking
	Category 3: Over 200 ² GFA	50% of the estimated cost of parking
New development, redevelopment, and addition to existing building/structure		50% of the estimated cost of parking
The estimated cost of parking is based on the Planning Act Processing Fees and Charges By-law, and the Surface Parking Formula and Standard Parking Formula Contained in Appendix A of the Corporate Policy		

Note: GFA-Gross Floor Area

Mississauga's Planning Act Processing Fees and Charges By-Law 0160-2017, Schedule A to By-law 0160-2017 provides the required fee per parking space. The fee depends on the Category shown in Exhibit 1-23 and the location within the city.

The cost is estimated using formulae that consider: the construction cost of a surface or structured parking space; provisions for driveways, aisles, columns, and ramps; the estimated land value in the subject area; and the number of parking spaces for which PIL is sought.

Exhibit 1-24 summarizes the applicant's PIL contribution for a change in land use application.

Exhibit 1-25 summarizes the developer or proponent's PIL contribution for a new development application.

Exhibit 1-24 – Cost of Payment-In-Lieu per Parking Space in Land Use Applications

Payment-In-Lieu (PIL) of Parking (including Delegation)						
Processing Fee		\$800.00/application				
(A) A Change in Land Use or the conversion of an Existing Building or Structure or part thereof:						
	Amount Payable Per Surface Parking Space		Amount Payable Per Above Grade Structured Parking Space		Amount Payable Per Below Grade Structured Parking Space	
Category 1: Where the gross floor area equals or is less than 50 m ² , 1.5% of the estimated cost of parking spaces	City Centre	\$1,776	City Centre	\$3,538	City Centre	\$4,788
	Port Credit	\$2,675	Port Credit	\$3,798	Port Credit	\$5,048
	Clarkson	\$2,365	Clarkson	\$3,708	Clarkson	\$4,958
	Streetsville	\$2,210	Streetsville	\$3,663	Streetsville	\$4,913
	Cooksville	\$2,055	Cooksville	\$3,618	Cooksville	\$4,868
	Other Areas	\$1,776	Other Areas	\$3,538	Other Areas	\$4,788
Category 2: Where the gross floor area exceeds 50 m ² but equals or is less than 200 m ² , 25% of the estimated cost of parking spaces	City Centre	\$3,552	City Centre	\$7,075	City Centre	\$9,575
	Port Credit	\$5,350	Port Credit	\$7,595	Port Credit	\$10,095
	Clarkson	\$4,730	Clarkson	\$7,416	Clarkson	\$9,916
	Streetsville	\$4,420	Streetsville	\$7,326	Streetsville	\$9,826
	Cooksville	\$4,110	Cooksville	\$7,237	Cooksville	\$9,737
	Other Areas	\$3,552	Other Areas	\$7,075	Other Areas	\$9,575
Category 3: Where the gross floor area exceeds 200 m ² , 50% of the estimated cost of parking spaces	City Centre	\$7,104	City Centre	\$14,150	City Centre	\$19,150
	Port Credit	\$10,700	Port Credit	\$15,191	Port Credit	\$20,191
	Clarkson	\$9,460	Clarkson	\$14,832	Clarkson	\$19,832
	Streetsville	\$8,840	Streetsville	\$14,653	Streetsville	\$19,653
	Cooksville	\$8,220	Cooksville	\$14,473	Cooksville	\$19,473
	Other Areas	\$7,104	Other Areas	\$14,150	Other Areas	\$19,150

Exhibit 1-25 – Cost of Payment-In-Lieu per Parking Space in New Development Application

Payment-In-Lieu (PIL) of Parking (including Delegation)					
(B) New Developments, Redevelopments, and Additions to Existing Buildings and Structures, 50% of the estimated cost of parking spaces					
Amount Payable Per Surface Parking Space		Amount Payable Per Above Grade Structured Parking Space		Amount Payable Per Below Grade Structured Parking Space	
City Centre	\$7,104	City Centre	\$14,150	City Centre	\$19,150
Port Credit	\$10,700	Port Credit	\$15,191	Port Credit	\$20,191
Clarkson	\$9,460	Clarkson	\$14,832	Clarkson	\$19,832
Streetsville	\$8,840	Streetsville	\$14,653	Streetsville	\$19,653
Cooksville	\$8,220	Cooksville	\$14,473	Cooksville	\$19,473
Other Areas	\$7,104	Other Areas	\$14,150	Other Areas	\$19,150
Full Payment	Lump sum payment as calculated with PIL Agreement, in accordance with the <i>Planning Act</i>				
Installment Payments	Upfront payment and a Letter of Credit with PIL Agreement, in accordance with the <i>Planning Act</i> : <ul style="list-style-type: none"> • Minimum upfront payment • A Letter of Credit to include the remaining payment(s) plus interest payment (based on prime rate plus 1.5% per annum) • Maximum payment period – three years • Maximum number of installments – three See Corporate Policy and Procedure, Policy No. 07-09-01 for details				

PIL payments up to \$15,000 are paid in one lump sum prior to the execution of the PIL agreement. For larger payments, requests for instalment payments are considered. PIL contributions are tracked by property in the City's Mississauga Approvals Express (MAX) system. Funds collected are placed in the respective PIL reserve accounts for use in the areas from which they were collected.

PAYMENT IN LIEU APPROACHES IN OTHER CANADIAN MUNICIPALITIES

PIL is not used by all municipalities in Canada, but many have adopted a PIL option. Examples of the various approaches include:

- **City of Barrie, ON:** Barrie has increased its PIL fees from \$2,500 to \$15,000 per space to cover 50% of the construction costs of each parking space. The fees are reviewed every five years. The income from the fees is intended to fund the construction of parking structures when parking occupancy rates approach 85% of existing parking supply.

- **City of Cambridge, ON:** Cambridge's PIL fees apply to commercial developments in the downtown core areas. (Cambridge has three downtown core areas: Galt, Preston and Hespeler). However, the PIL option is generally not applied as the City's zoning does not require parking in most of the core areas and the outer limits of the core area are permitted a 25% reduction in parking requirements. When the PIL option is applied, the City uses a fixed fee of \$10,000 per space. The PIL option is administered by the Planning Services Department and is not regularly reviewed. The City's Zoning By-law is under review and the PIL option will be included in the review.
- **City of Hamilton, ON:** Hamilton has a PIL option, but the option has not been exercised since 2004. Between 1989 and 2004, there were only ten applications. The PIL option has been only rarely used in the downtown core. Most developers/builders go through the Committee of Adjustment or rezoning applications to ask for variances (likely because costs are less). The City generally quotes approximately \$10,000 per parking space and charges the applicant half of the quote. Payments can be made in instalments. PIL funds are accumulated in a reserve fund, which can be used anywhere in the City (not just the area where the development has occurred).
- **City of Ottawa, ON:** Ottawa adopted a PIL policy in 1968. The goal of Ottawa's PIL option was not to increase the number of parking spaces, but to support alternative forms of transportation. Payment-in-Lieu applications were approved by staff if (1) the surrounding area could support the on-site parking deficiency; (2) site constraints legitimately limited the ability to provide parking; (3) the proposed development was not considered excessive for the site; (4) there was no negative impact on the liveability of adjacent residential areas; and (5) application was in line with other planning objectives. The City repealed its PIL By-law in 2013. A staff report in 2013 noted that it was more common for Ottawa to agree to reductions in parking through minor variances granted by the Committee of Adjustment or by Zoning By-law Amendments rather than through Payment-in-Lieu of parking options.

- **City of Calgary, AB:** Calgary had a PIL program until 2017. The City has a maximum planning requirement for downtown commercial parking of one space per 1,500 square feet/140 m² of gross floor area. The maximum is higher elsewhere in the City. Developers were only permitted to construct one-half of the required spaces. PIL for the remaining 50 percent were paid to the City to fund public parking spaces. The rate was increased from time to time by the City to reflect increasing costs. The PIL program was very effective as it guaranteed PIL income for many years during the downtown area's substantial growth. Public parking in Calgary is managed by the Calgary Parking Authority (CPA). (In 1994, the CPA was also empowered to enforce parking regulations.) Using PIL funds accumulated by the CPA since 1979, the City constructed more than 4,500 shared-use parking spaces (in three major parking facilities). These spaces are about 18 percent of the overall downtown supply.² There are no further plans to increase the downtown public parking supply.³ More than 10,000 park and ride spaces have been constructed in suburban areas as Calgary strives to encourage the use of higher order transit. A new parking policy adopted in 2017 as part of the Integrated Downtown – Transit Oriented Development Parking Strategy, abolished the PIL program.
- **City of Vancouver, BC:** Vancouver approves PIL of parking spaces under its Parking By-Law. PIL started in 1986 for industrial/commercial uses. Residential uses were added in 2009. Since 2015, the City has accepted \$20,200 per space, a fee “based on the present value cost to construct and maintain a parking space in City facilities less the present value of future revenue from the space.”⁴ The funds collected are placed in a Pay-in Lieu Parking Reserve until allocated to off-street parking or sustainable transportation infrastructure projects in support of walking and cycling. Vancouver sets parking minimums and maximums, and has also proposed a commuter parking ceiling 34,000 spaces in the downtown.⁵
- **City of Regina, SK:** Regina's Zoning By-law (Section 14; Section 3.15) includes PIL provisions which permit the City, at its own discretion, to waive all or part of the parking requirements in the Downtown Zone and the Dewdney Avenue Warehouse Zone. The PIL fees were stated in 1992 dollars: \$7,000 per waived space in the Downtown Zone, and \$2,500 per waived space in the Dewdney Avenue Warehouse Zone. With inflation adjustments, the 1992 values rose to \$11,000 and \$3,900 respectively. Parking requirements have been reduced by 50% in the Dewdney Avenue Warehouse Zone (mainly because of lack of space).⁶

² The city of Calgary, A Parking Policy Framework for Calgary, 2011, p. 6-6-7.

³ Calgary Parking Authority, “Is the CPA planning to add more parking spaces to the downtown core?” About the CPA Frequently Asked Questions, Online.

⁴ The city of Vancouver, “Application for Payment-In-Lieu of Parking at 219 East Georgia Street,” Administrative Report, April 27, 2015

⁵ Wali Memon, M.Eng., P. Eng, City of Vancouver Parking By-Law – A Recital of Sustainable Parking Policies, Paper presented at the 2009 Annual Conference of the Transportation Association of Canada Vancouver BC

⁶ City of Regina, *Official Community Plan - Part B.13 Warehouse District Neighbourhood Plan*, 2014, p. 9n.

COMPARISON OF MISSISSAUGA'S PAYMENT-IN-LIEU FEES WITH TRUE COST OF PARKING SPACES

The above Section's discussion suggests that most Canadian municipalities charge PIL fees that cover only a fraction of the full cost incurred when a municipality assumes the cost of providing public parking, but the PIL literature's view is that the fee charged should reflect the true cost.

Mississauga is unusual. The City has a robust PIL policy and PIL fees that vary with the type of parking facility and location to reflect the land value in the development for which the relief is sought.

However, Exhibit 1-26 suggests that the City's current PIL fees are well below the cost of a space in an above or below ground structure. This may be due to underestimation of the land value. In the case of surface lot parking, current PIL fees appear to be higher than the cost of a parking space.

Exhibit 1-26 – Comparison Between Mississauga's Payment-In-Lieu Fees and Typical Capital and Operating Costs for Parking Spaces by Parking Type

Type	Mississauga PIL 50%	Mississauga PIL (100%)	Cost (\$ per space for capital)	Annual Operating Fee
Above Ground Structure	\$14,575	29,150	\$44,000	\$250-\$350
Above Ground Pre-Fab Steel	N/A	N/A	\$20,000	\$250-\$350
Below Ground Structure	\$19,575	\$39,150	\$62,500	\$350-\$500
Surface Lot Space	\$8,571	\$17,150	\$6,250	\$150-\$250

Source: Transform

APPLICATION OF PAYMENT-IN-LIEU IN MISSISSAUGA AND OTHER CANADIAN MUNICIPALITIES

The City of Mississauga currently applies PIL only to non-residential land uses. This is typical of the approach followed by other municipalities, but several jurisdictions now include residential parking in their PIL programs. The addition of residential parking would be particularly beneficial in mixed-use areas, locations where the City encourages non-auto trips, and locations where the opportunity cost of using land for parking is high especially when total societal costs are fully considered. To gain the benefits of PIL for residential parking, the City should consider adding residential land use to its PIL program. The issue can be investigated during the Zoning By-Law review.

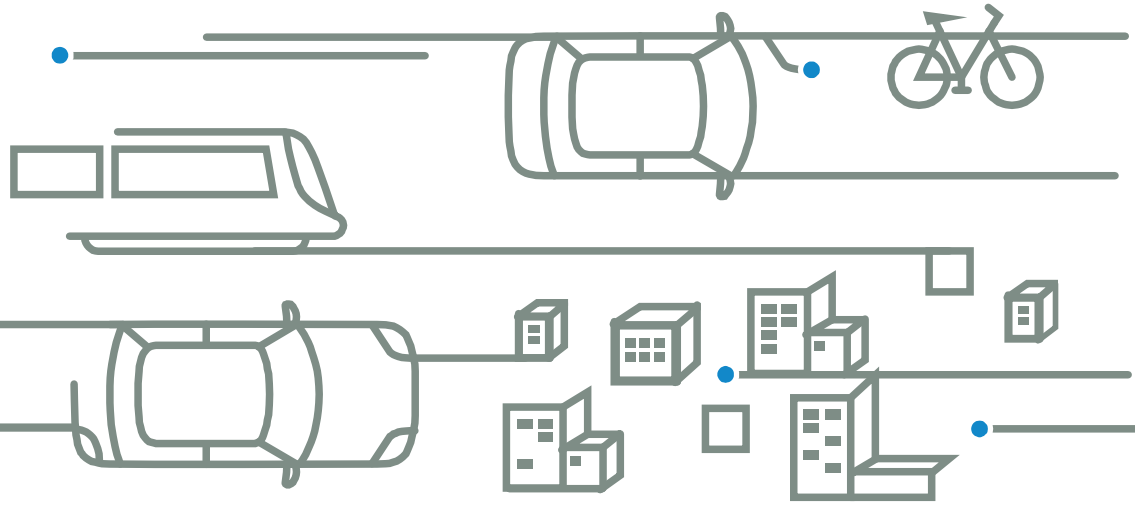
1.1.7 SUMMARY

Apart from downtown, Mississauga's current Zoning By-law for minimum parking requirements applies to the entire city. Existing requirements do not reflect the City's vision for a city that is more multimodal and less dependent on car travel. The By-law's requirements do not account for:

- Availability and frequency of transit.
- Available off-site parking supply.
- Transportation Demand Management measures within an area.
- Maximum parking provisions for relevant land uses.
- Implementation of parking provisions based on a Precinct approach recommended.
- All these issues should be addressed.

Recommendations:

- If the Precinct approach is adopted, the City needs to incorporate the Precinct approach into the current Zoning By-law by making the appropriate revisions. The revisions should include updated parking rates for each land use on a Precinct basis. The City should also consider adjusting parking rates to take into account:
 - Locations with high transit service, good walkability, a good Active Transportation network, and public parking available.
 - Parking maximum be established for all Precincts.
- When reviewing and updating the Zoning By-law, the City should consider information sources such as:
 - Policy and Best Practices Review Mississauga Parking Master Plan and Implementation Strategy.
 - High Cost of Free Parking (Donald Shoup).
 - Mobility Hub Guidelines for the Greater Toronto and Hamilton Area, Metrolinx. 2011.
 - Parking Management, Strategies, Evaluation and Planning (Victoria Transport Policy Institute (2016).
 - Review of cities reforming minimum parking and introducing maximums (WSP, September 9, 2017).
- The City should review and revise the PIL program by:
 - incorporating current construction cost and land cost.
 - Including residential land use.
- The City should conduct:
 - Best Practice reviews of jurisdictions that are similar and have undertaken a comprehensive Zoning By-Law review of their parking requirements and implemented changes.
 - A series of proxy surveys to identify actual parking demand rates. The surveys should be conducted at key locations in Mississauga and jurisdictions with similar with mature transit service.



PARKING MATTERS



APPENDIX 4-1 ON-STREET PARKING REGULATIONS REVIEW

Mississauga Parking Master Plan and
Implementation Strategy (PMPIS)

1 ON-STREET PARKING REGULATIONS

1.1.1 ON-STREET PARKING

On-street parking is a critical part of addressing parking needs in the City. Three different sections of the Transportation and Works department manage on-street parking:

- Parking Enforcement administers short-term, long-term, blanket commercial, blanket residential, and accessible parking permits. Parking enforcement also generally takes the lead in relation to citywide By-law changes affecting parking on, for examples, holy days, holidays and overnight restrictions.
- Municipal Parking administers on-street paid parking, Public Daytime Parking Permits and the Industrial Permit Parking Program.
- Traffic Management administers the Traffic By-law and the Resident Parking Petition process (For example, Lower Driveway Boulevard Parking and 15-hour Exceptions)).

The spreading of on-street parking administration among multiple sections makes a balanced, consistent, coordinated, and holistic approach difficult to achieve.

Section 1.1.1 discusses on-street parking under three headings: The Traffic By-law, the resident parking petition process, and parking permits.

TRAFFIC BY-LAW

The City of Mississauga Traffic By-Law 555-00 governs all aspects of on-street parking including parking restrictions and enforcement, heavy vehicle parking, meter parking, and boulevard parking. The boulevard is defined as the portion of the driveway between the property line or sidewalk and the road.

The parking time limit on city streets is currently five hours unless otherwise stated, but the City can waive the five hours limit for maintenance activities or special considerations. The City can also temporarily remove signs prohibiting parking and stopping.

Accessible parking for disabled persons is provided in designated on-street parking spaces where a valid Disabled Persons Parking Permit issued by the Ministry of Transportation must be displayed in or on the vehicle. The maximum parking time for these spaces is 24 hours, and fees are waived for on-street meter parking during regular hours.

Heavy vehicles are not allowed to park on residential streets. The restriction is in the interest of safety, traffic flow, protection of the road pavement, and aesthetics. Any vehicle weighing more than 3,000 kg is defined as a heavy vehicle. School buses are an exception to the heavy vehicle restrictions.

Traffic By-law 555-00's regulations cover the following parking and curbside management topics:

- Standard Parking Prohibitions on City roads
- Standard Stopping Prohibitions on City roads
- Statutory Holiday Exceptions to Parking Prohibitions
- Permit Parking Regulations
- Angle Parking Regulations
- Off-Street Parking Lot Regulations
- Parking Meter Control and Parking Machines
- Commercial Motor Vehicle and Heavy Vehicle Parking Regulations
- Loading Zone Regulations (For example, Taxi, School Bus, Commercial Vehicle)
- Accessible Parking Regulations.

The Traffic By-law makes the following general provisions unless over-ridden by local signs:

- Parking for more than five hours is not allowed on City roads.
- Parking beyond the 5-hour limit is allowed between 8am and midnight and on all statutory holidays.
- Parking between 2am to 6am is prohibited year-round on City roads.
- Parking is prohibited in the boulevard.

RESIDENT PARKING PETITION PROCESS

Residents may request exceptions to the general provisions of the Traffic By-law and specific changes to the parking regulations on their street. The City's Traffic Management Section's Resident Parking Petition process administers the process.

To apply for a change in the existing by-law, a resident must obtain signatures of support from more than half of residents of the homes on the affected street. After receiving the petition and undertaking a detailed technical review of the request, the Transportation and Works Department advises the resident whether City staff support the request in which case the request can be processed. The process includes a formal questionnaire mailed to the homeowners. If at least 66% of the homeowners support the change, and if the Ward Councilor also approves the change, the Transportation and Works Department submits a report recommending the change to City Council.¹

Residents' requests typically include changes such as:

- Extending the 5-hour parking limit to 15 hours
- Allowing lower driveway boulevard parking
- Reducing local parking prohibitions

¹ https://www7.mississauga.ca/documents/tw/Parking_Petition_Information_Apr_2018.pdf

EXTENDING THE 5-HOUR PARKING LIMIT TO 15 HOURS

For 15-hour parking to be allowed, Traffic Management advises residents that to maintain two-way traffic, it may be necessary to prohibit parking on one side of the roadway. This restriction applies to most residential streets seeking 15-hour parking. To maintain proper sightlines, it may also be necessary to prohibit parking on curves and at intersections.

The City notes that 15-hour parking may:

- Be difficult to enforce.
- Impede snow removal, road maintenance and waste collection.
- Attract residents from adjacent streets which do not have 15-hour parking².



Source/Location: WSP/Mississauga

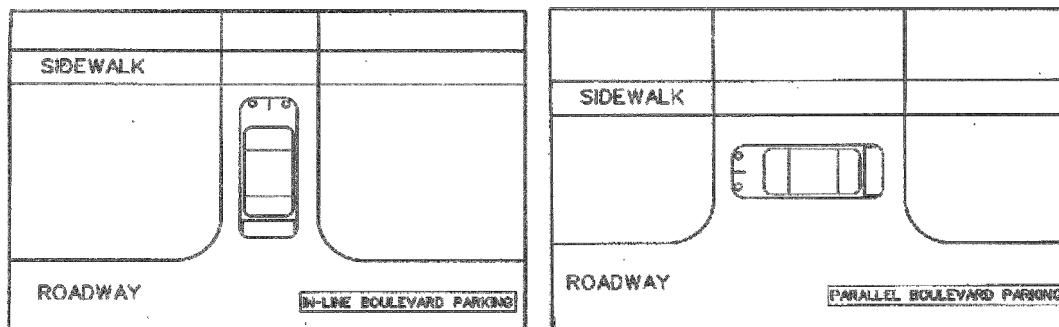
ALLOWING LOWER DRIVEWAY BOULEVARD PARKING

Traffic By-law 555-00 currently states that no person may park a vehicle on the paved or grassed portion of the city boulevard, and no person may park a vehicle in a manner that obstructs the sidewalk from pedestrian traffic. (The boulevard is defined as the portion of the driveway between the property line or sidewalk and the road.)³

An exception to Lower Driveway Boulevard Parking (LDBP) refers to allowing parking on the lower portion of the driveway located between the sidewalk and the roadway curb. A lower driveway must generally be 1.8m (6 feet) by 4.0m (13 feet) to ensure that a parked vehicle does not overhang the sidewalk, grassed boulevard or road. Major collector and arterial roads are not eligible for the LDBP prohibition exception.

Exhibit 1-1 shows correct and safe in-line and parallel vehicle positions in a lower driveway boulevard.

Exhibit 1-1 – Correct In-line and Parallel Parking in a Lower Boulevard



Source: Resident Parking Petition, City of Mississauga

² https://www7.mississauga.ca/documents/tw/Parking_Petition_Information_Apr_2018.pdf

³ http://www7.mississauga.ca/documents/bylaws/traffic_definitions_2013.pdf (Traffic By-law 555-00)

Exhibit 1-2 compares correct and parking in a lower driveway boulevard. Vehicles that extend into the roadway can be a safety hazard.

Exhibit 1-2 – Incorrect and Correct Parking in a Lower Boulevard



Source/Location: WSP/Meadowvale, Mississauga

REDUCING PARKING PROHIBITIONS

Residents can request the implementation or removal of parking on one or both sides of a roadway. The process is described earlier in the Resident Parking Petition Section.

PARKING PERMITS

The City of Mississauga issues six types of on-street parking permit:

- Temporary parking permits
- Public daytime parking permits
- Overnight permits
- Industrial parking permits
- Carshare parking permits
- Accessible parking permits

TEMPORARY PARKING PERMITS

Mississauga's temporary parking permits allow parking on an unsigned portion of a City street beyond the limits set by the Traffic By-law.

Exhibit 1-3 summarizes the validity period, number of vehicles permitted to park, reasons for permit request, approval time and fee for the City's various temporary parking permits.

Temporary parking permits are not available for heavy vehicles (vehicles weighing more than 3,000 kg), vehicles without license plates, vehicles with expired license plate stickers, trailers that are not attached to motor vehicles, vehicles displaying "For Sale" signs, vehicles that are not mechanically functional, school buses, and commercial coaches.

Exhibit 1-3 – Temporary Parking Permits

Type	Validity (from date of issue)	Number of Vehicles	Reasons	Approval time	Fee
Short Term Temporary Residential*	1 - 5 days	Maximum of 5	Overnight guests, driveway repairs, funerals, parties. License plate number of each vehicle required	Same day (where prohibited parking signs are not present)	No fee
Long-Term Residential	More than 5 days	Maximum of 5	Extended visitor stays, driveway repairs, renovations, etc. License plate number of each vehicle required	1-3 days depending on parking signs and whether an inspection of the proposed area is required	\$62.00 + HST
Blanket Commercial	Any	No maximum	Large commercial renovations, parking lot resurfacing, underground garage sweeping, parking lot resurfacing.	1-3 days Area is subject to inspection	\$124.00 + HST
Blanket Residential*	Greater than 5 days	No maximum	Large residential renovations, etc.	Within 2 weeks Area is subject to inspection	\$62.00 + HST
Carshare Permit	One month	One	Public use of car share	Within 2 weeks Staff approval required	\$65 + HST

Note: *Maximum of 14 per calendar year for a municipal address

PUBLIC DAYTIME PARKING PERMITS

The City offers Public Daytime Parking Permits as a monthly alternative to daily parking fees at the City Centre paid municipal parking facilities. A permit is \$65 a month and valid at the following locations at the following times:

- Civic Centre, Central Library and Living Arts Centre Garages, Monday to Friday 7am to 6pm.
- Sheridan College Hazel McCallion Campus Surface Lots, Monday to Sunday 7am to 11:59pm⁴.

The City also offers Bulk Parking as a monthly alternative to daily parking fees at the Living Arts Centre (LAC), City Centre and Sheridan College paid municipal parking facilities. The program offers a discounted daily rate of \$3 per visit.⁵

The Multi-Visit Card program is a third alternative to daily parking fees at municipal parking garages. The Multi-Visit Card is a pre-paid, reloadable card that can be loaded with a balance of up to 250 visits. The card is tapped on a Pay and Display machine to obtain an all-day parking receipt. The program operates in the Celebration Square North (Civic Centre underground), Celebration Square South (Central Library underground) and Living Arts Centre parking garages. The program is not available for on-street parking.

OVERNIGHT PERMITS

Overnight Permits are a monthly alternative to nightly parking fees at the City Centre's Sheridan College Hazel McCallion Campus (HMC) surface parking lots. The fee is \$65 per month, and the permit is valid during the following times:

- Monday to Thursday, 6 pm to 7 am
- Friday, 6 pm to Monday, 4 am⁶

INDUSTRIAL PARKING PERMITS

The Industrial On-street Permit Parking Program is available to businesses located in the City's Business Parks. Exhibit 1-4 shows the locations where the permits are valid. A limited number of permits is available for each Section of approved roadway. Permits are granted on a first-come, first-serve basis.

A business applies to the Municipal Parking Section which consults with Traffic Management and decides whether to grant a permit. The monthly fee is \$25, and the annual fee is \$250.

⁴ http://www7.mississauga.ca/documents/FormsOnline/Paid_Parking_Public_Daytime_Permit_and_Card_Purchase_2570.pdf

⁵ http://www7.mississauga.ca/documents/FormsOnline/Paid_Parking_Bulk_Purchase_2571.pdf

⁶ http://www7.mississauga.ca/documents/FormsOnline/Paid_Parking_Public_Overnight_Parking_Permit_Purchase_2601.pdf

Exhibit 1-4 – Locations where Industrial Parking Permits are Valid

Highway	Side	Location	Times of Day
Brunel Road	North	A point 260 meters (853 feet) east of Whittle Road to a point 90 meters (295 feet) easterly thereof	Any time
Brunel Road	South	A point 295 meters (968 feet) east of Whittle Road to a point 60 meters (197 feet) easterly thereof.	Any time
Century Avenue	West	A point 315 meters east of the North leg of Argentina Rd to a point 75 meters southerly thereof	Any time
Commerce Boulevard	East	A point 25 meters north of Citation Place to a point 75 meters northerly thereof	Any time
Explorer Drive	South	Explorer Drive from a point 70 meters east of Satellite Drive to a point 175 meters easterly thereof	Any time
Shuttle Drive	West	Explorer Drive and Matheson Boulevard East	Any time
Shuttle Drive	East	Explorer Drive and Matheson Boulevard East	Any time
Skymark Avenue	North	A point 115 meters east of Orbiter	Any time

CARSHARE PARKING PERMITS

Carsharing services have a fleet of vehicles that members can use on an hourly basis. Members reserve a vehicle online or by phone and can pick up the vehicle at a variety of locations. Carshare vehicles may include cars, pick-up trucks and vans.

- Numerous studies in the United States and Canada point to the following benefits of car sharing:
- Carsharing provides an effective way for people to have access to a vehicle without the obligations and ongoing costs of owning and maintaining a vehicle.
- Some households and businesses reduce their number of vehicles when shared vehicles are available.
- Carsharing could encourages the use of sustainable modes of transportation such as walking, cycling and transit for most everyday trips as a vehicle is available when needed.
- Transport Canada calculates that car-sharing members emit an average of 0.32 metric tonnes of carbon dioxide equivalents, about one-tenth of the emissions of an average driver.



Source/Location:
WSP/Mississauga City Centre

Two Carshare models currently operate in the Greater Toronto Area:

- **Round trip car sharing**, a car-sharing model that allows its members to undertake trips beginning and ending at the same location
- **Free-floating car sharing**, a car-sharing model that allows its members to undertake one-way trips that begin in one location, but end at a different location. The model is also known as point-to-point.

The City of Mississauga currently allows on-street parking for round trip carsharing models. The City offers nine on-street Carshare spaces (four for Zipcar and six for Enterprise). The Carshare services are charged \$65 a month for each Carshare space.

Exhibit 1-5 shows the location of Carshare spaces in Mississauga.

Exhibit 1-5 – On-street Carshare Locations



ACCESSIBLE PARKING PERMITS

Ministry of Transportation Ontario (MTO) issues accessible parking permits after a review of the application for eligibility. Anyone with an MTO issued permit can park in an accessible parking space or paid parking area without paying any parking charges, but permit holders cannot park on-street for more than the 5-hour limit.

The City can issue an Accessible Parking Permit to an individual with a valid provincial Accessible Parking Permit if that individual is unable to access his/her home due to driveway access restrictions such as the slope of the driveway and trees preventing a ramps). The City issued Accessible Parking Permit allows parking on the street in front of the individual's home.

Exhibit 1-6 – On-street Accessible Parking Spaces



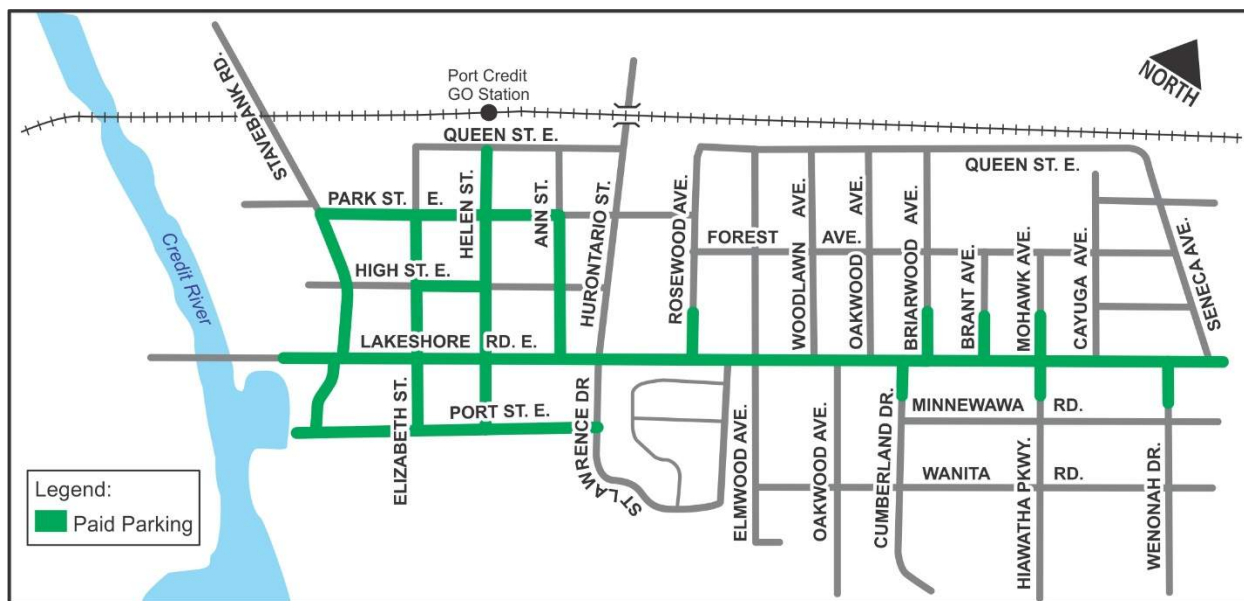
Source: City of Mississauga

1.1.2 ON-STREET PAID PARKING

Municipal Parking oversees public on-street paid parking in Port Credit, the Downtown, Streetsville, Clarkson, and Cooksville. This Section provides details of on-street paid parking in Port Credit and the Downtown (Exhibit 1-7 to Exhibit 1-11). The Section then summarizes on-street paid parking in Streetsville, Clarkson and Cooksville in Exhibit 1-11.

Exhibit 1-7 shows on-street paid parking areas in Port Credit. Exhibit 1-8 shows parking fees in Port Credit.

Exhibit 1-7– On-street Paid Parking Locations in Port Credit



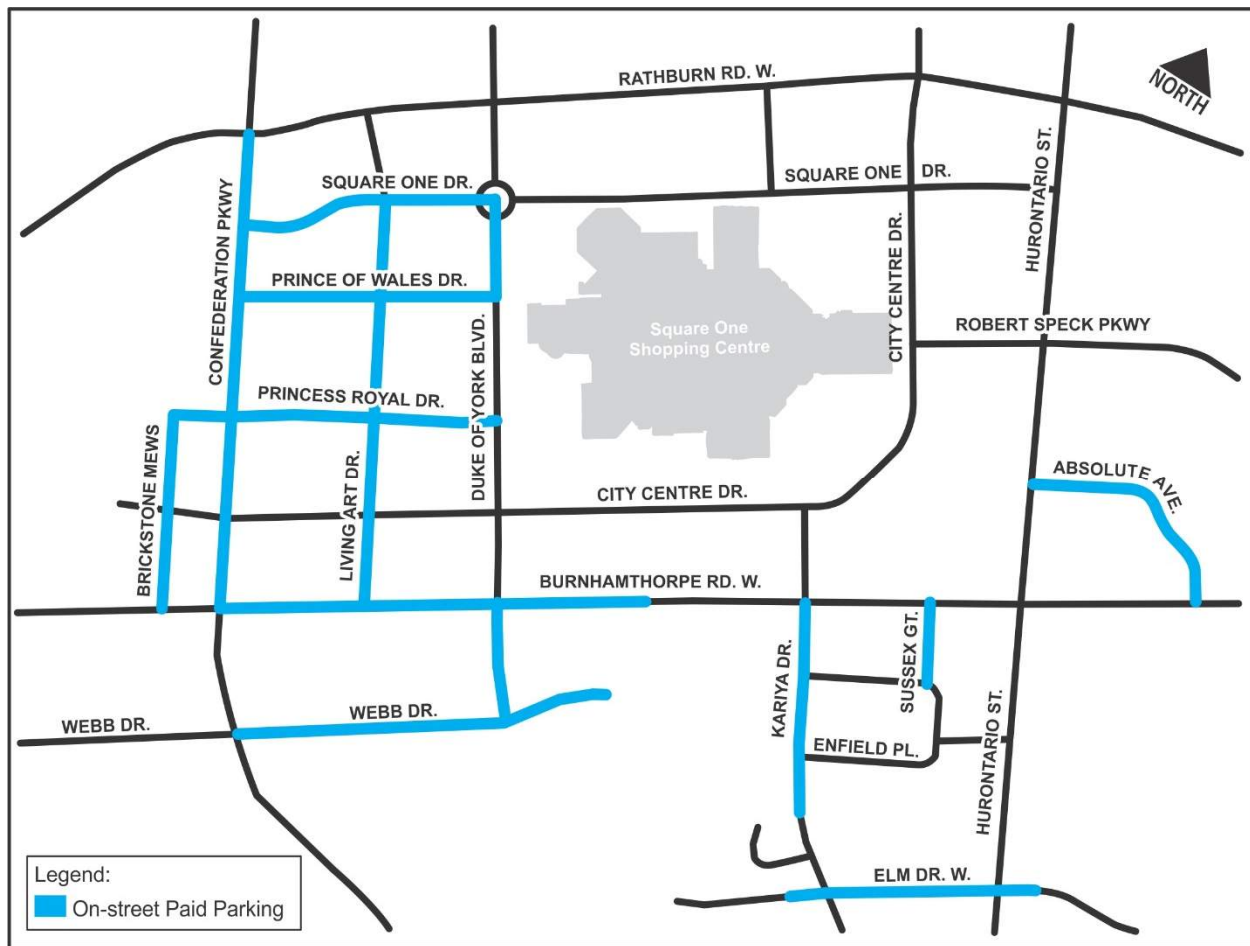
Source: Paid street parking, City of Mississauga, 2017

Exhibit 1-8 – On-street Parking Fees in Port Credit

Timing	Fees	Daily Fee
Monday to Saturday, 10am to 9pm Sunday, 10am to 6pm	\$1.50/hour for the first two hours \$2.00 for the third hour (3-hour maximum)	\$18/day (Monday to Saturday) \$13/day (Sunday)

Exhibit 1-9 shows the Downtown on-street paid parking areas. Exhibit 1-10 shows the parking fees in the different Downtown areas.

Exhibit 1-9 – On-street Paid Parking Locations in Downtown



Source: Paid street parking, City of Mississauga, 2017

Exhibit 1-10 – On-street Parking Fees in the Downtown

Location	Timing	Fees	Daily Fee
All locations except Brickstone Mews, Grand Park Drive, and Parkside Village Drive	Monday to Friday, 8am to 6pm Saturday and Sunday, 10am to 6pm	\$1.00 per hour (2-hour maximum)	\$15/day (Monday to Friday) \$13/day (Saturday and Sunday)
All locations	Overnight on-street Sunday to Thursday from 6pm to 8am and Friday and Saturday 6pm to 10am	\$1.00 per hour (5.00 maximum)	
Brickstone Mews, Grand Park Drive, Parkside Village Drive	Monday to Friday, 8am to 6pm Saturday and Sunday, 10am to 6pm	\$1.50/hour for the first two hours \$2.00/hour for the third hour (3-hour maximum)	\$21.50/day (Monday to Friday) \$18/day (Saturday and Sunday)
Brickstone Mews, Grand Park Drive, Parkside Village Drive	Monday to Friday, 8am to 6pm Saturday and Sunday, 10 a.m. to 6 p.m.	\$1.50/hour (4-hour maximum)	\$21.50/day (Monday to Friday) \$18/day (Saturday and Sunday)

Exhibit 1-11 provides details of on-street parking fees in Streetsville, Clarkson and Cooksville.

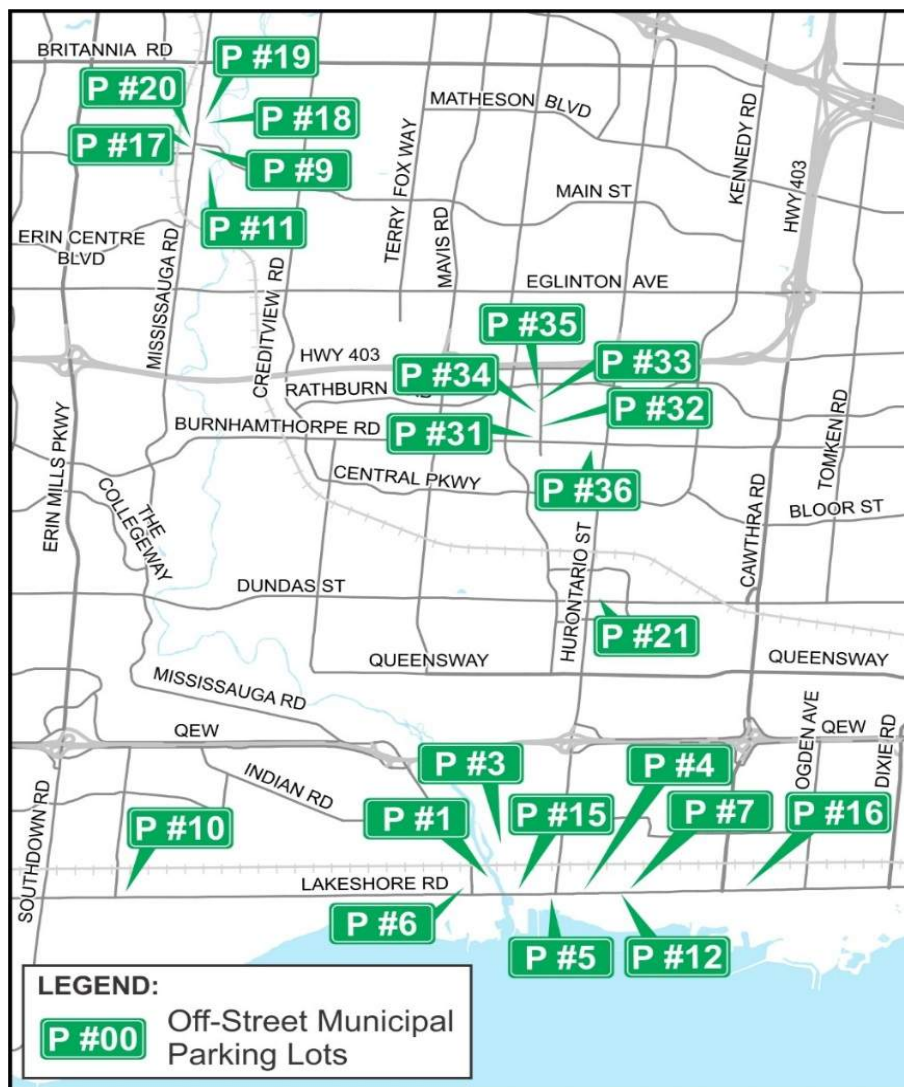
Exhibit 1-11 – On-street Paid Parking in Streetsville, Clarkson, and Cooksville

Location	Timing	Fees	Daily Fee
Streetsville (Queen St.)	Monday to Saturday, 10am to 9pm Sunday, 12pm to 6pm	\$1.50/hour for the first 2 hours \$2.00/hour for the third hour (3-hour maximum)	\$18/Day (Monday to Saturday) \$13/Day (Sunday)
Clarkson (Lakeshore Rd.)	Monday to Saturday, 10am to 5pm Except for Holidays	\$1.00/hour (2-hour maximum)	\$7/Day
Cooksville (Hurontario)	Monday to Saturday, 10am to 5pm Except for Holidays	\$1.00/hour (2-hour maximum)	\$7/Day
Cooksville (Sherobee Rd.)	Monday to Friday, 8am to 6pm Saturday and Sunday, 10 am to 6pm	\$2.00/hour (No maximum)	\$20/Day (Monday to Friday) \$16/Day (Saturday and Sunday)

1.1.3 OFF-STREET MUNICIPAL PARKING LOTS

Municipal Parking is responsible for the operation of 23 municipal parking lots with a total of 2,328 parking spaces. Exhibit 1-12 shows the location of the 23 lots in the Downtown, Port Credit, Streetsville, Cooksville, and Clarkson.

Exhibit 1-12 – Off-street Municipal Parking Lots



Source: Municipal parking lots and garages, City of Mississauga, 2017

1.1.4 OTHER MUNICIPAL OFF-STREET LOTS

The City also provides public parking at municipally owned facilities such as: parks and recreation areas; arts, culture and tourism centres; MiWay Transitway lots; fire stations; and the City Courthouse. Operation and maintenance of the parking lots varies by facility. (The lots are not the responsibility of Municipal Parking.)

The parking lots shown in Exhibit 1-13 are relevant to Mississauga parking policy as they are part of the total parking supply and the questions involved in establishing an appropriate number of parking spaces throughout the City.

Exhibit 1-13– Other Municipally-Provided Off-street Parking Locations

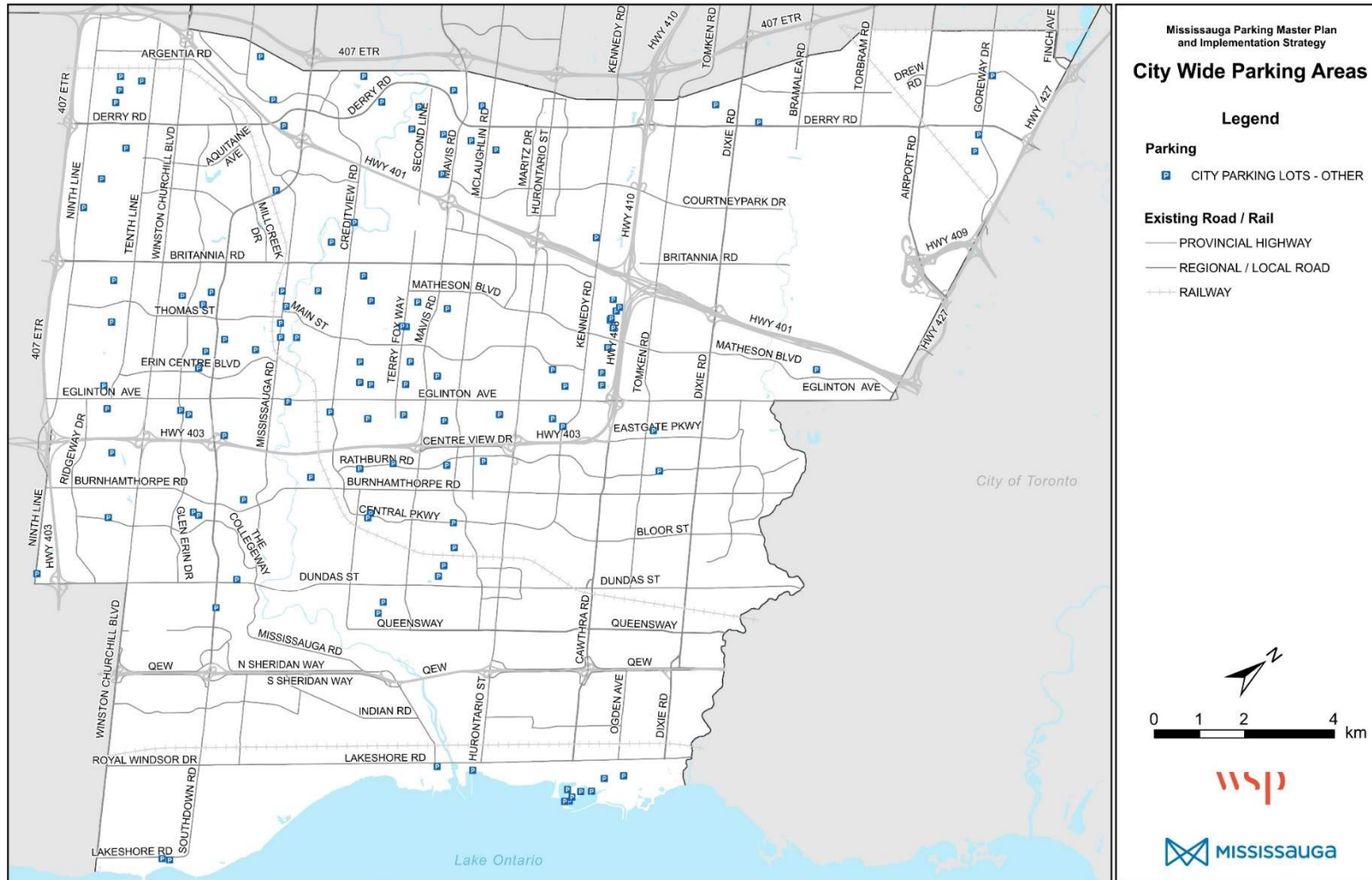


Exhibit 1-14 shows parking lots at Port Credit arena, and Exhibit 1-15 shows parking lots at Port Credit library.

Exhibit 1-14 – Parking Lots at Port Credit Arena



Source/Location: WSP/Port Credit Arena Parking Lot

Exhibit 1-15 – Port Credit Library



Source/Location: WSP/Port Credit Library Parking Lot

1.1.5 NON-MUNICIPAL PARKING FACILITIES

Various agencies also provide parking facilities in the City. These agencies are not parking operators, but some provide a large number of spaces as part of their operation. GO Transit is a good example. GO Transit is a regional transit agency, but it owns and operates nearly 70,000 parking spaces including 10,000 in Mississauga.

Other examples in Mississauga include the Peel School Boards, Trillium Health Partners (Credit Valley Hospital and Mississauga General), the Greater Toronto Airports Authority (GTAA), large retail establishments (For example, the malls), and large private parking operators.

Once a non-municipal parking lot is built, the City has limited influence on the lot's management.

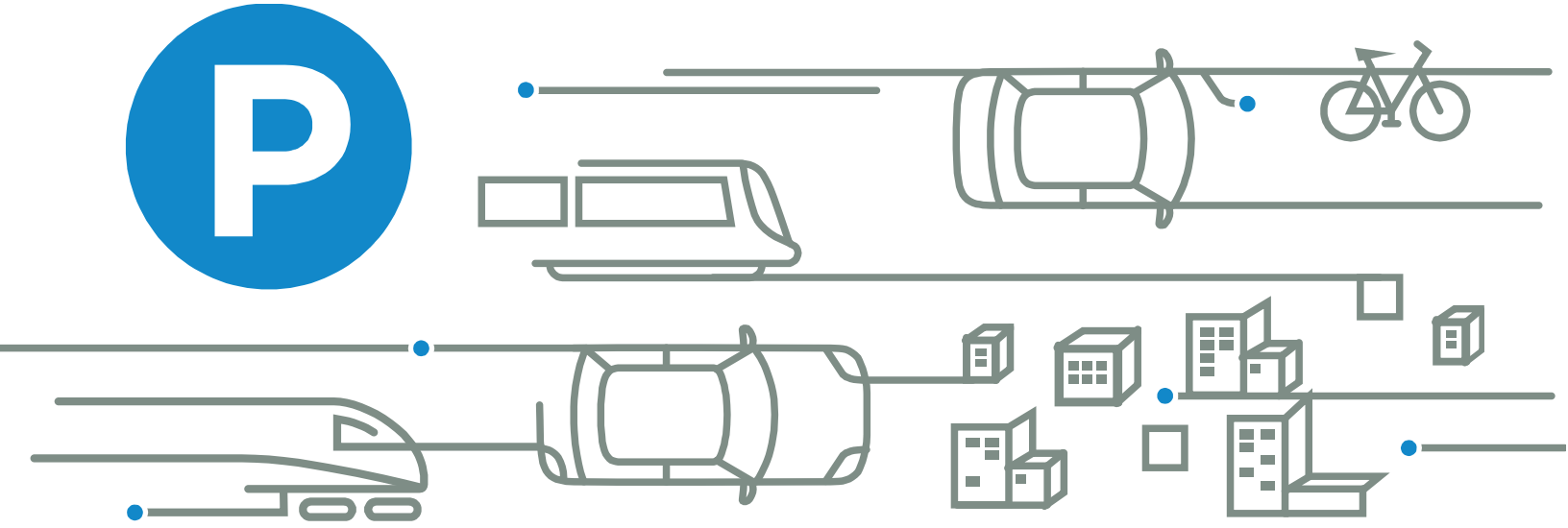
Exhibit 1-16 shows the GO Transit parking structures at Erindale GO station. Exhibit 1-17 shows the GO Transit parking structures at Clarkson GO station.

Exhibit 1-16 – Erindale GO Transit Parking Structures, Mississauga



Exhibit 1-17 – Clarkson GO Transit Parking Structures, Mississauga





PARKING MATTERS



APPENDIX 4-2 LOWER DRIVEWAY PARKING MEMORANDUM

Mississauga Parking Master Plan and
Implementation Strategy (PMPIS)



MEMO

TO: Hamish Campbell, City of Mississauga
FROM: WSP Group Inc.
SUBJECT: Lower Driveway Boulevard Parking Review- Revised
DATE: June 19, 2018

INTRODUCTION

As part of the Parking Master Plan and Implementation Strategy (PMPIS), WSP made preliminary recommendations that would impact the City's current policy on Lower Driveway Boulevard Parking (LDBP). Staff review of the recommendations resulted in differing options on the proposed change and in fact, suggested a reversal of the current policy. As such City staff requested a review of all the available options on this issue. WSP chose to address this request through a memorandum using examples from other Ontario municipalities. The intent of this memorandum is to provide context to a final decision to be included in the PMPIS.

Within this memorandum, City of Mississauga requirements, conditions and overall processes LDBP shall be discussed along with descriptions of how residents can currently apply for LDBP and the conditions under which it may be approved.

Lower driveway boulevard parking policy in several Ontario municipalities will be reviewed for comparison. This will include a sample of municipalities which provide boulevard parking through parking by-law exemptions, minor variance applications, or signed requests. A table of these options will be provided highlighting advantages and disadvantages of each. These options represent decisions the City may make moving forward on how to address LDBP.

The conclusion of our memorandum summarizes WSP's overall recommendations with respect to the future of LDBP in the City. This will be further reviewed with City staff before a final recommendation is provided in the PMPIS.

MISSISSAUGA LOWER DRIVEWAY BOULEVARD PARKING

Currently, the City of Mississauga By-law 555-00 states that no person may park a vehicle on the paved or grassed portion of the city boulevard, or park a vehicle in a manner that obstructs the sidewalk from pedestrian traffic (the boulevard is defined as the portion of the driveway between the property line or sidewalk and the road.)¹

Residents may request a change in the parking regulations on their streets. These requests include changes such as: having the 5-hour parking limit extended to 15 hours; allowing LDBP, or reducing other parking prohibitions. The Resident Parking Petition Information Package outlines the process for making changes to the existing regulations on parking in Mississauga. For these requests to be processed, residents must obtain the Resident Parking Petition Information Package from the City's website or call 3-1-1.²

¹ http://www7.mississauga.ca/documents/bylaws/traffic_definitions_2013.pdf (Traffic By-law 555-00)

² <http://www.mississauga.ca/portal/residents/parkingregulations>

To apply for a change in the existing by-law the requesting resident must obtain signatures of support from more than half of residents of the homes on the affected street. Upon receipt of the petition, Transportation and Works Department undertakes a detailed technical review of the request after which the resident is advised whether the request can be processed. As part of the process a formal questionnaire would be mailed to the homeowners, and if at least 66% of the homeowners support the change, and the Ward Councilor approves, a report recommending the change is submitted to City Council.³

The Resident Parking Petition states that lower driveways must be 1.8m (6 ft.) by 4.0m (13 ft.) in size so that a parked vehicle does not overhang the sidewalk, boulevard or the roadway. Vehicles that violate these requirements will receive parking tickets. In addition, lower driveway boulevard parking is not allowed on a major collector and arterial roadways.

REVIEW OF LOWER DRIVEWAY BOULEVARD PARKING IN SELECTED ONTARIO MUNICIPALITIES

A review was undertaken of several Ontario municipalities to determine their policy on LDBP, the process to obtain LDBP and the conditions typically imposed when LDBP is permitted. The review indicated most municipalities did not detail why an LDBP policy was established but most municipalities with such a policy:

- experienced some form of residential parking deficiency,
- lack of on-street parking,
- residents were parking in the lower driveway encroaching onto the sidewalk, overhanging the boulevard onto the roadway, obstructing sightlines,
- widening existing driveways, or
- parking in the front yards beyond city requirements and in violation of city standards.

Much of the same issues facing the City of Mississauga.

Municipalities were selected if they have a written policy on LDBP. Other information collected includes population, overnight on-street parking policy, vehicle ownership and percentage of single-family units. Some of these criteria were selected because they provide an indication of parking demand and others simply for completeness in the information about the municipality.

For example, population size and landmass are indications of municipal size; location by region provides geographical context on urban, suburban and rural composition but they are not major factors on LDBP policy.

The percentage of single-family units were selected because it is typically the housing stock that triggers LDBP. Vehicle ownership, the percentage of single-family and on-street parking speaks to potential parking supply and demand issues. Therefore, it is not surprising to see the municipality of Caledon with the highest vehicle ownership from those reviewed also has the highest portion of single-family units and does allow on-street parking and LDBP.

The municipalities have been placed into three groups in the way LDBP is handled. The first category includes municipalities that allow LDBP on the condition that a request is made or zoning exemption is granted. The second category pertains to municipalities where LDBP is completely prohibited. The third

³ https://www7.mississauga.ca/documents/tw/Parking_Petition_Information_Apr_2018.pdf



category describes municipalities that allow LDBP without the need for parking or zoning exemptions or requests. Table 1 summarizes the information for each selected municipality. The municipalities were sorted based on vehicle ownership and percentage of single-family units, as these were deemed to be the most equivalent comparison factors and an indication of parking demand.

The following section provides details of each municipality LDBP policy.

Table 1: Comparison of LDBP Policies in Reviewed Municipalities

No.	Municipality	Landmass (square kilometres)	Population	Region	Average No. of Cars per household (TTS 2016)	Percentage of Single Family Units	(A) LDBP Permit Required	(B) LDBP Prohibited	(C) LDBP Allowed	Overnight On-Street Parking
1	Woodstock	48.97	40,902	Oxford	N/A	57.83	x			Yes (not in winter)
1	London	420.35	383,822	Middlesex	N/A	56.03	x			Yes
3	Caledon	688.16	66,502	Peel	2.31	89.43			x	Yes(parking permit)
4	Wilmot	263.78	20,545	Waterloo	2.10	88.53			x	Yes(not in winter)
5	Clarington	611.40	92,013	Durham	2.06	82.75			x	Yes(parking permit)
6	Milton	363.22	110,128	Halton	1.94	69.21			x	Yes (parking exemption)
7	Pickering	231.55	91,771	Durham	1.93	72.41			x	Yes (not in winter)
8	Newmarket	38.45	84,224	York	1.87	67.72	x			Yes (parking exemption)
9	Ajax	67.00	119,677	Durham	1.86	71.42			x	No
10	Cambridge	113.01	129,920	Waterloo	1.86	66.04	x			Yes (not in winter)
11	Orangeville	15.61	28,900	Dufferin	1.81	72.07			x	Yes (not in winter)
12	Brampton	266.36	593,638	Peel	1.81	68.98			x	Yes (parking permit)
13	Markham	212.35	328,966	York	1.77	66.4			x	Yes (parking permit)
14	Burlington	185.66	183,314	Halton	1.77	55.91			x	Yes(parking exemption)
15	Waterloo	64.02	104,986	Waterloo	1.63	60.04		x		Yes (parking exemption)
16	Mississauga	292.40	721,599	Peel	1.61	49.22	x			Yes (parking permit)
17	Kitchener	136.77	233,222	Waterloo	1.57	54.43			x	Yes (not in winter)
18	Oshawa	145.64	159,458	Durham	1.56	64.09	x			Yes (not in winter)
19	Hamilton	1117.29	536,917	Hamilton-Wentworth	1.29	53.54	x			Yes (specific roadways)
20	Toronto	630.20	2,731,571	Toronto	1.05	30.84	x			Yes (parking permit)
	N/A: Not Available									
	<i>Sources: Transportation Tomorrow Survey 2016, Statistics Canada 2016</i>									

A) LOWER DRIVEWAY BOULEVARD PARKING WHERE A PERMIT IS REQUIRED

This group includes jurisdictions that allow LDBP with specific restrictions. It includes the Cities of Cambridge, Hamilton, London, Oshawa, Woodstock, Toronto, and the Town of Newmarket.

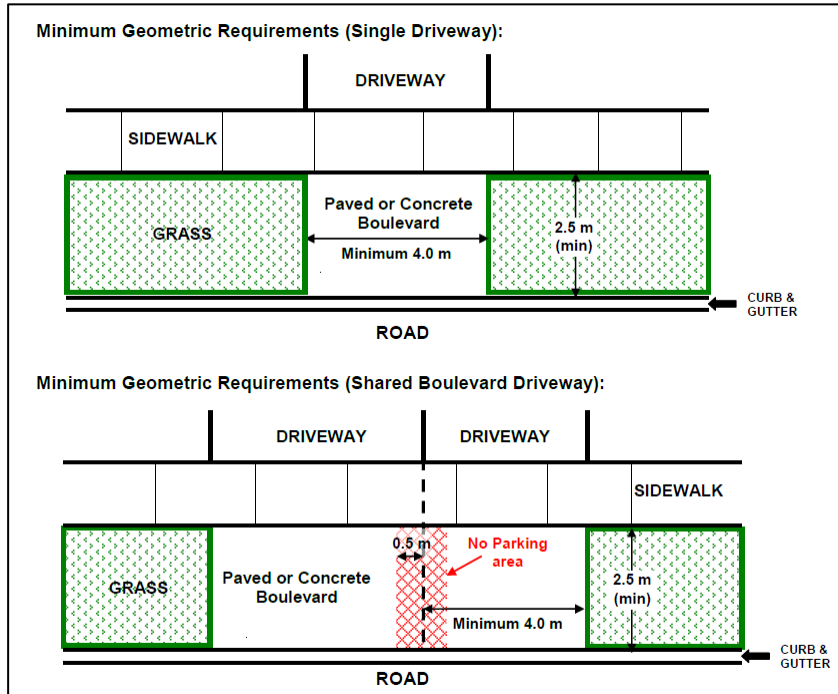
City of Cambridge

The City of Cambridge allows LDBP, with certain restrictions. Various streets are part of the Registered Residential Parking Program. This program utilizes a permit system that allows residents to park on a boulevard, a cul-de-sac, or have on-street parking extended to a maximum of 24 hours. Overnight on-street parking, during the early morning hours from 2:30 a.m. to 6:00 a.m. is not permitted between January 1 to March 15, and no exemptions are available.

Below are the criteria which the roadway must meet to allow for lower driveway parking:⁴

- Vehicles must park parallel to the road facing the direction of traffic.
- Vehicles must not park on the grass portion of the boulevard.
- 0.5 m of clearance must be maintained from the extension of the property line when parking on shared driveway aprons.
- Residents with corner properties with a driveway located on a side street are not eligible.
- Residences with driveways immediately adjacent to intersections, where parked vehicles may be a sight line obstruction, are not eligible.

Below is a diagram illustrating geometric requirements in the City of Cambridge regarding lower driveway boulevard parking.⁵



Source: City of Cambridge⁵

⁴ <https://www.cambridge.ca/en/learn-about/Parking.aspx>

⁵ <https://www.cambridge.ca/en/learn-about/resources/Lower-Driveway-Boulevard-Parking-Diagram-New.pdf>

A petition for a Registered Residential Parking Program must identify support of 51% of all property owners with frontage on the requested street for the application, (The standard used in Mississauga presently is 66%). Fifty-one percent support confirms the general support of the request, then an official questionnaire is issued by the City's Parking Division to all owners to confirm support after the petition has been processed. Once sufficient support has been identified based on the results of the questionnaire, and if the road meets geometric requirements, the Registered Residential Parking Program will be implemented. A notice will be sent to residents confirming the start date for the program.

City of Hamilton

Residents in Hamilton are required to register for a residential boulevard parking agreement. Residential boulevard parking agreements allow residents of Hamilton to establish parking spaces in their front, side or rear yards. Residential boulevard parking alleviates parking difficulties for residents who live in older areas where there are fewer driveways. Parking on the boulevard is permitted either entirely on the boulevard or partly on the private property. The minimum parking space dimension is 2.7m by 6.0m. A minimum clearance of 25.4cm is required between the rear of the parked vehicle and the sidewalk.⁶ Currently, there are almost 5,000 registered residential boulevard parking agreements in existence.

City of London

The City of London prohibits parking vehicles on the boulevard in residential areas unless with a successful minor variance from the Zoning By-law, at the Committee of Adjustment, or permission from Council. Criteria for approval include whether the exception conforms to the Official Plan and Zoning By-law and if the change is minor and in keeping with the surrounding area. If parking on the boulevard is granted the terms are set out in an agreement that is entered between the City and owner of property adjoining the boulevard. This agreement is called a Boulevard Parking Agreement Exception.

A condition of the boulevard parking includes a maximum of 1 boulevard parking space is provided per 1 legal dwelling unit. In addition, the length of the boulevard between the sidewalk and the roadway must be a minimum of 5.5m.

City of Oshawa

The City of Oshawa's Boulevard By-law states that parking must be on a private property, not the boulevard. The minimum length of a parking space is 5.75m and driveways cannot cover more than 50% of the property's frontage. Within the City's By-law, a boulevard refers to the portion of a highway between the property line and the edge of the travelled roadway, and may or may not include a sidewalk or driveway. No person is permitted to park over a boulevard unless the boulevard has been improved by the City for the purposes of parking, or the boulevard has been leased to private interests for parking purposes.⁷

City of Woodstock

Exemptions may be granted so that vehicles can park on a boulevard within a residential or commercial area in Woodstock. To be eligible the property; must not have a garage, there is less than 2.5m between dwelling and boulevard, and the property has an agreement with the City to lease parking space on the boulevard. Requirements include a request be submitted to the Engineering Department with a registration fee of \$50, a copy of the survey plan for the property, and a permit fee of \$2.75 per square metre.⁸

⁶ <https://www.hamilton.ca/streets-transportation/tickets-parking/residential-boulevard-parking>

⁷ <https://www.oshawa.ca/uploads/17/TrafficandParking-By-law79-99.pdf>

⁸ <https://www.cityofwoodstock.ca/en/residential-services/boulevard-parking.aspx>



City of Toronto

An off-street parking permit is required to park in a front yard or on part of the city boulevard. With approval from the Transportation Division, Right-of-Way Management Branch, residents may rent part of the city-owned boulevard to supplement space on private property.⁹ Chapter 918 of the Toronto Municipal Code, 918-2 Boulevard, provides more detail on the regulations as follows:

- A) No person shall construct, install or maintain all or a portion of a front yard parking pad on the boulevard unless the person has:
- (1) Obtained the consent of the City;
 - (2) Obtained all applicable permits required by the City;
 - (3) Paid all applicable fees as required by the City; and
 - (4) Entered into and is in compliance with an agreement in a form and content satisfactory to the City Solicitor and the General Manager.
- No motor vehicle may be parked in the driveway less than 0.3m from the back edge of the sidewalk, or where no sidewalk exists, not less than 2.0m from the face of the curb or edge of the roadway. **[Amended 2007-12-13 by Bylaw 1374-2007]**

Town of Newmarket

In the Town of Newmarket, parking and stopping are prohibited on the Town's boulevards unless one is exempt by a Town of Newmarket By-law. On the Town's website, residents can apply for a parking exemption to By-law Number 1993-62, which regulates parking within Newmarket.¹⁰ With respect to snow clearance, residents are reminded that parking on any roadway that would interfere with the clearing of snow is prohibited.

B) LOWER DRIVEWAY BOULEVARD PARKING PROHIBITED

No municipality was found to completely restrict LDBP, except for the City of Waterloo. It is our understanding that the City completely restricts LDBP (which consists of boulevard and apron), with no permit or exemption allowed. The City does provide a permit for on-street parking between 2:30 am to 6:00 am. WSP staff made several inquiries to the City to understand why the complete ban of LDBP but to date, we have not received a response, therefore, details on the justification for the ban, is not provided.

C) PERMITTED LOWER DRIVEWAY BOULEVARD PARKING WITHOUT PERMIT

This grouping presents jurisdictions that allow LDBP. They include the cities of Ajax, Markham, Brampton, Kitchener, Pickering and Burlington, the Towns of Milton, Caledon and Orangeville, the Township of Wilmot and the Municipality of Clarington.

City of Markham and Town of Ajax

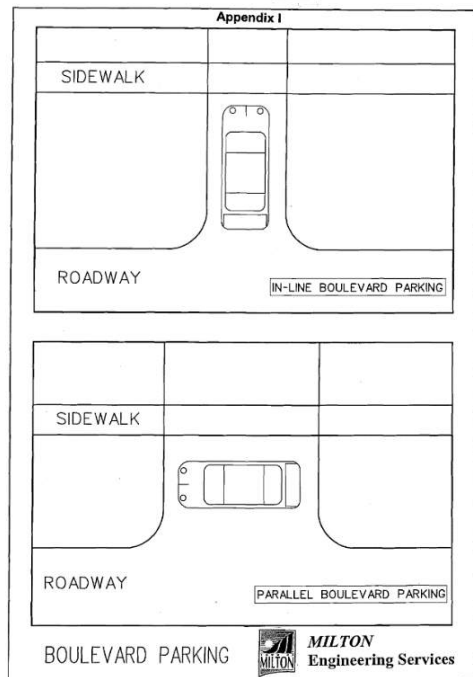
In the City of Markham and Town of Ajax, it is currently legal to park a vehicle on the boulevard without a permit, if the vehicle does not cross over the grassed portion of the boulevard, sidewalk, or roadway.

Town of Milton

⁹ <https://www.toronto.ca/services-payments/streets-parking-transportation/applying-for-a-parking-permit/residential-front-yard-boulevard-parking/>

¹⁰ <http://www.newmarket.ca/LivingHere/Pages/Parking%20Enforcement/Parking-Regulations.aspx>

Lower Driveway Boulevard Parking is permitted within the Town of Milton except within 50m of an intersection or within 3m of the curb line.¹¹ Restricting boulevard parking within 50m of an intersection is justified on the basis that it will increase driver safety, as it ensures clear sightlines for vehicles. It will also reduce the possibility of a right angle and turning movement collisions at intersections.¹² Below is a diagram that illustrates legal parking on a boulevard in Milton.¹³



Source: Town of Milton

Township of Wilmot

The Township of Wilmot has a boulevard parking program which applies from December 1 to March 31 every year. This permits vehicles to be parked on the paved portion of a boulevard, or apron subject to the conditions listed below:

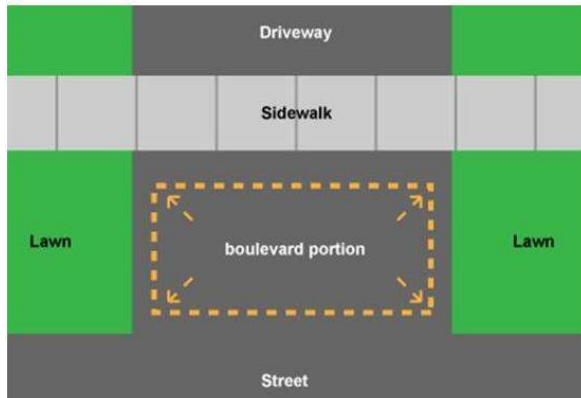
- Vehicles parked parallel to the road must be facing the direction of travel,
- Vehicles must not overhang onto the sidewalk or the roadway, and tires must be on the hard surface,
- Boulevard parking is not permitted within 1.5m of an intersecting roadway, and
- Vehicles must be parked on the paved driveway portion of the boulevard, not on the landscaped portion.¹⁴

¹¹ https://www.milton.ca/MeetingDocuments/Council/agendas2007/rpts2007/ENG-037_07%20Lower%20Driveway%20Boulevard%20Parking.pdf

¹² <https://www.milton.ca/MeetingDocuments/Council/agendas2012/rpts2012/ENG-016-12%20Boulevard%20Parking.pdf>

¹³ <https://www.milton.ca/MeetingDocuments/Council/agendas2007/rpts2007/ENG-009-07%20Boulevard%20Parking%20-%20Sightline%20Concerns.pdf>

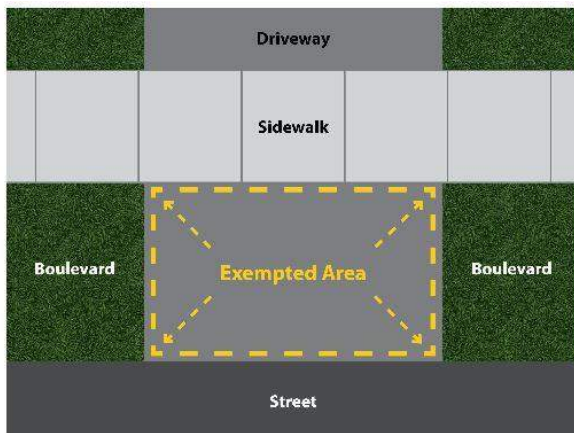
¹⁴ <https://www.wilmot.ca/en/living-here/boulevard-parking-program.aspx>



Source: Township of Wilmot

Town of Orangeville

Residents of Orangeville are permitted to park on the paved portion of a driveway between the roadway and sidewalk. Residents/motorists must ensure that their vehicle complies with Traffic By-law Number 78-2005 when parking on the exempted area as shown below. Violations are issued when a vehicle is parked beyond the paved portion of the entranceway – on the grassed portion, obstructing snow clearing, on or over a sidewalk, or is interfering with traffic.¹⁵



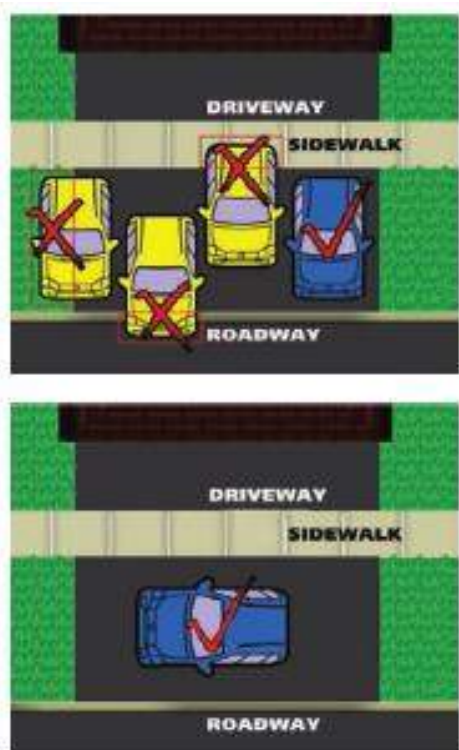
Source: Town of Orangeville

City of Brampton

In the City of Brampton, boulevard parking is permitted in residential areas, if the vehicle does not overhang the curb or sidewalk, block the adjacent roadway, or trespass on the grassed portion of the boulevard. Parking parallel to the curb is also another permitted form of boulevard parking, as seen in the diagram below.¹⁶

¹⁵ <https://www.orangeville.ca/news/2016/12/22/parking-permitted>

¹⁶ <https://www.brampton.ca/EN/residents/By-Law-Enforcement/Documents/By-Law%20Guide%202016.pdf>



Source: City of Brampton

Town of Caledon

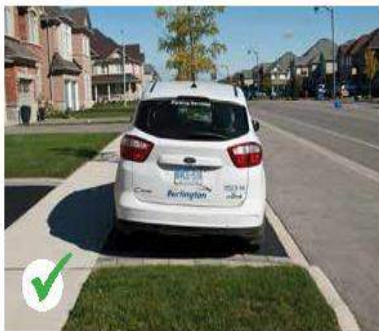
In Caledon, vehicles are not permitted to park in a manner that either blocks the sidewalk or overhangs the curb. If necessary, parking on the lower part of the driveway is permitted if the vehicle is parked parallel to the curb on the part of the driveway between the sidewalk and road. The vehicle is not permitted to park on the grass or landscaped area, nor is it allowed to block the road and sidewalk. Residents do not need to apply for a parking pass for on-street parking if they decide to park on a lower driveway.¹⁷ It is noteworthy that during winter months, parking on the lower driveway can be beneficial when on-street parking is banned in the event of a snow/ice event as this enables road operators to clear roads due to snow conditions.¹⁸

¹⁷ <https://www.caledon.ca/en/live/parking.asp>

¹⁸ <https://www.caledon.ca/en/townhall/winter-parking.asp>

City of Burlington

The City of Burlington permits resident parking on public boulevards. Vehicles are permitted to park on the paved boulevard section of a driveway, but cannot overhang on the roadway past the curb. Vehicles can also park parallel to the roadway on the boulevard. This is beneficial in areas where driveway parking space is limited. The following images illustrate legal boulevard parking in the City of Burlington.¹⁹



Source: City of Burlington

Municipality of Clarington

Within the Municipality of Clarington, boulevard parking in a residential area is permitted. However, no vehicle is permitted parked within 15m of an intersection, this is deemed both illegal and a safety issue due to sightline clearance concerns.²⁰

City of Kitchener

Boulevard parking is permitted in Ward 5 of Kitchener's southwest. This is due to the narrow lots, with reduced parking space in the Ward. City staff indicates that winter boulevard parking has not resulted in many issues. Other wards in the City do not permit boulevard parking.²¹

City of Pickering

Boulevard parking is permitted, as per Traffic and Parking By-law No. 6604/05, for two public highways listed within the City Schedule 13. Schedule 13 details the limits along these corridors and the times boulevard parking is permitted. In

¹⁹https://www.burlington.ca/en/services-for-you/resources/Transportation/Parking/18-005-TS-Parking-101-brochure---WEB-QUALITY_Jan-2018-Revised.pdf

²⁰ <https://www.clarington.net/en/live-here/resources/Parking/Corner-Parking.pdf>

²¹ <https://www.kitchener.ca/en/getting-around/parking-regulations.aspx>

general, the permitted times range from 5:00 a.m. to 2:00 a.m., and for a maximum of 3 consecutive hours. Boulevard parking is not permitted or authorized elsewhere.²²

SUMMARY OF COMPARISONS OF MUNICIPALITIES

Below provides a summary of Lower Driveway Boulevard Parking policies in the selected Ontario municipalities reviewed.

Lower Driveway Boulevard Parking provides additional parking spaces to residents whose driveway space is insufficient, or who owns more vehicles than their driveways can accommodate. Lower Driveway Boulevard Parking is also a viable alternative when on-street parking is not available or is limited.

Several municipalities examined in this memorandum allow LDBP. The most frequent requirement is that the parked vehicle does not overhang the curb, the sidewalk, or trespass over the grassed portion of the boulevard. In addition, the parked vehicles on these boulevards must not park too close to an intersection or in a manner that obstructs the sightlines for other drivers. These municipalities include Ajax, Markham, Brampton, Burlington, Caledon, Orangeville, Milton, Wilmot, Clarington, Kitchener, and Pickering.

Other municipalities reviewed do not permit LDBP to residents unless a zoning exemption or permit has been submitted to the respective municipality for approval. Cities that require an LDBP permit are London, Oshawa, Woodstock, Toronto, Newmarket, Hamilton, and Cambridge.

On-street parking is permitted within these municipalities but on certain conditions. For example, within Cambridge, Oshawa, and Woodstock, on-street parking is permitted except during the winter months to facilitate snow clearance. In Toronto and Newmarket, a parking permit or exemption is required. In Hamilton, on-street parking is permitted on certain roadways, and in London, it is currently permitted year-round with no permit necessary.

²² <https://www.pickering.ca/en/city-hall/resources/schedule-13-permitted-boulevard-parking.pdf>

ASSESSING LOWER DRIVEWAY BOULEVARD PARKING OPTIONS FOR MISSISSAUGA

The following section reviews the advantages and disadvantages of three LDBP policy options plus an on-street parking program for the City of Mississauga.

Table 2 summarizes the advantages and disadvantages of the various options of lower driveway boulevard parking that Mississauga can consider.

Table 2: Summary of Options for LDBP

OPTIONS	ADVANTAGES	DISADVANTAGES
Maintain LDBP By Petition	<ul style="list-style-type: none"> The city will continue to enforce current LDBP plan on residential areas. Councilors and neighbours will maintain control and determine if specific boulevard parking spaces are permitted. 	<ul style="list-style-type: none"> Consume City's time and use the resources required to process requests and enforcement. Fewer options for residents to park their vehicles. With growing demand, residents could illegally park their vehicles either on the boulevard or on-street.
Allow LDBP without Petition	<ul style="list-style-type: none"> More off-street parking spaces would be available; there would be no need for the City enforcement and permits regarding LDBP. More on-street parking spaces would be available for short-term use for visitors, as residents would have one more option in the form of LDBP. 	<ul style="list-style-type: none"> Some enforcement would still be required to ticket vehicles parked in the LDBP, in violation of the City requirements (overhang, safety etc.) Some residents may not like or approve of LDBP. Aesthetically, some residents may find this unattractive.
Do not allow LDBP	<ul style="list-style-type: none"> Boulevards across the municipality will be relatively safer since there would be more space for pedestrians/motorists without vehicles overhanging. Lower costs and resources spent on boulevard parking enforcement. 	<ul style="list-style-type: none"> Illegal LDBP parking could increase. More City applications and permits required for on-street short-term residential parking. A potential shortage of parking if no on-street parking program implemented.

Table 3 provides an alternative to lower driveway boulevard parking which is residential on-street parking.

Table 3: Alternative Option- Residential On-Street Parking

<p>Allow on-street parking</p>	<ul style="list-style-type: none"> • Need for LDBP could be eliminated. • Would help make the city streets narrower, and could slow down vehicular traffic.²³ • Even opportunity of parking among house types (single family, townhouse, semi-detached) 	<ul style="list-style-type: none"> • Non-area residents would park in residential areas closer to commercial areas, transit hubs, and hospitals. • Strategies (residential parking permits, enforcement) to mitigate parking of non-residents would be needed.
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In addressing the implementation of LDBP in Mississauga without the requirement for a signed petition, the City of Brampton offers a basis for comparison. Brampton is comparable to Mississauga in that both municipalities have similarly sized populations, with Brampton having 593,638 residents and Mississauga having 721,599 residents. The average number of vehicles per household is also comparable, with Brampton at 1.81 and Mississauga at 1.6.

Currently, in Brampton and several other municipalities, parking on the boulevard is permitted as per the parking by-law, provided the parked vehicles do not overhang the curb or adjacent sidewalk, nor block the roadway.

It would be reasonable to assume that Mississauga, with a population and vehicles per household average comparable to Brampton's or similar municipalities, could adequately provide lower driveway parking without the requirement for signed and approved parking exemptions in a residential setting.

Allowing parking on the lower driveway boulevard will provide several benefits:

- there would be more available short-term off-street parking for additional vehicles owned by residents or visitors, which eases the search process for parking spaces in areas that are limited to private driveways,
- as permits are required for on-street parking in various residential areas within Mississauga, LDBP without the need for a signed request would alleviate the restrictions on-street parking put on residents, providing an additional option where these permits are no longer required,
- during winter months, residents would not have to worry about interference with snow clearance for vehicles parked on the roadway. Many municipalities restrict on-street parking during snow clearance periods, and
- the City would spend fewer resources on regulating LDBP through petitions.

The conditions for which LDBP can be permitted without the current petitions in Mississauga should require certain conditions. It is imperative that both safety and legality concerns are addressed if non-restrictive boulevard parking is adopted across Mississauga. Limitations should include:

- The distance on parking from an intersection and from fire hydrant should be addressed and specified,
- The vehicle should be parked parallel to the direction of traffic, within a, specified distance from the property line, and
- Vehicle must not overhang the roadway, sidewalk, or grass portion of the boulevard.

²³ <https://www.smartcitiesdive.com/ex/sustainablecitiescollective/12-ways-slow-down-traffic-car-oriented-city/262221/>

CONCLUSIONS

This memorandum examined nineteen other Ontario municipalities, and their various approaches to LDBP. Common themes across the municipalities where LDBP is allowed with or without a permit, include requirements that the vehicle must be parked within the confines of the boulevard space, and not overhang the curb or sidewalk, or not cross over the grassed portion of the boulevard. Certain municipalities allow LDBP without a permit, and others do not, requiring a zoning exemption to proceed. It should also be noted that the municipalities assessed did not provide substantial evidence or information on why they came to the conclusions of implementing LDBP.

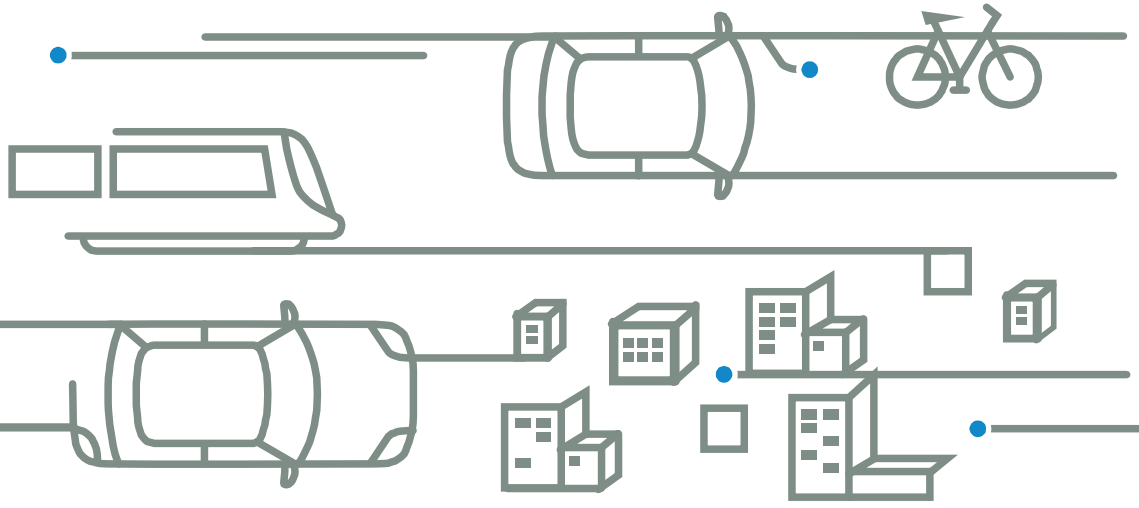
After examining the summary of examples, restricting LDBP entirely would be least desirable.

It was determined that Mississauga, would benefit from having the petition requirement removed for LDBP. The benefits include the availability of additional and convenient off-street parking for residents. However, boulevard parking would have to adhere to specific safety and legal precautions, such as distance from both intersections and respective property lines.

LDBP without a petition improves convenience and availability of parking for those seeking short-term off-street parking. Also, City parking enforcement personnel would not need to spend time and resources reviewing and granting permits. Given that safety and legal restrictions are met, (such as sightline clearance and property line distance, and the requirement that a vehicle does not trespass over the curb or sidewalk), it is both acceptable and advantageous to implement petition free LDBP in the City.

In areas where residential parking is still an issue, allowing on-street parking could fully address the residential parking demand. However, the City should conduct a detailed study to determine the locations where this would be appropriate.

In conclusion, the City should consider offering both LDBP (without a petition), and use an on-street Residential Parking Permit program to address parking shortages in some areas.



PARKING MATTERS



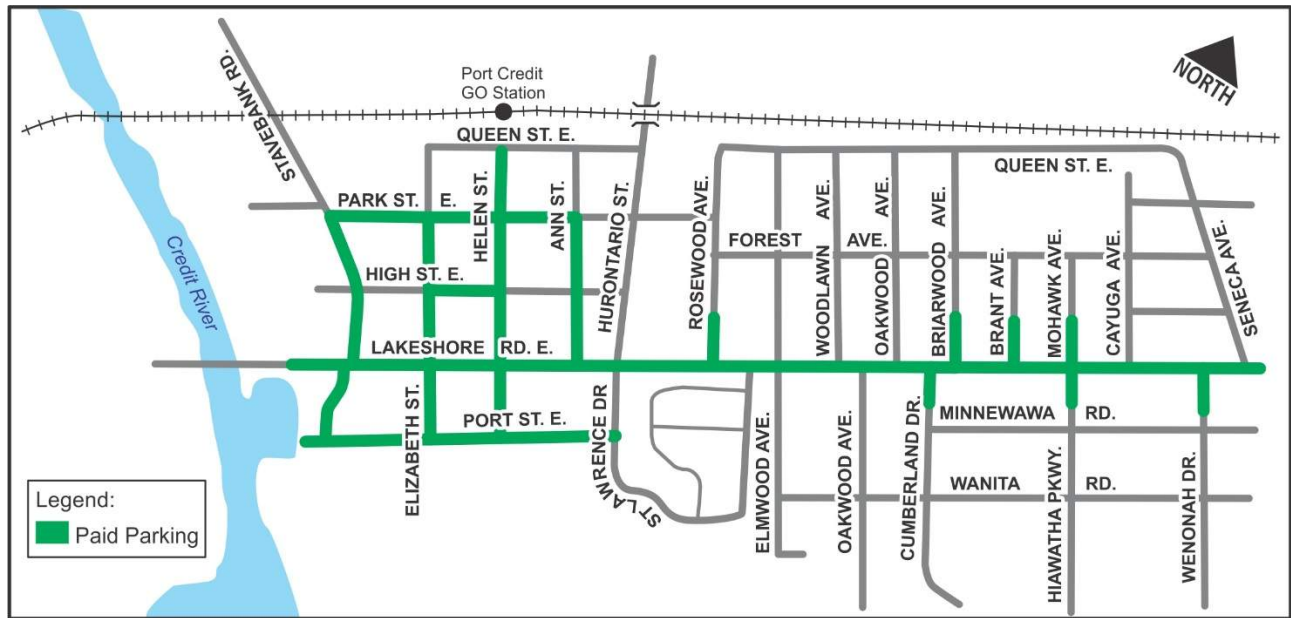
APPENDIX 4-3

ON-STREET PAID PARKING LOCATIONS

Mississauga Parking Master Plan and
Implementation Strategy (PMPIS)

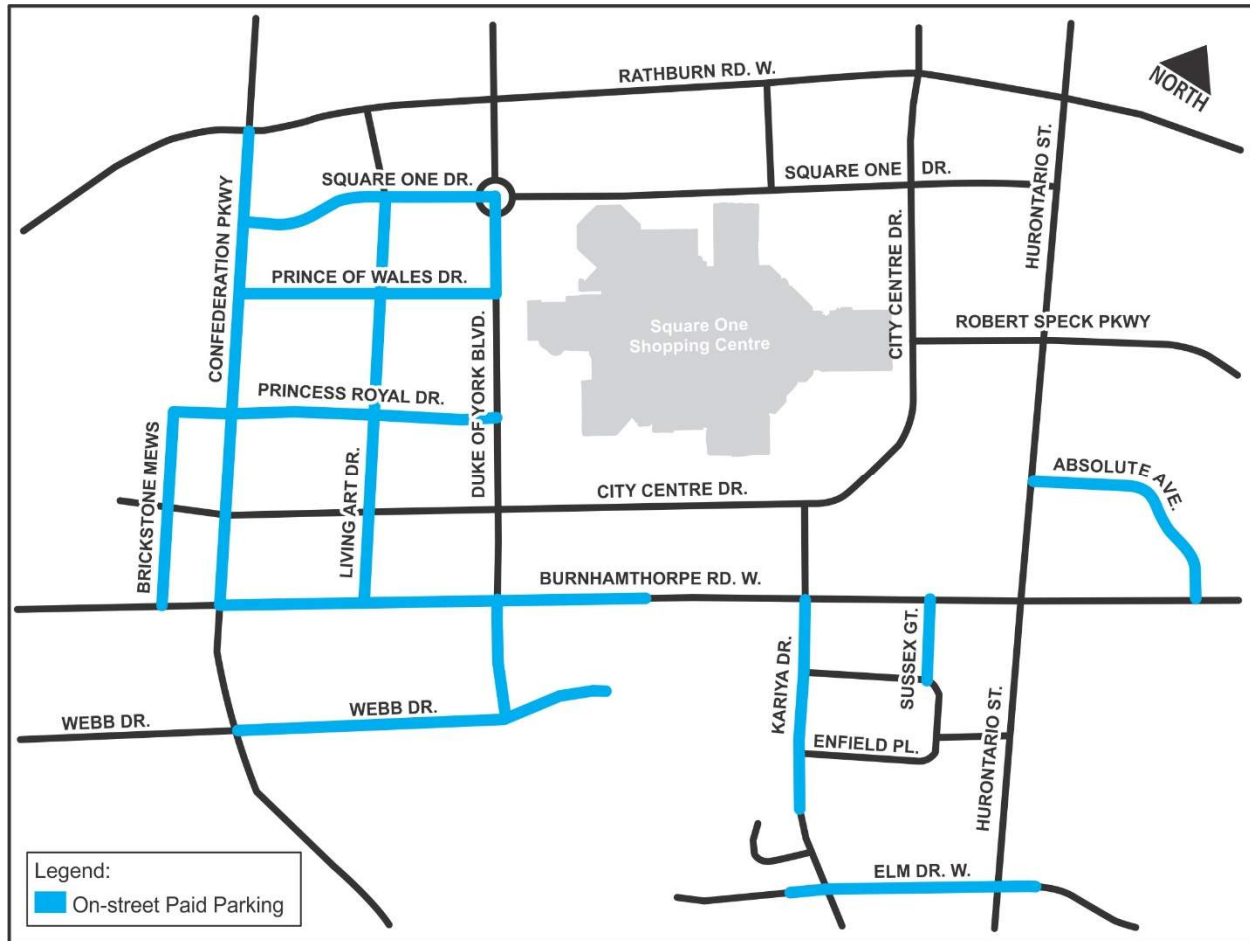
1 ON-STREET PAID PARKING LOCATIONS

Exhibit 1-1- On-street Paid Parking Locations in Port Credit

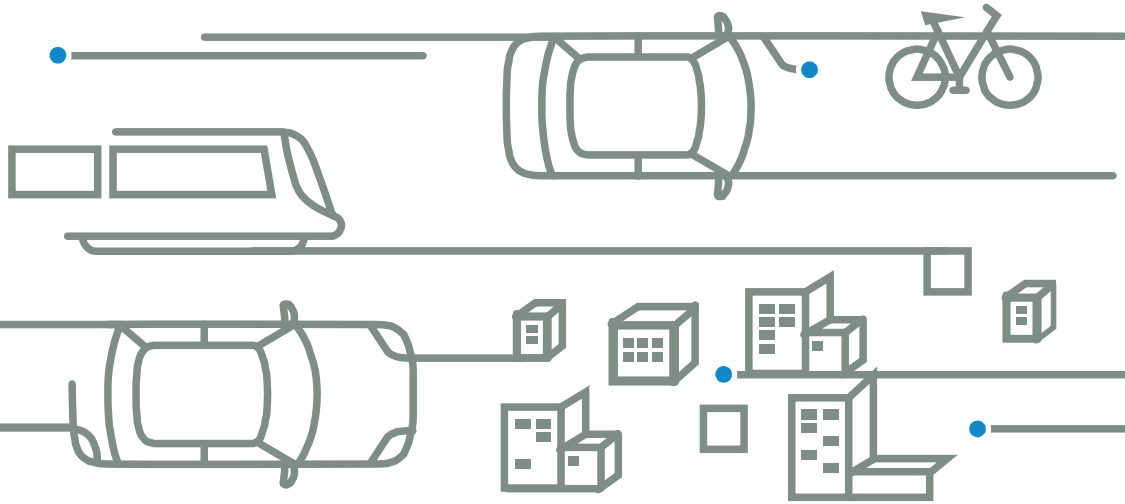


Source: Paid street parking, City of Mississauga, 2017

Exhibit 1-2- On-street Paid Parking Locations in Downtown



Source: Paid street parking, City of Mississauga, 2017



PARKING MATTERS



APPENDIX 4-4 SAFETY DESIGN REVIEW FOR PARKING LOTS AND GARAGES

Mississauga Parking Master Plan and
Implementation Strategy (PMPIS)

1 SAFETY DESIGN REVIEW FOR PARKING LOTS AND GARAGES

1.1 FUTURE DIRECTIONS – SAFETY

The Mississauga Official Plan (MOP) provides policies to safeguard the safety of the City's built environment and infrastructure and the Zoning By-law and building code are also concerned with safety, but there is little specific direction regarding the safety of parking facilities. City staff, however, expressed a desire to improve pedestrian and bicycle safety in parking facilities.

The Institute of Transportation Engineers (ITE) has published a report on pedestrian and bicycle safety in parking facilities (Pedestrian and Bicyclist Safety in Parking Facilities, 2017). The Chapter summarizes the report's best practices for pedestrian safety, bicycle and design standards for pedestrian and bicycle safety in parking facilities.

1.1.1 PEDESTRIAN SAFETY IN PARKING FACILITIES

The ITE report highlights slips, trips and falls in parking facilities as significant causes of injury. The report notes that research indicates that pedestrian injuries due to slips, trips and falls in parking facilities are far more common than injuries due to conflicts with moving vehicles. The design of pedestrian routes in parking facilities must clearly consider tripping hazards in addition to measures such as the separation of pedestrian and vehicular movements.

The ITE findings are discussed separately for parking lots and parking garages.

PARKING LOTS

Exhibit 1-2 to Exhibit 1-10 summarize the ITE findings regarding pedestrian safety issues and best practices for improving pedestrian safety in parking lots. The details in the Exhibits are presented under six headings: access into parking lot; ring roads; circulation roads; aisles; building frontage roads (BFRs); and slips, trips and falls.

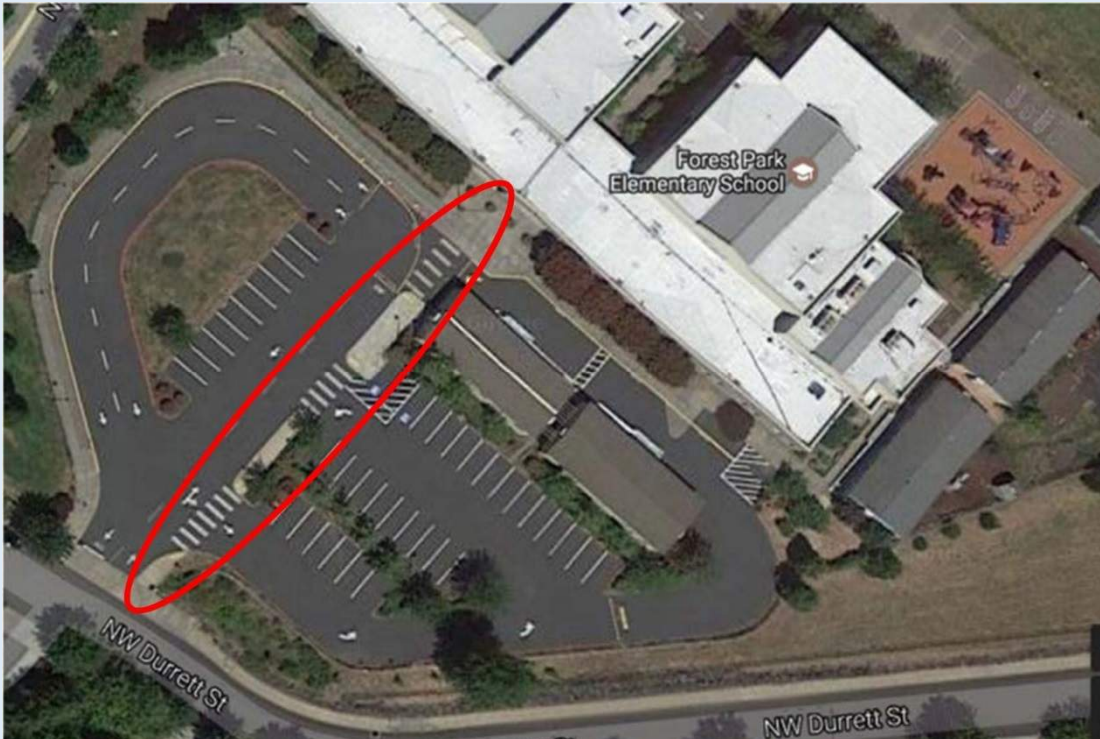
Exhibit 1-2 provide examples of best practices for non-continuous building frontage road, pedestrian access along extended driveways Exhibit 1-3), separated pedestrian paths (Exhibit 1-4), pedestrian access along centrewalks (Exhibit 1-5), circulation roads (Exhibit 1-6), aisle orientation (Exhibit 1-7), centrewalks with wide setbacks (Exhibit 1-8), decorative crosswalks across building frontage roads (BFRs) (Exhibit 1-9) and end island setbacks (Exhibit 1-10).

Exhibit 1-1 Best Practices for Enhancing Pedestrian Safety in Parking Lots

	Issue	Best Practice for Enhancing Pedestrian Safety
Overall Layout	Building Frontage Roads (BFRs) experience high pedestrian volumes (i.e. people walking between the building and parking area). To avoid potential conflicts, BFRs should not be the primary circulation route for vehicular traffic.	<p>Provide a circulation road (90 to 100m from the building) for motorists entering and exiting a facility.</p> <p>Provide a ring road with access to parking aisles.</p> <p>Design non-continuous BFRs to make them less convenient for site circulation. (See Exhibit 1-2)</p>
	Land use design impacts pedestrian and bicycle travel. Site design should aim to create walkable environments.	<p>Place buildings fronting onto the adjacent street.</p> <p>In a multi-building development, minimize the distance between buildings to facilitate pedestrian movement.</p>


Exhibit 1-2 Non-Continuous Building Frontage Road




	Issue	Best Practice for Enhancing Pedestrian Safety
Access into Parking Lot	Pedestrians need safe access across parking areas.	<p>Provide direct, visible pedestrian path(s) from the public street to the building. (See Exhibit 1-3)</p> <p>Design pedestrian paths that are separated from vehicular traffic (For example, by a raised surface) or clearly demarcated (For example, with distinctive paving). (See Exhibit 1-4)</p>
Exhibit 1-3 Pedestrian Access Along an Extended Driveway 		

	Issue	Best Practice for Enhancing Pedestrian Safety
	<p>Exhibit 1-4 Separated Pedestrian Path</p> 	
	<p>Avoid exposing pedestrians to high turning movements at internal intersections.</p>	<p>Consider providing a centrewalk (pedestrian path in the middle of a parking bay) instead of along an extended driveway. (See Exhibit 1-5)</p>
<p>Access into Parking Lot (Continued)</p>	<p>Exhibit 1-5 Pedestrian Access Along Centrewalk</p> 	


	Issue	Best Practice for Enhancing Pedestrian Safety
Ring Roads	Ring roads associated with shopping centres and larger land uses are typically multi-lane roads with vehicle travel speeds that put pedestrians at increased risk when crossing a ring road.	<p>Install high-visibility crosswalks across the ring road at appropriate intervals. Use rectangular rapid flashing beacons (RRFB) at crossings.</p> <p>On multi-lane ring roads, install advance stop markings 6 to 15m from the crosswalk to improve sight distance by motorists. Supplement advance stop markings with “Stop (Yield) Here for Pedestrians” sign.</p> <p>Use physical barriers (islands with landscaping or fencing) to funnel pedestrians to marked crossings.</p>
Circulation Roads	In commercial centres with buildings on outparcels or buildings flanking the main structures, circulation roads should be designed to accommodate pedestrian movement.	<p>Where appropriate, place pedestrian facilities such as sidewalks or other dedicated paths along circulation roads. (See Exhibit 1-6)</p> <p>In retrofit situations, pedestrian paths can be marked within the circulation road if there is adequate width.</p>

	Issue	Best Practice for Enhancing Pedestrian Safety
	Exhibit 1-6 Circulation Road 	
Aisles	<p>Most pedestrian/vehicle crashes involve motorists backing from a space or moving forward in an aisle.</p> <p>Consider 90-degree versus angled parking.</p>	<p>In parking lots with high turnover, give preference to 90-degree parking over angled parking. Advantages of 90-degree parking include lower conflicts with traffic in BFR, wider aisle width permitting greater separation between pedestrians and vehicles, and better visibility when exiting a parking stall in a forward motion (instead of backing out).</p>
	<p>Consider aisle orientation in relation to building from the pedestrian perspective.</p>	<p>Design drive aisles perpendicular to building frontage to aid pedestrian movement toward the building.</p> <p>When aisles are parallel to buildings, designate a path through the aisles to the buildings. (See Exhibit 1-7)</p>

	Issue	Best Practice for Enhancing Pedestrian Safety
<div> Exhibit 1-7 Aisle Orientation </div> <div> <p>LEGEND: — Pedestrian Flow — Path</p> <p>AISLES ALIGNED (Green checkmark)</p> <p>CROSS AISLE WITH PATH (Green checkmark)</p> <p>CROSS AISLE NOT ALIGNED (Red X)</p> </div> <div> Aisle width </div> <div> Aisles serve multiple users including vehicles, pedestrians and cyclists. </div> <div> For retail uses with high pedestrian and traffic volumes, design slightly wider aisle (For example, 8.5m) to provide greater separation between pedestrians, cyclists and vehicles. Wider aisles are appropriate only for the highest-use aisles directly in front of store entrances. </div>		

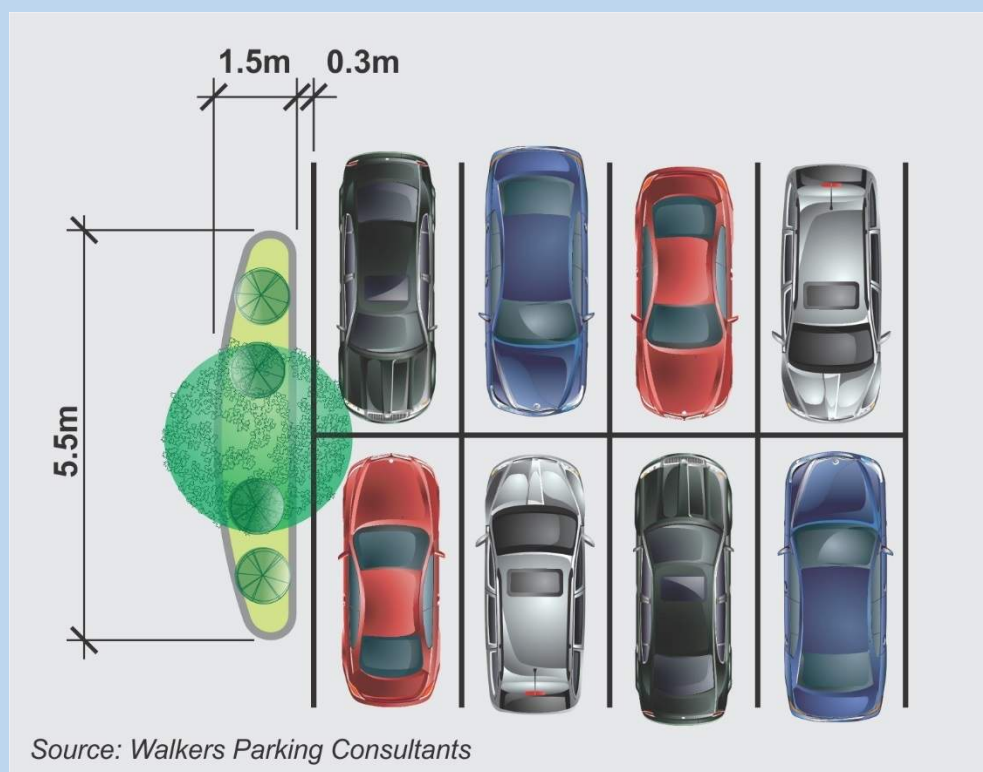
	Issue	Best Practice for Enhancing Pedestrian Safety
Aisles (Continued)	<p>Centrewalks</p> <p>Centrewalks are dedicated pedestrian paths along the centre alignment of a parking bay. While centrewalks remove conflicts between pedestrians and vehicles backing out of parking stalls, concerns include tripping on wheel stops, increased installation and maintenance costs, and practicality on sites with shopping carts.</p>	<p>In new developments, evaluate centrewalks on a case-by-case basis. Consider the benefits in pedestrian access and landscape enhancements against the costs, increase in impervious space, and maintenance requirements.</p> <p>Minimize the risk of tripping when designing pedestrian walkways. For example, favour surface treatments over vertical deflections along pedestrian routes.</p> <p>The centrewalk width is normally 1.2 to 1.5m. For centrewalks without wheelstops, add clearance for 0.6m of vehicular overhang on each side. (See Exhibit 1-8)</p>
	<p>Exhibit 1-8 Centrewalk with Wide Setback</p> 	

	Issue	Best Practice for Enhancing Pedestrian Safety
	Landscape divider strips	Consider landscape divider strips to break up large parking lot expanses so drivers cannot cut across empty aisles. The dividers also reduce conflicts with pedestrians.
BFRs	Higher traffic volumes on a BFR increase the potential for conflicts with pedestrians crossing the BFR.	Where a BFR may accommodate high traffic volumes, incorporate designs to minimize pedestrian-vehicular conflicts.
Building Frontage Roads (BFRs Continued)	A wide BFR encourages curbside stopping or standing and leads to sight distance problems, additional vehicular manoeuvres, and long pedestrian crossing distances.	Establish BFR width between 7.9 and 8.5m.
	Pedestrians take the shortest route to their car and do not always use crosswalks on the BFR.	<p>Position crosswalks strategically to provide a clear path to a parking aisle.</p> <p>At shopping centres with numerous entrances, stripe crosswalks at doors with high pedestrian activity, and at regular intervals in-between. Consider wider crosswalks that span more than one aisle for high-volume pedestrian crossing areas.</p> <p>Consider a crosswalk, preferably with high visibility markings, at the intersection of a BFR and an extended driveway or circulation road.</p> <p>Consider special treatments such as raised or decorative crosswalks to help motorists identify the designated crosswalk. (See Exhibit 1-9)</p> <p>Avoid speed bumps as they are a tripping hazard.</p>

	Issue	Best Practice for Enhancing Pedestrian Safety
	Exhibit 1-9 Decorative Crosswalk across BFR 	
Building Frontage Roads (BFRs Continued)	Sidewalks	<p>Provide a clear walking width (free of streetscaping and other obstructions) of at least 1.5m for all commercial uses, and at least 2.4m for large stores particularly where there may be shopping carts. Wider sidewalk widths may be considered where retail displays are present in the front of the building.</p> <p>Provide a sidewalk around the building to protect pedestrian movement to the different parking areas.</p> <p>Provide a raised sidewalk, but consider street level alternatives for settings with shopping carts.</p>

	Issue	Best Practice for Enhancing Pedestrian Safety
	<p>End islands</p> <p>When curbs are placed on stall lines, a pedestrian stepping from a car may trip or fall on an unnoticed curb.</p> <p>Landscaping on curbed islands may obstruct sightlines.</p>	<p>Place end islands at the intersection of BFRs and design aisles and circulation roads to reduce conflicts. Consider painted islands as an alternative.</p> <p>Where parking stalls are less than 3m wide, consider providing extra space from the nominal stall line to the curb. (See Exhibit 1-10)</p> <p>Maintain shrub heights of no more than 0.6 to 0.75m and tree canopy clearance of at least 1.8m above the surface to ensure adequate site distance.</p>

Exhibit 1-10 End Island Setback



	Issue	Best Practice for Enhancing Pedestrian Safety
Slips, Trips and Falls	Slips, trips and falls	<p>Reduce slips, trips and falls by incorporating:</p> <ul style="list-style-type: none"> – Lighting – Slip-resistant walking surfaces – Changes in elevation in compliance with requirements for accessible routes – Smooth speed humps marked with reflective and slip resistant strip (in accordance with MUTCD) and warning signs. <p>Reduce slips, trips and falls by avoiding:</p> <ul style="list-style-type: none"> – Use of wheel stops – Use of speed bumps – Use of other vertical deflections
Source: <i>Pedestrian and Bicyclist Safety in Parking Facilities, ITE, 2017</i>		

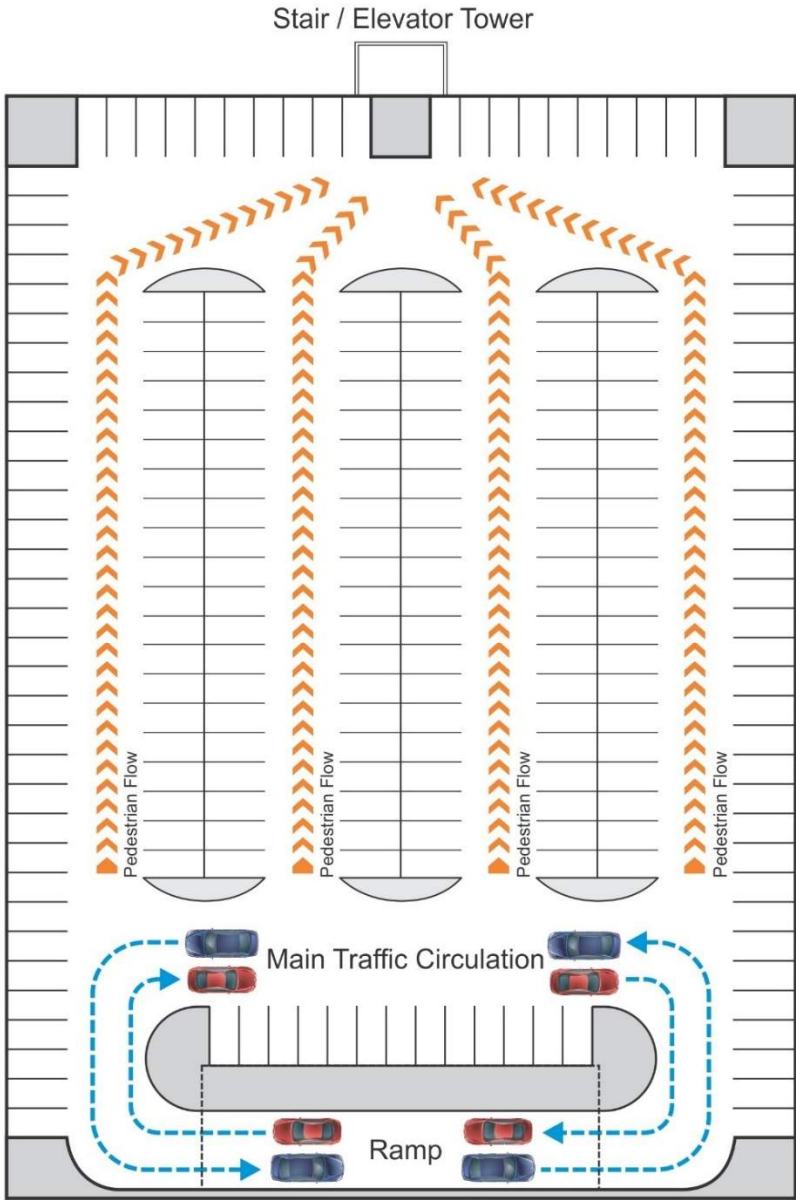
PARKING GARAGES



Exhibit 1-12 to Exhibit 1-13 summarize the ITE findings regarding pedestrian safety issues and best practices for improving pedestrian safety in parking garages. The exhibits consider four issues: wayfinding; layout; crime prevention; and trips and falls.

Exhibit 1-12 is an example of parking garage floor layout designed to reduce pedestrian-vehicle interaction Exhibit 1-13 is an example of gaps in the shear walls of a parking garage, and Exhibit 1-14 shows bollards in a parking garage.

Exhibit 1-11 Best Practices for Enhancing Pedestrian Safety in Parking Garages

	Issue	Best Practice for Enhancing Pedestrian Safety
Garages	Wayfinding	<p>On the exterior of garages, provide signs to direct pedestrians and cyclists to appropriate entrances.</p> <p>Inside garages, to avoid confusion with emergency exits, consider using the term “out” for vehicular direction, and the terms “elevators,” “stairs,” etc. for pedestrian direction.</p>
	Layout	<p>Consider parking garage layouts that separate vehicles and pedestrians. (See Exhibit 1-12)</p> <p>Provide flat floors that give pedestrians good visibility of destinations from all parking spaces.</p> <p>Provide a protected pedestrian walkway in parking areas with high pedestrian volumes or high traffic volumes. Collector walkways should be visible and located on the most convenient pedestrian path to encourage use.</p> <p>Avoid pedestrian walkways behind parked cars.</p>

	Issue	Best Practice for Enhancing Pedestrian Safety
Garages (Continued)	<p>Exhibit 1-12 Parking Garage Floor Layout to Reduce Pedestrian-Vehicle Interaction</p>  <p>The orange chevrons indicate the pedestrian path to the elevator. Source: Walker Parking Consultants</p>	
Garages	Crime Prevention through Environmental Design (CPTED)	Provide large gaps in shear walls to ensure visibility throughout the garage. (Exhibit 1-13)

	Issue	Best Practice for Enhancing Pedestrian Safety
		Design elevator cores with adequate visibility between pedestrians and passing vehicles.
Exhibit 1-13 Gaps in Shear Walls 		
	Trips and Falls	<p>Consider high contrast paint or railings at raised curbs where trips and falls may be a concern.</p> <p>Consider using bollards to define vehicular and pedestrian spaces instead of raised curbs. (See Exhibit 1-14)</p>
Exhibit 1-14 Bollards in Garage 		
<i>Source: Pedestrian and Bicyclist Safety in Parking Facilities, ITE, 2017</i>		

1.2.1 BICYCLE SAFETY IN PARKING FACILITIES

Like pedestrian safety, ITE's Pedestrian and Bicyclist Safety in Parking Facilities report's bicycle safety issues and best practices are discussed separately for parking lots and parking garages.

PARKING LOTS

The following summarize the ITE findings regarding pedestrian safety issues and best practices for improving bicycle safety in parking lots. The details in the Exhibits are presented under two headings: bicycle circulation, and bicycle parking.

Exhibit 1-15 Best Practices for Enhancing Bicycle Safety in Parking Lots

	Issue	Best Practices for Enhancing Bicycle Safety
Bicycle Circulation	A cyclist is most at risk when travelling along a parking aisle due to potential conflicts with vehicles fronting or backing out of parking stalls.	<p>Design a parking layout that provides for bicycle parking and circulation without requiring cyclists to travel in an aisle.</p> <p>As parking facilities are low speed in nature, cycling facilities such as bicycle lanes are not generally recommended.</p> <p>Do not stripe bicycle lanes behind vehicular parking spaces.</p>
Bicycle Parking	Bicycle parking location, design, and supply	<p>Design bicycle parking facilities using the following criteria:</p> <ul style="list-style-type: none">– Location near building entrances (See Exhibit 1-16)– Location near shopping cart return– Visible and secure location with adequate lighting– Protection from weather– Protection from bollards, vehicular traffic using curbs, etc.– Pedestrian access not blocked– Provision of clear, safe path to bicycle parking– Rack type approved by the Association of Pedestrian and Bicycle Professionals (APBP)– Adequate bicycle parking dimensions for a design bicycle of 284 x 84cm to accommodate bicycles with trailers and or child or cargo holders– Adequate bicycle parking spaces

Issue	Best Practices for Enhancing Bicycle Safety
<p>Exhibit 1-16 Bicycle Parking Area</p>  <p><i>Source: Pedestrian and Bicyclist Safety in Parking Facilities, ITE, 2017</i></p>	

Exhibit 1-16 is an example of a bicycle parking area.

PARKING GARAGES

The following summarizes the ITE findings regarding bicycle safety issues and best practices for improving bicycle safety in parking garages.

Exhibit 1-17 Best Practices to Enhance Bicycle Safety in Parking Garages

	Issue	Best Practices to Enhance Bicycle Safety
Garages	Conflicts between bicycles and motor vehicles	<p>Consider providing a separate entrance for cyclists.</p> <p>Eliminate gates and other barriers for cyclists.</p> <p>Place bicycle parking in areas that would not be blocked by vehicle queues.</p> <p>Ensure good visibility between motorists and cyclists.</p>
	Security	<p>Ensure that bicycle parking areas are well lit and within range of security cameras.</p>

Exhibit 1-18 Secure Bicycle Parking



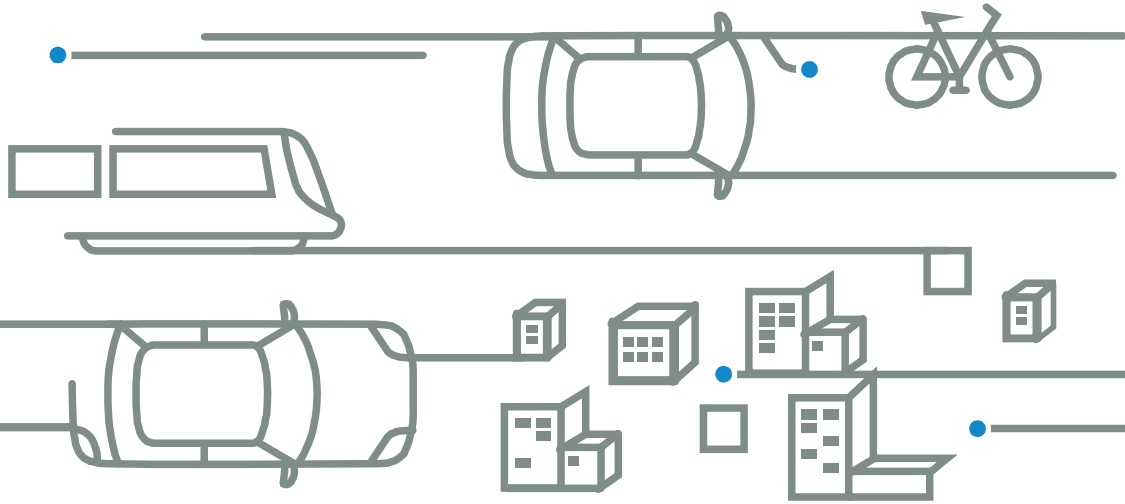
Source: *Pedestrian and Bicyclist Safety in Parking Facilities*, ITE, 2017

Exhibit 1-18 is an example of a secure bicycle parking area.

1.2.2 DEVELOPING DESIGN STANDARDS FOR SAFETY

Given the lack of detailed guidelines and standards for safety in parking facilities, the City seek to develop safety standards for parking facilities. The work required can be integrated into the upcoming zoning by-law update, the Cycling Master Plan, and other relevant projects.

As it is important for the City's safety policies, guidelines, regulations, and standards to be consistent and well-organized so they can be easily accessed, interpreted and applied, there are advantages to developing integrated, consolidated policy documents. These advantages may indicate the development of a standalone safety design standards document. If a series of standalone safety documents appears more appropriate, the documents may include a common introduction to the overall safety policy context and then use cross-references to other documents.



PARKING MATTERS



APPENDIX 5-1 BENCHMARKING OF PARKING IN 15 CANADIAN MUNICIPALITIES - 2015

Mississauga Parking Master Plan and
Implementation Strategy (PMPIS)

1 BENCHMARKING OF PARKING IN 15 CANADIAN MUNICIPALITIES – 2015

Exhibit 1-1 lists the 15 benchmark municipalities and shows the abbreviation used for each municipality. The abbreviation for Mississauga is MISS, and the abbreviation for the median is MED.

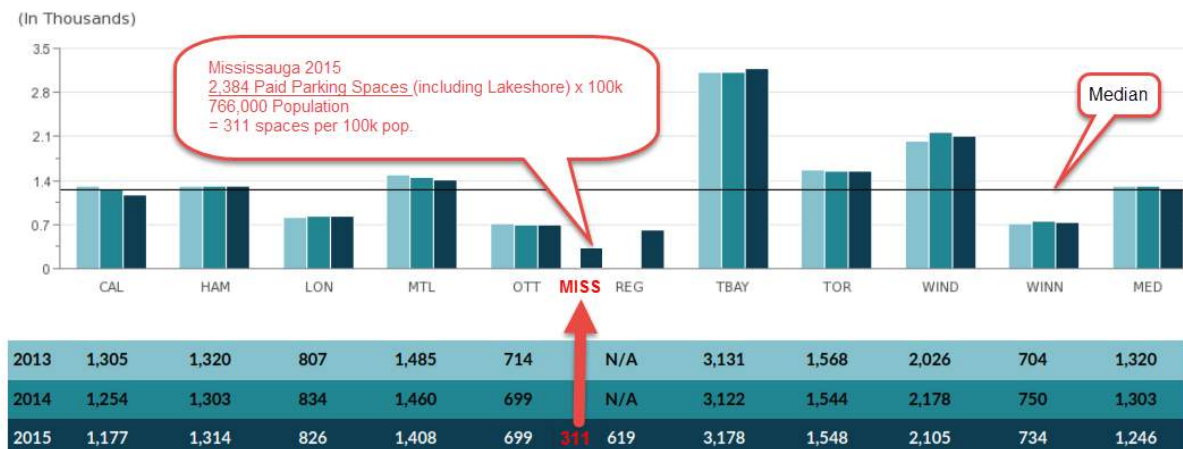
As the regional municipalities (Durham, Halton, Niagara, Waterloo and York) do not operate municipal public pay parking, they are not included in the graphs that summarize the benchmarking (Exhibit 1-1 to Exhibit 1-5). The benchmark graphs compare Mississauga with the remaining ten cities.

Exhibit 1-1 to Exhibit 1-5 show data for 2013, 2014 and 2015 for each MBN Canada city (except Regina for which only 2015 data is shown). The equivalent Mississauga 2015 data was obtained from City staff.

Exhibit 1-1 – Municipal Benchmarking Network Canada (MBN Canada)’s Benchmark Municipalities and Abbreviations

Benchmark Municipalities and Abbreviations			
City of Calgary	CAL	City of Regina	REG
Region of Durham	DUR	City of Thunder Bay	TBAY
Halton Region	HAL	City of Toronto	TOR
City of Hamilton	HAM	Region of Waterloo	WAT
City of London	LON	City of Windsor	WIND
City of Montreal	MTL	City of Winnipeg	WINN
Niagara Region	NIAG	York Region	YORK
City of Ottawa	OTT		

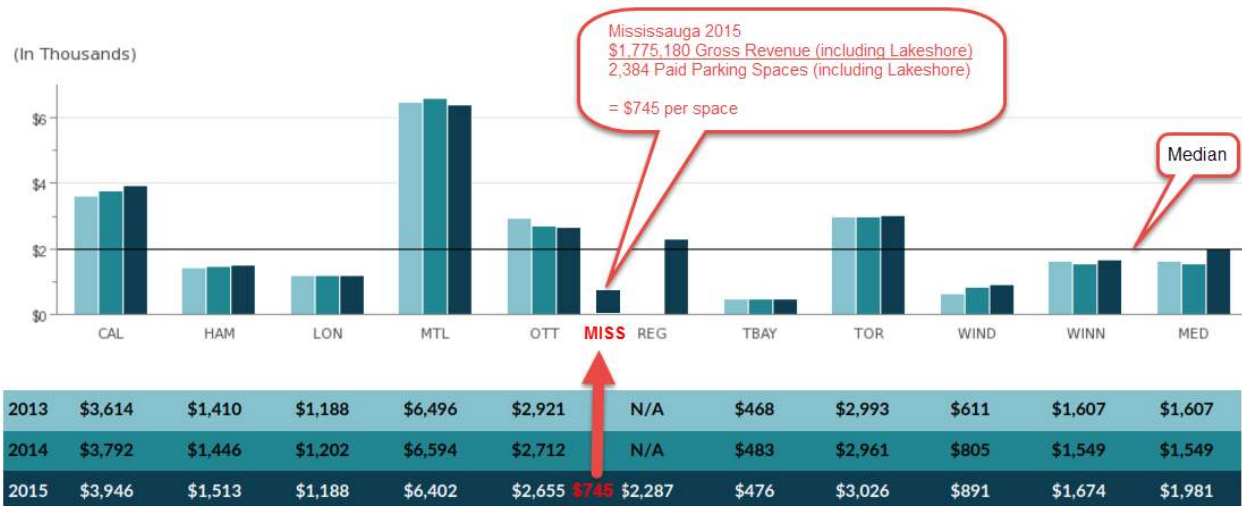
Exhibit 1-2 – Number of Paid Parking Spaces Managed per 100,000 Population



Source: Performance Measurement Report, Municipal Benchmarking Network Canada, 2015

Mississauga has the lowest number (311, less than half the median) of paid parking spaces per 100,000 population among the benchmark cities. The benchmark cities all have traditional well-established downtowns and pay parking operations whereas Mississauga has a relatively new and growing downtown where pay parking was introduced about 10 years ago.

Exhibit 1-3 – Gross Parking Revenue Collected per Paid Space



Source: Performance Measurement Report, Municipal Benchmarking Network Canada, 2015

Montreal collects by far the highest gross parking revenue per paid parking space (\$6,402). This is because Montreal has an efficient system for collecting parking ticket revenue thanks to its web application (pay by cell phone) which has noticeably helped to increase revenues and reduce the non-payment rate.

Mississauga has the second lowest revenue per parking space (\$745). Only Thunder Bay collects less revenue per parking space (\$476).

Exhibit 1-4 – Total Cost per Paid Parking Space Managed

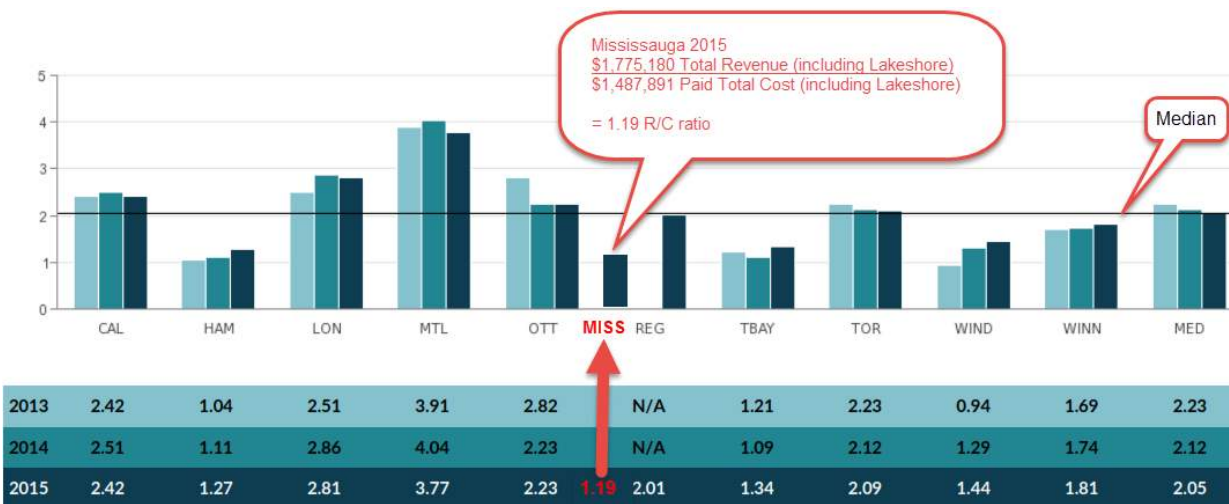


Source: Performance Measurement Report, Municipal Benchmarking Network Canada, 2015

The largest parking operations generally have the highest cost per parking space. Calgary has the highest cost (\$2,129) followed by Montreal (\$1,849), Ottawa (\$1,778), and Toronto (\$1,613).

Mississauga has the third lowest cost per paid parking space (\$624). Only London (\$461) and Thunder Bay (\$440) have lower costs. It is, however, possible that Mississauga's cost is an underestimate as the integrated organizational structure of Mississauga, with multiple sections and departments involved in parking, may have the effect of underestimating total operating costs.

Exhibit 1-5 – Parking Services Revenue to Cost Ratio



Source: Performance Measurement Report, Municipal Benchmarking Network Canada, 2015

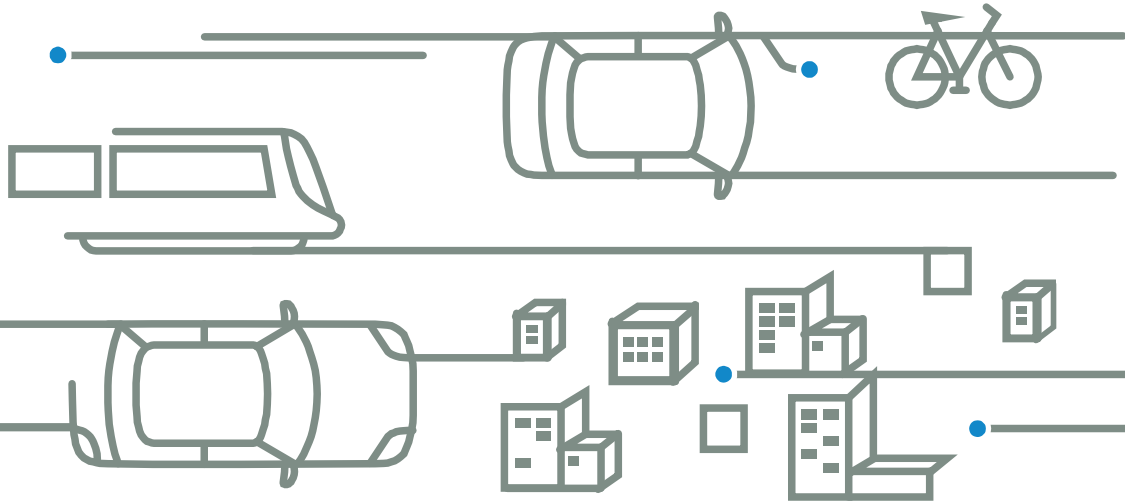
The revenue to cost (R/C) ratio is an indicator of the financial performance of the parking operation. An R/C ratio of 1.00 means that the parking operation is breaking even. An R/C ratio greater than 1.00 indicates a surplus (or profit). The surplus may be reinvested into the operation through a capital reserve fund or serve as a contribution to the municipality (except in the case of privatized models).

In 2015, all the cities made a surplus. Montreal had the highest R/C ratio (3.77).

Mississauga's R/C ratio was the second lowest (1.19). This was slightly lower than Hamilton's 1.27, and clearly lower than the R/C ratio of other eight cities. As Hamilton has a much larger parking operation (3,700 spaces) than Mississauga (2,000 spaces), the benchmarking comparison suggests that, compared to Hamilton, Mississauga's downtown spaces are less used or Mississauga's spaces face greater competition from private parking operators in the downtown. If Mississauga's costs are underestimated, as suggested above it is possible that Mississauga has a smaller surplus than suggested by the R/C ratio.

In summary, although the ten benchmark cities have well-established downtowns and well-established pay parking operations, the comparison with Mississauga is still informative. Mississauga has:

- the lowest number of paid parking spaces (311) per 100,000 population.
- the second lowest gross parking revenue per paid parking space (\$745).
- the third lowest cost per paid parking space (\$624).
- with a revenue to cost ratio of 1.19, Mississauga has the second lowest surplus from parking operations.



PARKING MATTERS



APPENDIX 5-2 COMPARISON OF MISSISSAUGA'S ORGANIZATIONAL STRUCTURE WITH ORGANIZATIONAL STRUCTURE OF FOUR CANADIAN CITIES

Mississauga Parking Master Plan and
Implementation Strategy (PMPIS)

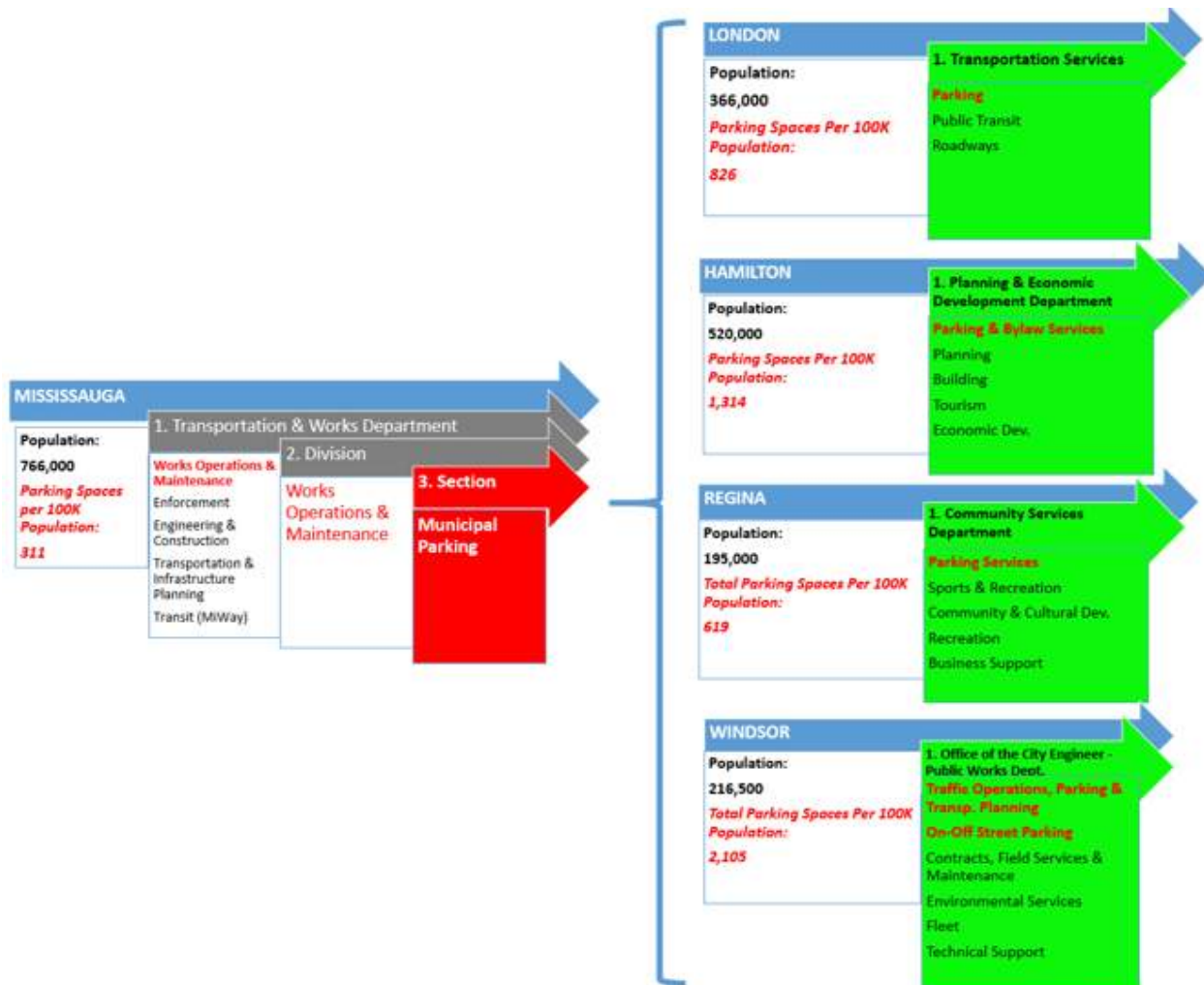
1 COMPARISON OF MISSISSAUGA'S ORGANIZATIONAL STRUCTURE

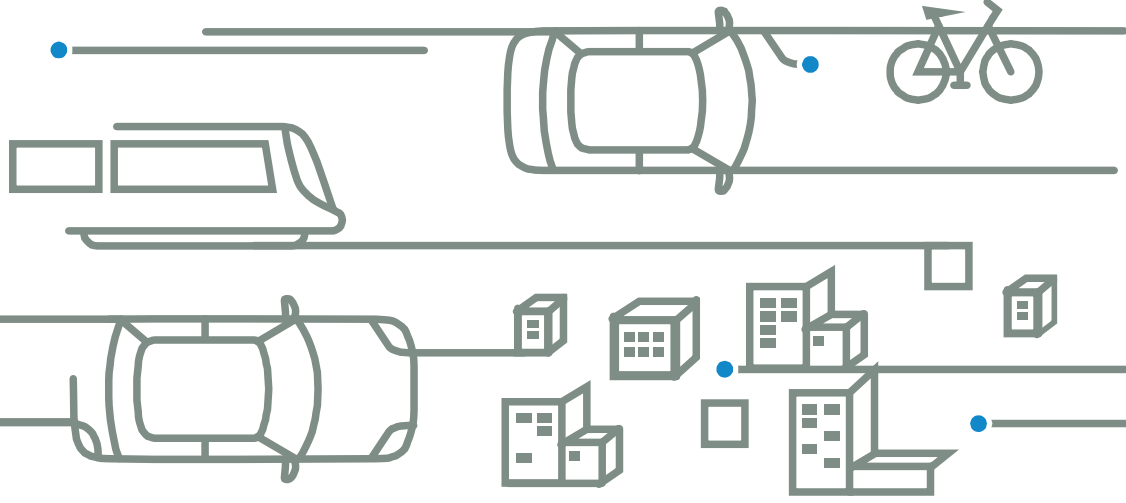
Exhibit 1-1 shows that Mississauga's Municipal Parking Chapter is a third layer Chapter under the Work Operations & Maintenance Division which is under the Transportation and Works Department.

The Department name and details vary in Hamilton, London, Regina, and Windsor, but Exhibit 1-1 shows that parking in each city has a high-profile position in the first layer of a Department. In Hamilton, parking is at the same high level as Planning, Building, Tourism, and Economic Development. In London, parking is at the same high level as Public Transit and Roadways. It is clear that parking has a less prominent position in Mississauga.

The parking function within the organizational structures of the other four Canadian cities has a higher profile and clearer responsibility for delivering parking services than in Mississauga. This is because the other cities have fewer layers of management than does Mississauga. The implementation of a vertically integrated organizational structure will raise the profile of parking in Mississauga and help to meet the City's goals using parking policy and provision as both a service and a tool for city building.

Exhibit 1-1 – Parking Organizational Structures of Select Canadian Cities





PARKING MATTERS



APPENDIX 6-1 PARKING DATA COLLECTION AND MANAGEMENT

Mississauga Parking Master Plan and
Implementation Strategy (PMPIS)

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APPENDICES

A GLOSSARY

B SAMPLE CUSTOMER SERVICE SURVEY

1 OVERVIEW AND INTENT

The City of Mississauga has provided WSP team with various parking data in the form of reports, maps and spreadsheets. This data was reviewed by our team to establish a new data collection and management framework which would serve as a base for future parking data collection and analysis in the municipality.

The consolidation of this spatial and non-spatial data and other information is intended to more precisely identify the existing supply and location of parking across the City, its operations and financial stability, and provide a more comprehensive understanding of existing parking conditions across Mississauga. This will form the foundation for more up-to-date, real-time 'business intelligence' for the City and assist with greater organizational capacity for effective parking management.

Consistent with the ideas advanced in the Best Practices Review, the data collection and management program is designed to assist with analysing the parking situation both at a site-by-site and a precinct level across the City. It will be used both as a standard reporting tool to analyse parking as a whole at the municipality level as well as an analysis tool to determine key parking issues in different areas ('parking precincts') of the City. A practical example of this is using the program to assist with establishing a current day scenario and then identifying the relevant parking management principles and developing associated rates, utilization targets and other operational issues to improve the existing situation.

The data collection and management program will allow the City to become more proactive in responding to emerging parking issues by reducing the time required for decision making and helping the City to be more responsive and agile to responding to parking issues as and when they occur. This comprehensive approach not only empowers the City to adopt a 'business intelligence' approach to parking management, but also help to analyse issues from an equity and fairness perspective as well by providing it with the information it needs to make informed decisions.

2 MISSISSAUGA'S EXISTING DATA COLLECTION AND REVIEW

The existing data provided was reviewed based on the known different types of parking in the City:

- 1 Municipal Parking
 - 2 Other City-owned parking
 - 3 Privately-owned parking
 - 4 Major civic institutions
 - 5 Residential Parking
 - 6 Commercial/Industrial Parking
 - 7 Office
-

2.1 MUNICIPAL PARKING

The data received on municipal parking includes information for on-street and off-street parking structures. Available information on off-street parking includes;

- Garages – Downtown Mississauga – name, rates, locations, supply and hours of operations
- Lots – Downtown Mississauga - name, rates, locations, supply and hours of operations

There is limited information on parking machines at these garages and lots, including machine number, address, tariff and installation date. This information should be saved and consolidated into a operational database. If parking machines are electronic, information such as utilization should be extracted and this should be added in the database. This would help in identifying which lots or garages are at capacity or under-utilized. Information on utilization could be collected once a month and inputted into the database to track parking trends.

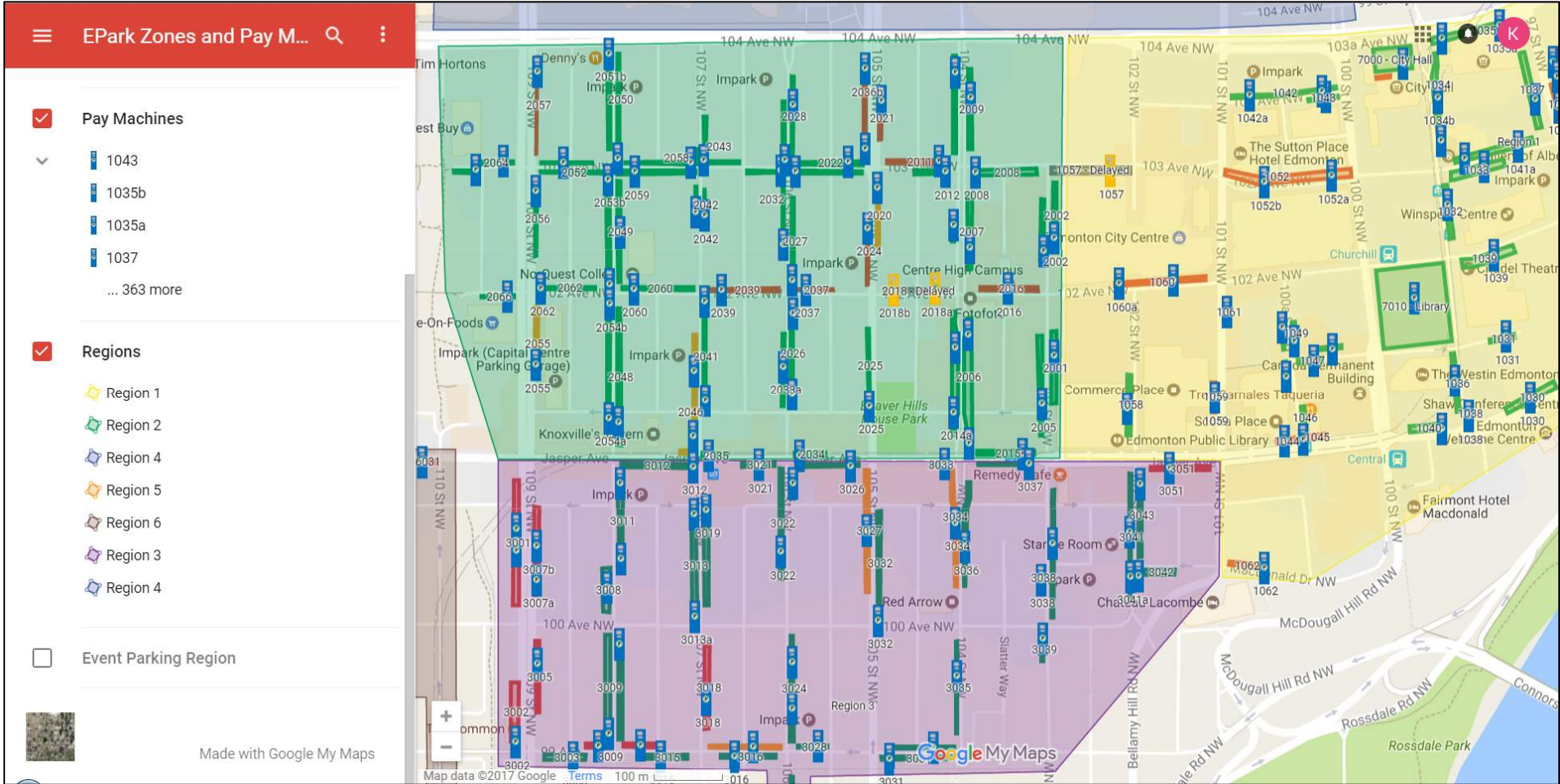
For on-street parking there is metered parking information available with machine number, location, fee and installation dates. This information lacks basic supply and would benefit from monthly utilization surveys as well.

In summary, this information should all be consolidated into a spatial database. GIS software allows lots, garages and parking machines to be geospatially referenced. Each parking structure should have their name, supply, rates, and hours of operation linked to them for quick and easy reference.

An example of how this information can be visually represented by blockface can be seen in Exhibit 1. This represents the parking location, quantity and prevailing tariff for on-street parking in Edmonton after the deployment of Calgary Parking Authority ePark technology in 2015.

Private providers such as Parkopedia are already crowdsourcing similar data for Mississauga (See Exhibit 2). Registered users can supply the company with fee data via their phones and this is uploaded to the parkopedia site, which allows searched based both on price by time of day. Partnerships are possible which allow for the display of real-time data via apps and the web

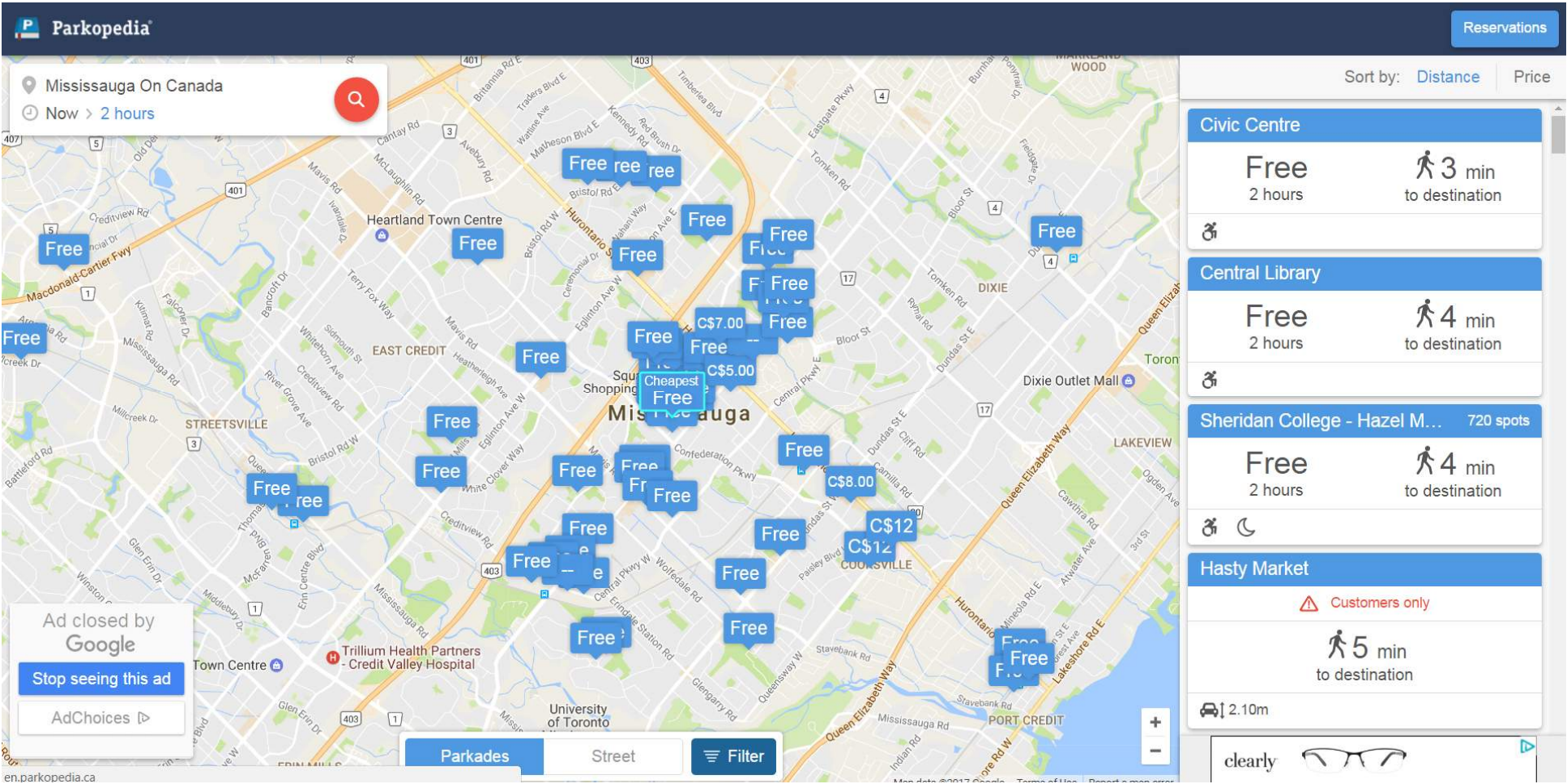
Exhibit 1 Edmonton ePark on-street and off street parking locations



Parking locations including location of pay machines, tariffs and defined parking regions (areas or precincts)

(Source: Epark, City of Edmonton)

Exhibit 2: Parkopedia Parking information for Mississauga



2.2 OTHER CITY OWNED PARKING

There is limited information on Other City-owned parking which would include places such as parks, recreational centers and the Transitway. There was some data linked to MiWay which was extracted from the transit operator's website and substantial information on the GO Stations.

For the MiWay Station lots, their locations, operating hours and supply was readily available. Gaps in the table would be the rates at each lot and utilization surveys. Rates should be updated in the table and surveys should be done on a regular basis or extracted from the parking machines if these machines are not part of the Precise data warehouse.

The GO Station information was supplied to WSP in an excel file format and provided facility name, a description of each lot and the available supply. There were also comments provided on maximum utilization over the year in. WSP added the utilization rate as the capacity and a demand volume for each month was given. The City can adopted a similar format in tracking utilization of MiWay. The gaps for this information would be the rates at each lot.

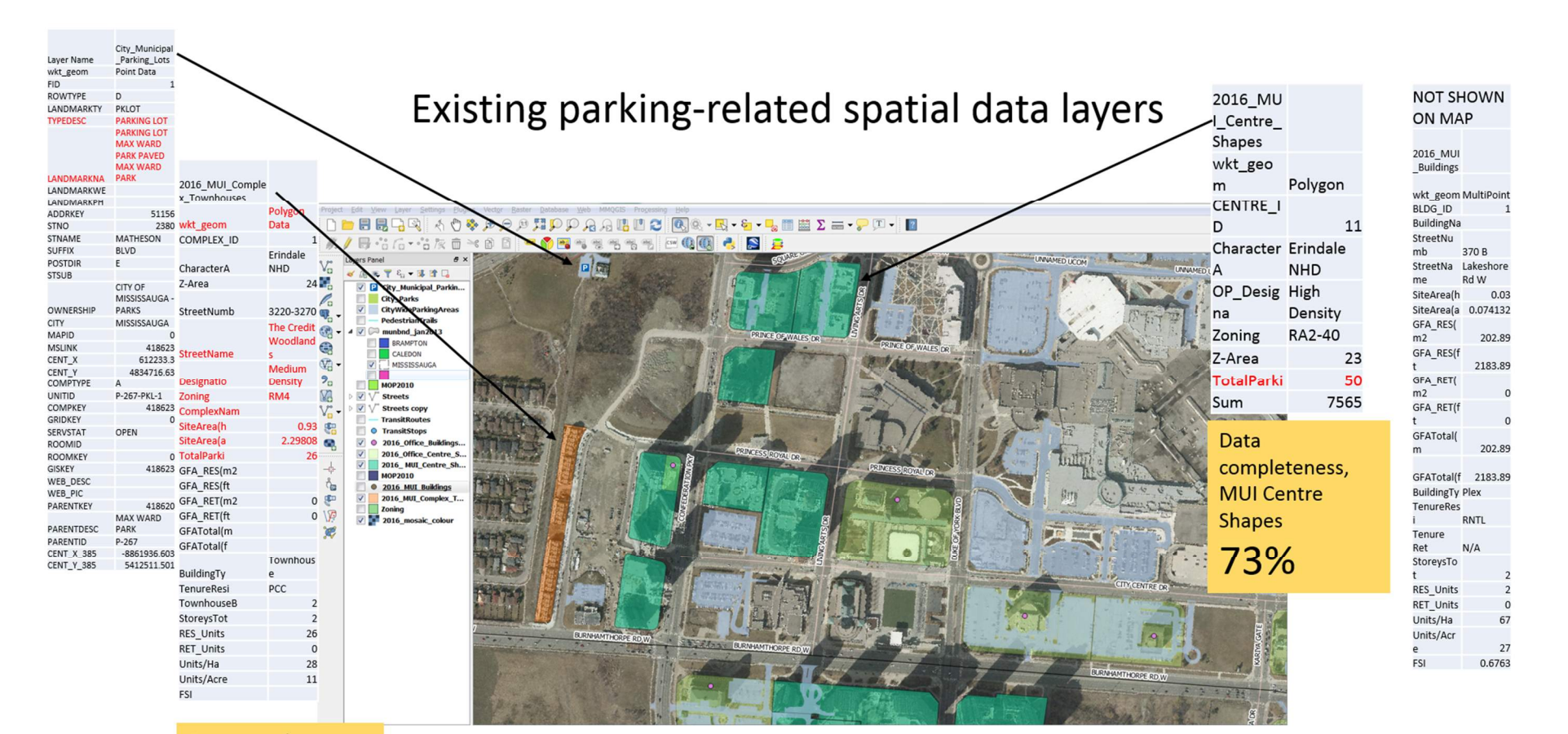
2.3 PRIVATELY OWNED PARKING

Privately-owned parking is present on some of the spatial data layers provided to us by the City which was used to develop a comprehensive map See Exhibit 3. The information is spatial (i.e. referenced to a specific location) but contains limited information on the quantity and form of parking, see Exhibit 4.

WSP recommends consolidating the existing data files and adding information at key locations of interest across the municipality (eg: Intensification Areas).

This data can be used to develop a more comprehensive understanding of the existing parking supply for both development and long range planning purposes.

Exhibit 3: Map of Mississauga showing land dedicated to off-street parking (BLUE), sites with significant parking supply (GREEN) and, townhouses with parking (ORANGE)



2.4 OTHER OFF STREET PARKING

There is spatial data layer (see Exhibit 3 BLUE layer), presumably captured using LIDAR data collection. This is currently a raw data layer that contains empty polygons and has not yet been processed to separate out the different parking areas captures at all paved areas. No other specific information was provided on major civic institutions.

Rates, supply and locations and survey information should be collected for other key sites and added to the database as well.

2.5 COMMERCIAL/INDUSTRIAL PERMIT PARKING

The City of Mississauga has several corporate reports which provide the employment parking rates in 2012, 2014 and 2015 in Downtown. They outline the permit type, current and proposed rates and the number of permits issued in the prior year. This information should be extracted and saved in the spreadsheet and should be updated yearly to track permits issued. This data is not available publicly like that of other municipalities such as Toronto, see Exhibit 5.

2.6 OFFICE PARKING

There is spatial data layer that has all parking in the City of Mississauga on it, however, it was captured using LIDAR data collection which has not been processed to separate out the different parking areas and captures all parking. No other specific information was provided on office parking.

Rates, supply and locations and survey information should be collected and added to the spreadsheet as well.

2.7 ELECTRIC VEHICLE (EV) CHARGING LOCATIONS

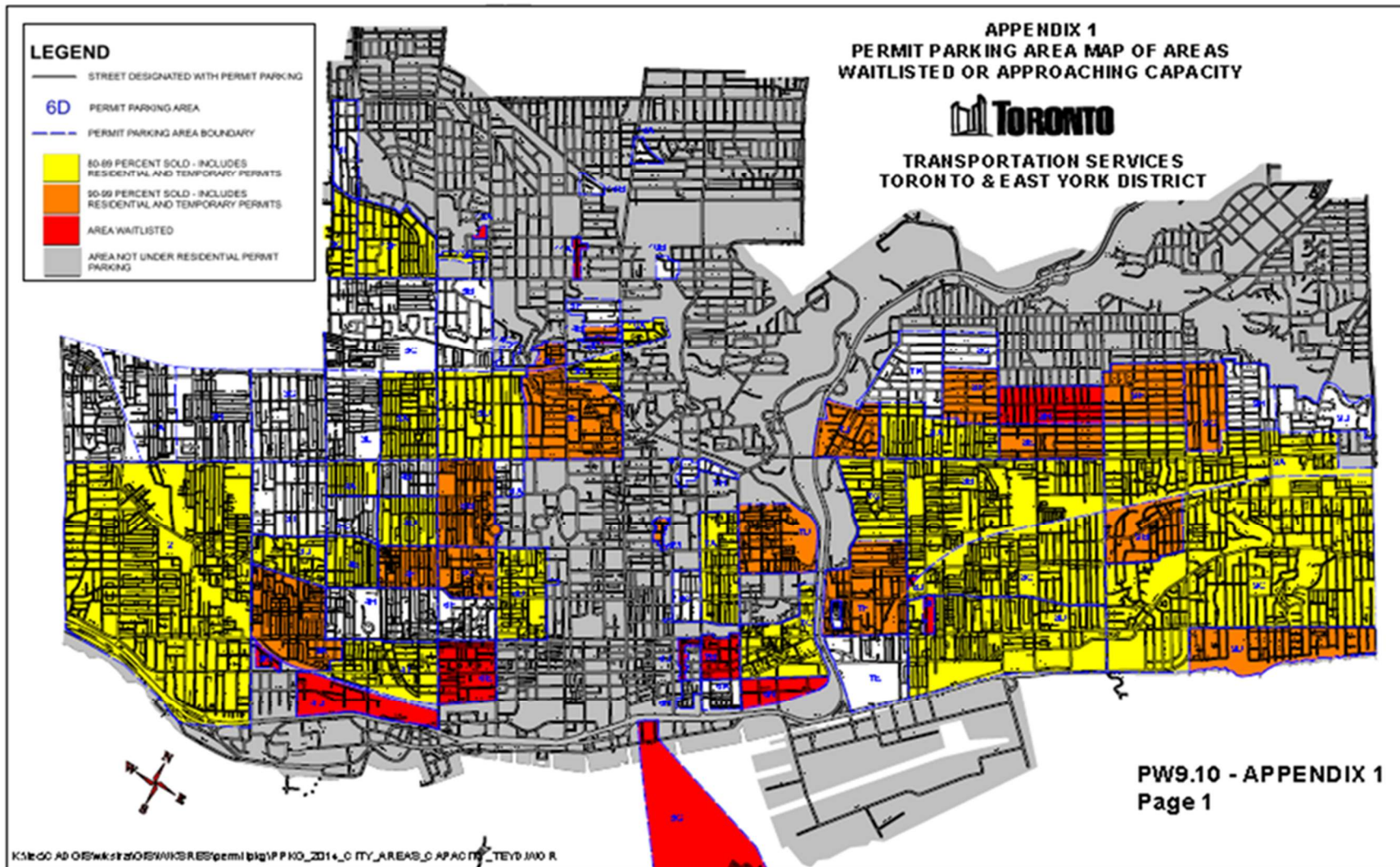
Information showing the location of existing and proposed EV charging stations are saved on a map which was taken from a City Corporate Report. These locations can be placed onto a separate GIS layer to be merged with current City information. There should also be an update to see if any of the proposed locations have been implemented and made available to the public where public parking is provided. Similar to that provided by the CAA, see Exhibit 5.

2.8 VIOLATIONS

Violation data was provided in two formats, spreadsheets and a word document. Spreadsheets give an account of types of infractions in 2014-2016 and associated fines but does not have any locations linked to them. Future data collection should incorporate the location/address of the infraction and the data mapped similar to the City of Toronto example provided in Exhibit 6.

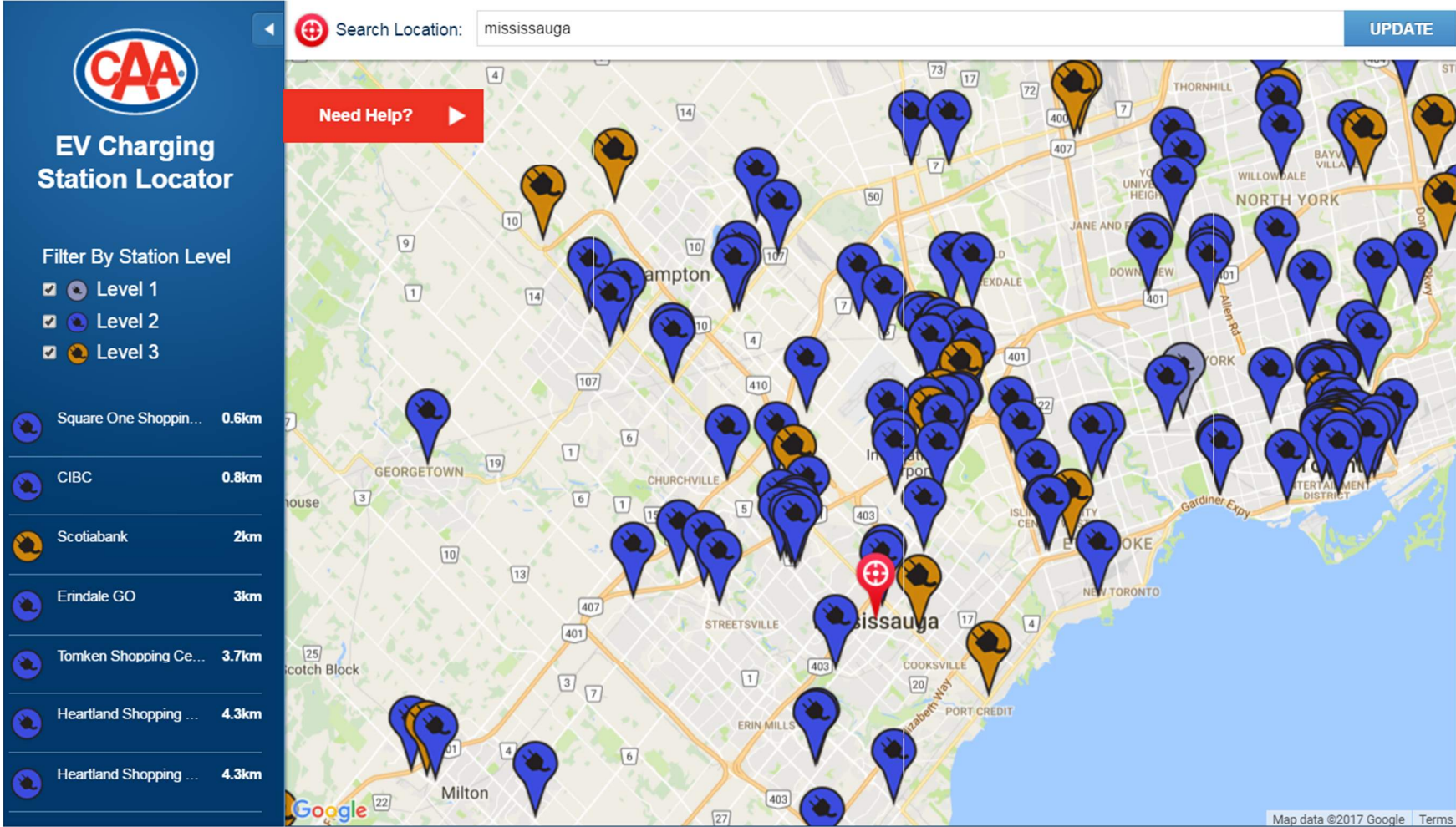
The word documents summarize the top 10 streets with parking complaints and the top five offences. This type of information can be converted to a visual representation of hot spots on maps which could also help with enforcement.

Exhibit 4: On-Street Parking Permit



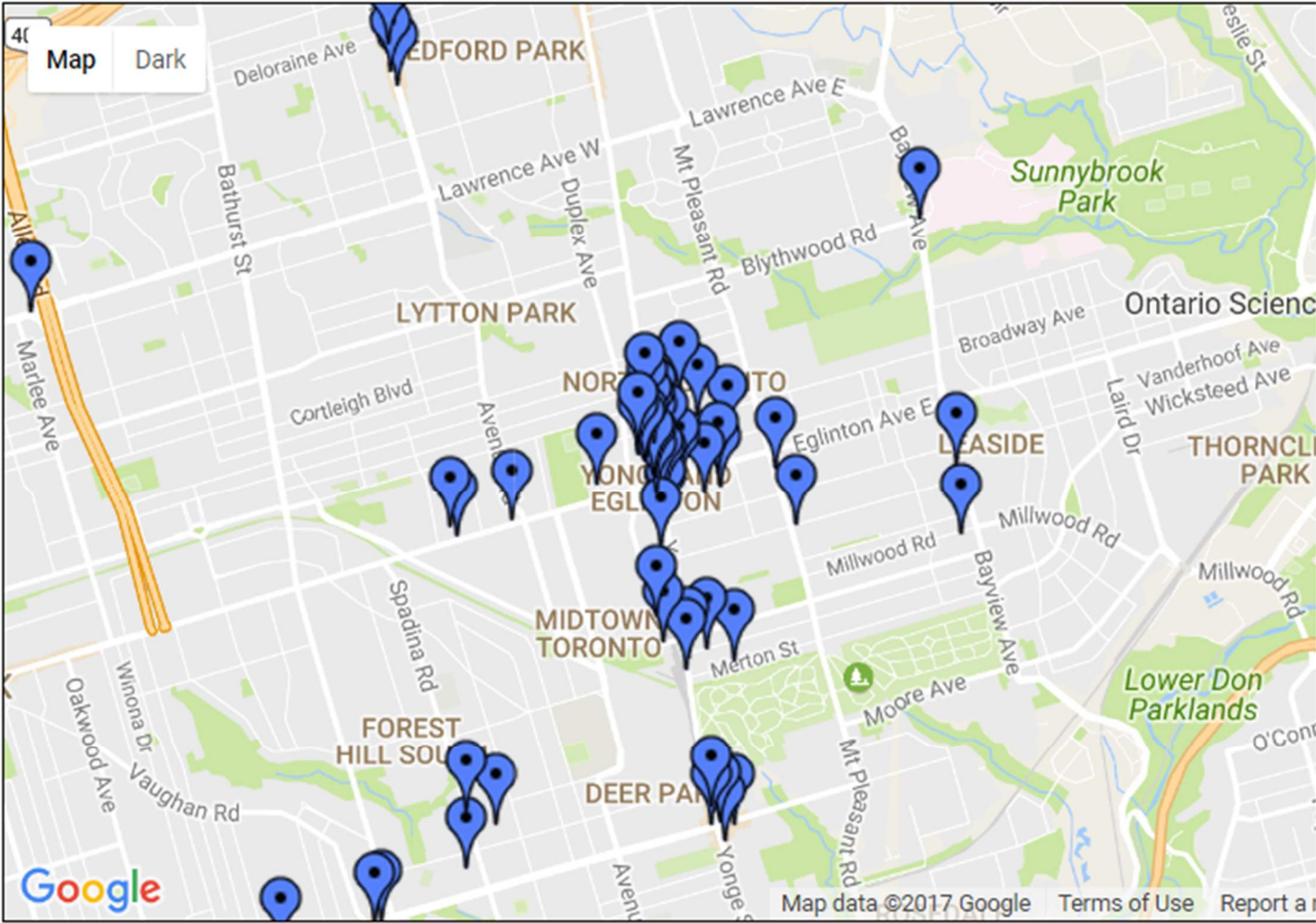
(Source: City of Toronto Website)

Exhibit 5: Example of Electric Vehicle Location



(Source CAA Website)

Exhibit 6: Hot Spot for Parking Tickets – City of Toronto



Locations with 500 or more parking tickets in 2010. Click on a point for details, or zoom in to see an area more clearly.

(Source: Web Lin)

3 TYPICAL PARKING DATA COLLECTION AND ANALYSIS

3.1 PARKING OPERATIONS

The existing Pay and Display (P&D) machines in use by the City in the City Core and Port Credit provide excellent financial and operational information for effective parking management. In March 2017, the City approved a contract renewal with Precise Parklink Inc. to continue a long term partnership and establish the Pay and Display Parking Management System Acquisition Agreement for 7 years (March 2017 – March 2024), which included service and maintenance, machine monitoring, hardware and optional upgrades, credit card processing, software services and access to the Company's data warehouse for the City's machines. The latter data warehouse will provide the City with ongoing data to measure parking utilization and revenue performance metrics such as those identified below and graphically shown in Exhibit 7 to Exhibit 11.

Pay and Display transactions by average length of purchase (in hours and minutes) by day, hour of the day, month (which reflect the volume of parked vehicles), quarter or year can be derived for analysis.

- With each P&D machine geocoded (i.e. longitude and latitude) the above may be provided by blockface, larger zone or district geographical areas and plotted on one of the City's GIS maps of paid parking locations.
- Pay and Display machines provide "purchased" or "paid occupancy" which is good for parking planning and determining dynamic parking fees.

Unless vehicle detection sensors are placed in on-street surface parking spaces or in off-street parking lots to measure total parking occupancy, "paid occupancy" is missing those vehicles where motorists have not paid for parking or the P&D tickets have expired. To overcome this minor shortcoming, manual yearly "snapshot" samples of parking occupancy by surveyors can be used in conjunction with "paid occupancy" data from the P&D machines.

For any location where the Precise Parklink data is not available the City should conduct annual and seasonal Parking Utilization and Duration surveys to complete the database and identify trends, or parking issues.

Exhibit 7: Total Number of Cars Parked

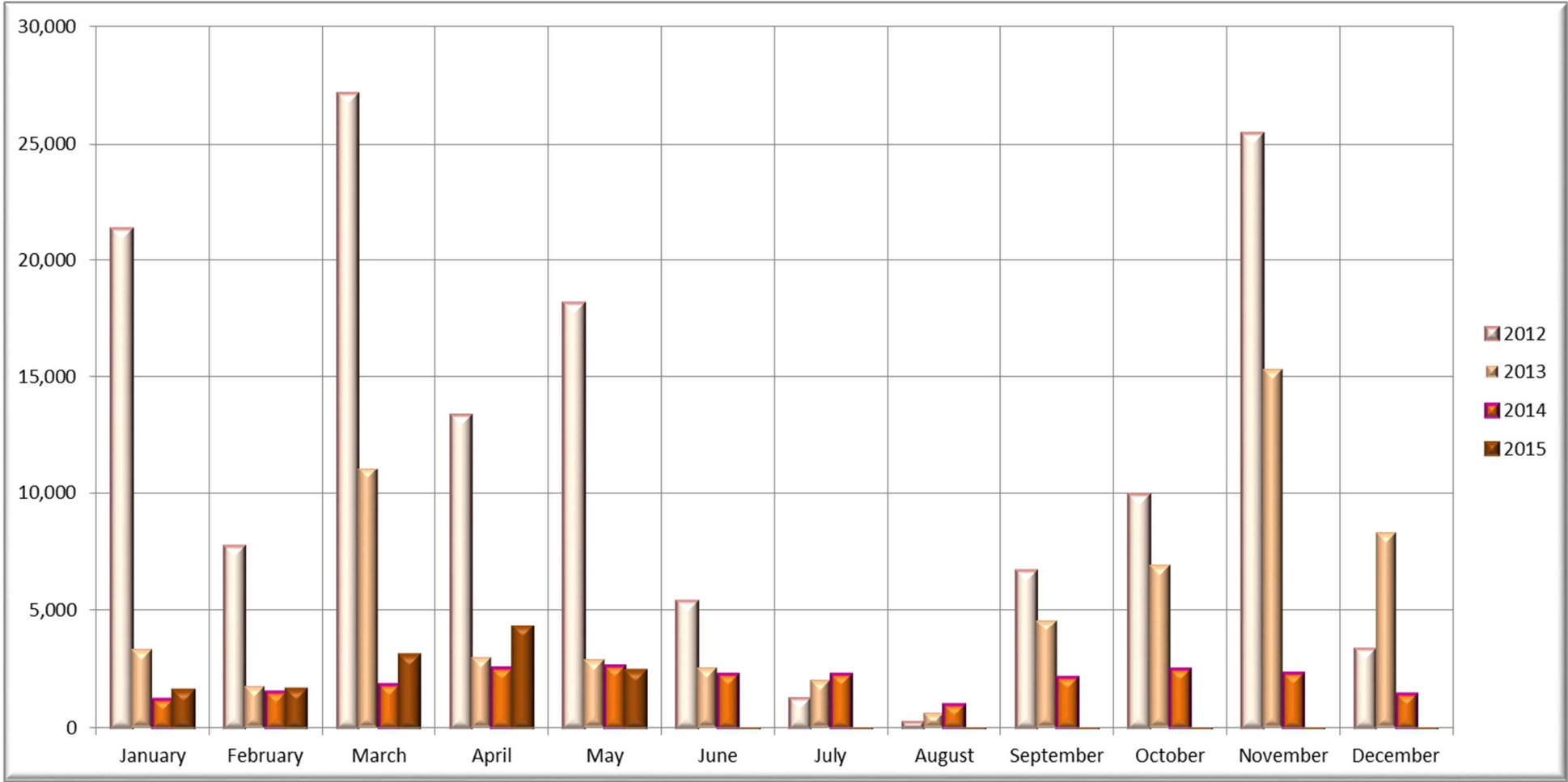


Exhibit 8: Annual Duration per vehicle

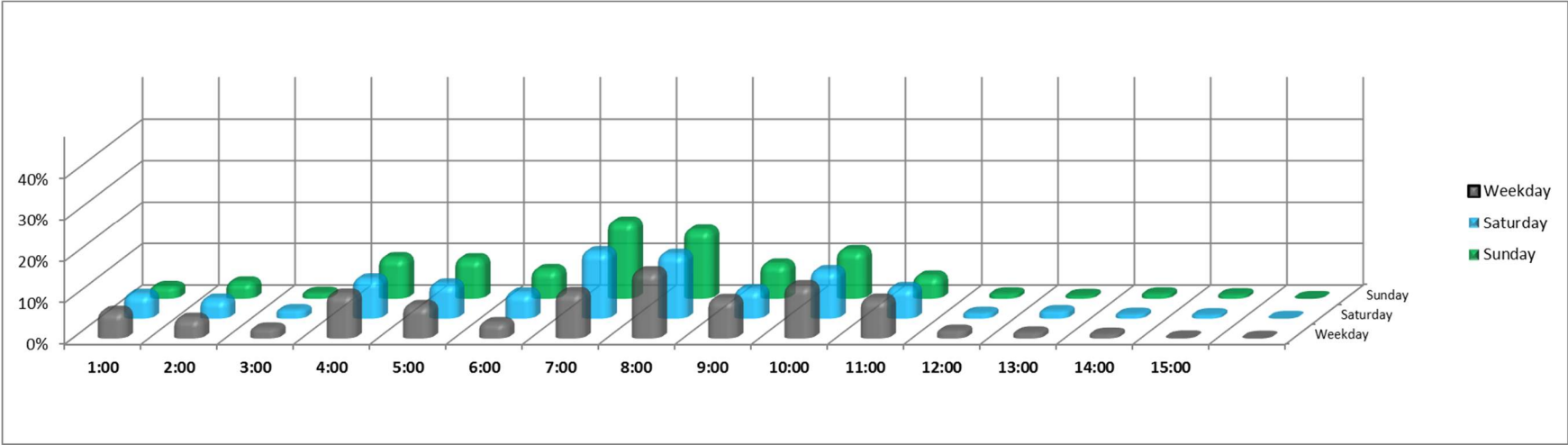


Exhibit 9: Weekday Duration per Vehicle

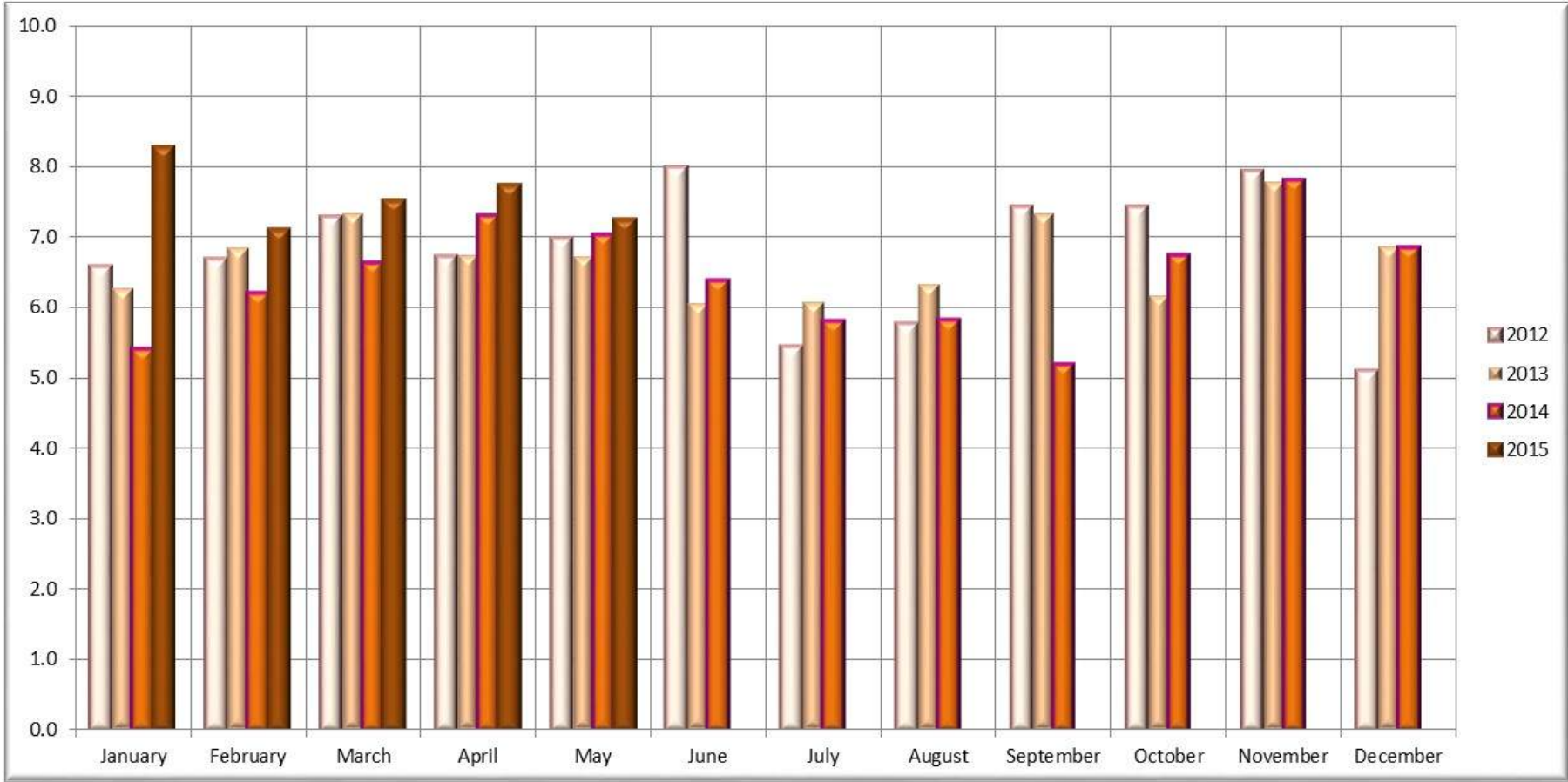


Exhibit 10: Weekday Revenue per Vehicle

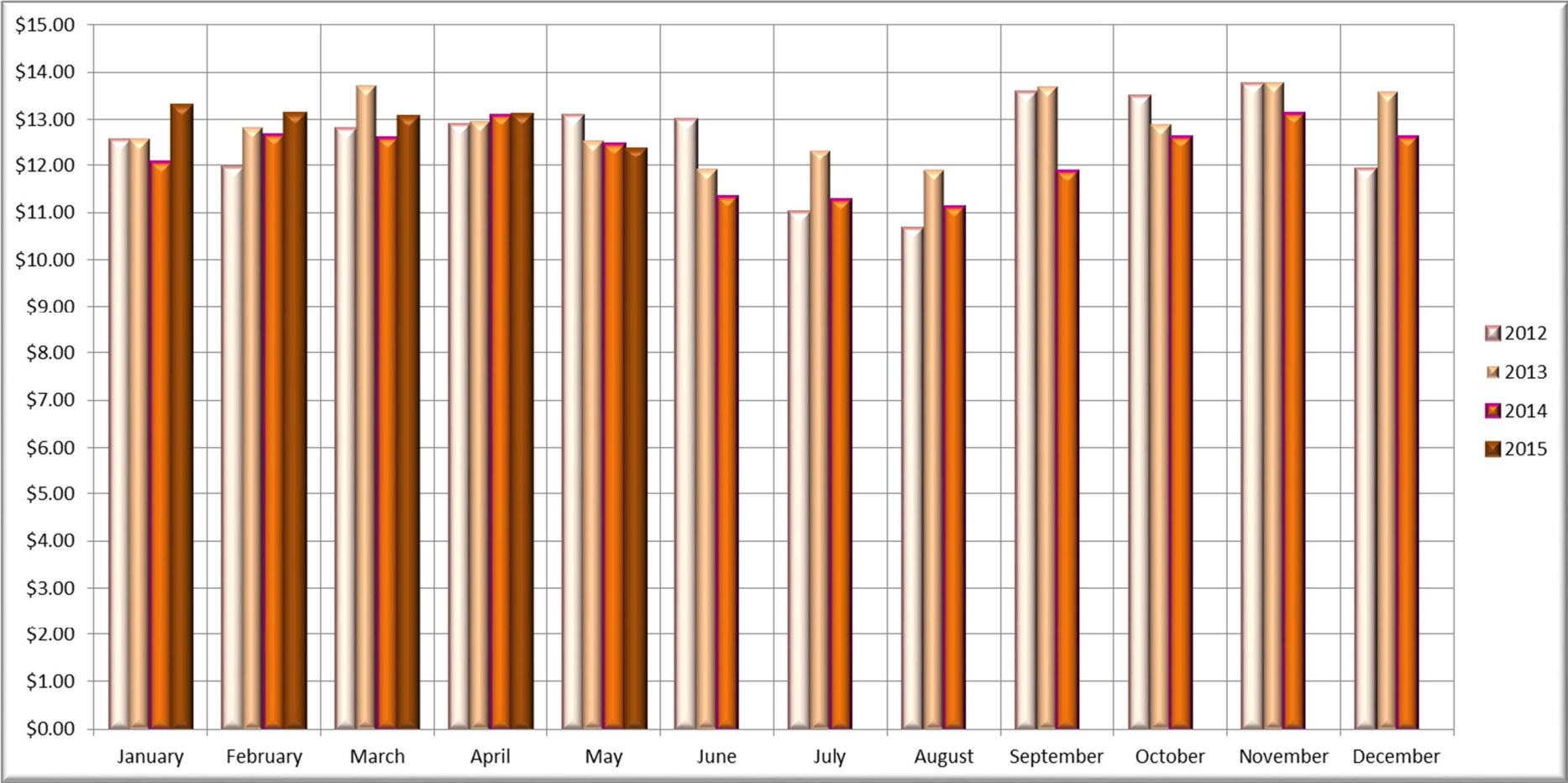
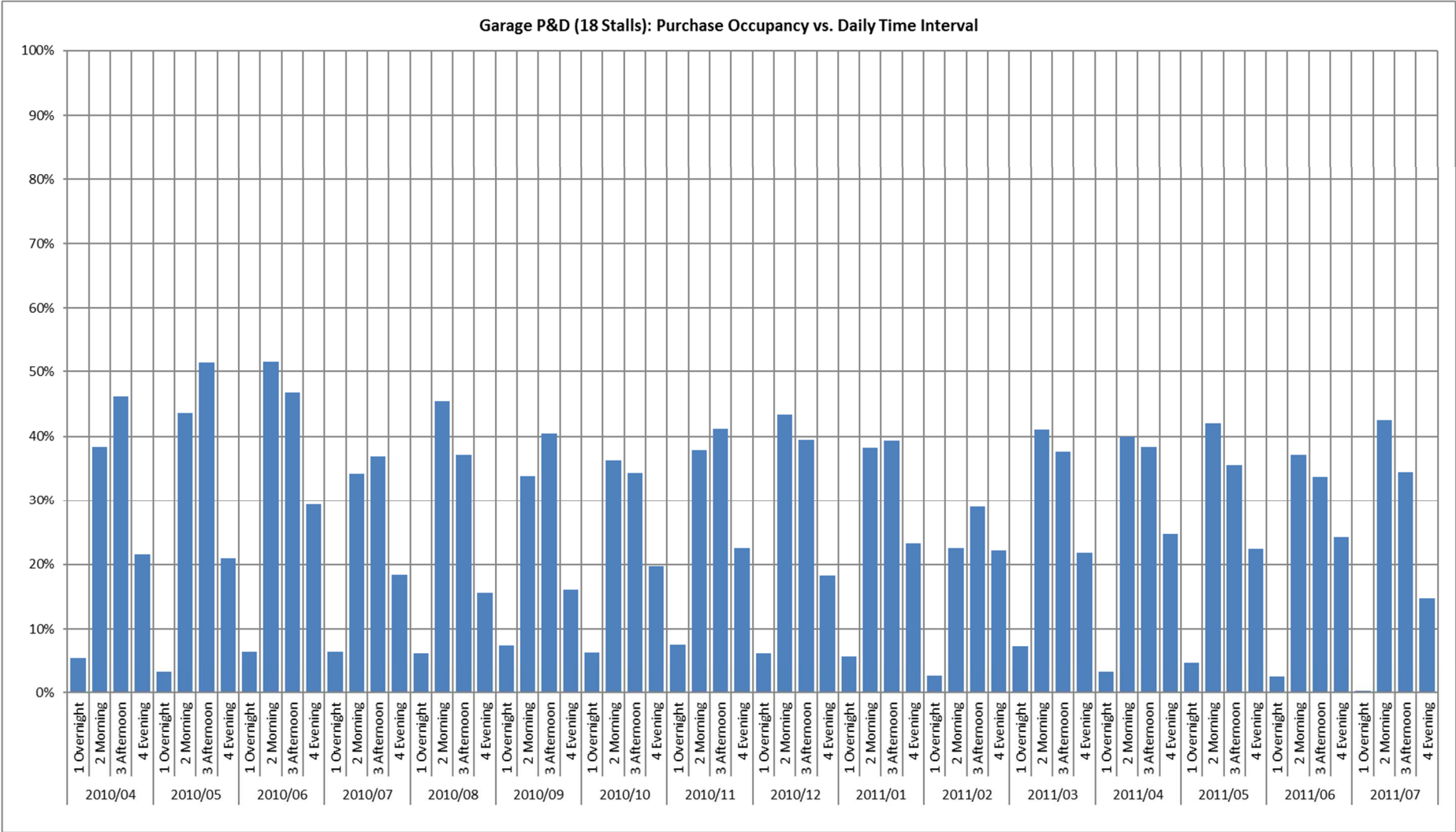


Exhibit 11: Purchased Occupancy vs Daily Time Interval



3.2 CUSTOMER SATISFACTION SURVEYS AND SUMMARIES

Our review indicated no customer surveys were conducted by the City to understand the experience and satisfaction of users and businesses regarding City parking facilities and service. The City should conduct customer satisfaction survey on a regular basis (annually or bi-annually) to understand and address issues customers may have with their facilities and service.

The surveys can be posted on the City's website and advertise through City communication (i.e. digital information at key City locations including parking facilities directing customers to the web site; social media, survey cards at key locations etc.).

The survey should be short and user friendly, such as the examples provided in Appendix B.

The survey results should be summarized such as shown in Exhibit 12, and action taken to address issues identified or trends.

Exhibit 12: Examples of Customer Satisfaction Survey Summary

MEAN SATISFACTION SCORES/TREND DATA

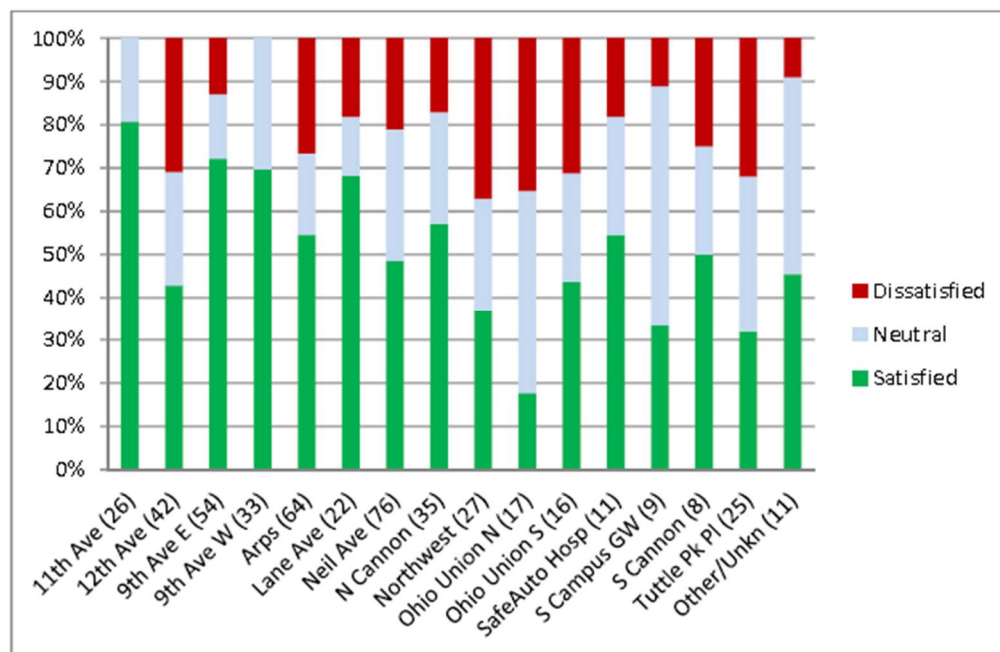
The trend data pulls an average score from all the data and compares it to the prior years scores to see if there is any improvement from year to year.

OVERALL SATISFACTION/TREND DATA RESULTS								
Please rate your level of satisfaction with the following:	Mean Satisfaction Scores:							
	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Ease of obtaining a parking permit (semester, long-term, short-term, one-day)	3.40	3.69	3.38	3.95	4.04	4.08	4.13	4.19
Satisfaction with permit sales	N/A	3.64	3.43	3.57	3.28	2.98	3.50	3.45
Parking lots are well-maintained (clean of debris, dirt, clear of cracks, potholes, etc.)	4.14	4.32	3.99	3.31	3.41	4.46	4.45	4.31
Emergency Telephones are easy to locate in and around parking areas	N/A	N/A	N/A	4.19	4.19	4.10	4.13	4.38
I feel safe in and around parking areas	3.76	3.92	3.76	4.05	4.11	4.08	4.19	4.35

BREAKDOWN OF OVERALL SATISFACTION MEAN SCORES BY DEMOGRAPHICS				
Please rate your level of satisfaction with the following:	Mean Satisfaction Scores:			
	Overall	Student	Faculty	Staff
Ease of obtaining a parking permit (semester, long-term, short-term, one-day)	4.19	4.17	3.92	4.37
Satisfaction with permit sales	3.45	3.18	4.00	4.28
Parking lots are well-maintained (clean of debris, dirt, clear of cracks, potholes, etc.)	4.31	4.24	4.58	4.46
Emergency Telephones are easy to locate in and around parking areas	4.38	4.35	4.52	4.45
I feel safe in and around parking areas	4.35	4.32	4.50	4.40

Key for Mean Scores	
	Above Target (4.0 and Above)
	Hitting Target (3.5 - 3.99)
	Below Target (3.49 and Below)

Are you satisfied with the time it takes you to exit the garage?



3.3 FINANCIAL REVIEW

A baseline of parking operations and financial measures should be developed and compared to peer cities, as outlined in the benchmarking bar charts in the Best Practices document from Municipal Benchmarking Network Canada (MBN), formerly known as OMBI.

3.3.1 REVENUE AND COSTS

The City has good existing and historical data on monthly and annual parking revenue and costs, which are tracked using Excel spreadsheets in combination with the City's larger SAP financial management information system. The data warehouse (from Precise) of P&D revenue transactions will enhance the existing data by also providing:

- P&D Revenue by month, quarter or year
- P&D Annual Revenue per day of week (i.e. all transactions averaged over an entire year for a Monday, a Tuesday, Wednesday, etc.)
- P&D Transactions by month (which reflect the volume of parked vehicles), quarter or year.
- P&D Revenue Per Transaction by month, quarter or year
- P&D Revenue Per Payment Type: Coins, Credit card & Multi-Visit card.

With each P&D machine geocoded (longitude & latitude) all of the above may be provided by blockface, larger zone or district and imported into a GIS map of the City's paid parking locations.

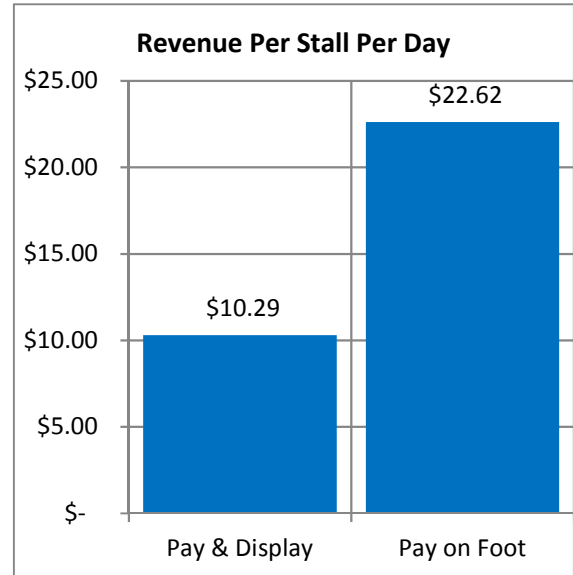
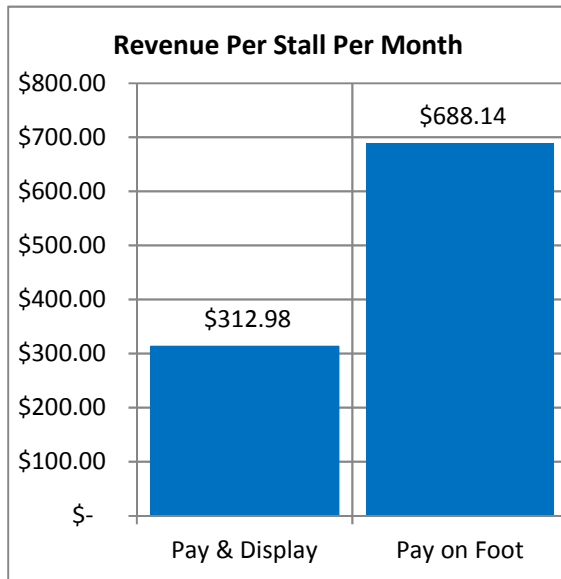
The City currently tracks monthly parking permits and this data should be merged to provide revenue KPIs as described in the subsequent sections of this report.

REVENUE PER STALL PER MONTH (AND PER DAY)

A Key Performance Indicator (KPI) that may also be extracted from the P&D Data Warehouse is Revenue Per Stall Per Month (often referred to "RSM"). In our review of the existing reports there were no reference to this common KPI. A sample graph is shown in Exhibit 13 showing both RSM for revenue from P&D and comparing it to other technology, Pay-on-foot, which the City does not currently use, but is common in parking garages, such as Pearson Airport. If and when the City deploys Pay-on-foot and Pay by Phone technology additional RSM bars may be added to this type of graphic. This data should be integrated with monthly parking permit revenue that is collected separately from the P&D revenue.

All paid parking facilities managed by the City should include RSM as part of monthly, quarterly and annual reporting.

Exhibit 13: Revenue Per Stall



OPERATING COST PER STALL PER MONTH

Similar to the Revenue Per Stall Per Month (TSM), the Operating Cost Per Stall Per Month should be calculated using cost data from the City's SAP financial management system.

REVENUE TO COST RATIO

The revenue to cost (R/C) ratio of a paid parking service is the fraction of operating costs which are met by the parking fees paid by parkers. It is calculated by dividing the parking services total parking revenue by its total operating expenses. Parking facilities that have R/C ratios that are equal to or greater than 100% are breakeven or generate surplus, while those with R/C ratios below 100% are not profitable. The City's Regulatory Services group, which includes parking enforcement, does use the R/C ratio in their annual budget submission, as shown in Exhibit 14: Mississauga's Revenue to Cost Ratio.

Exhibit 14: Mississauga's Revenue to Cost Ratio

Measures for Regulatory Services	2013 (Actual)	2014 (Actual)	2015 (Actual)	2016 (Plan)	2017 (Plan)	2018 (Plan)	2019 (Plan)	2020 (Plan)
Financial:								
Revenue to cost ratio (%)	84.8%	88.4%	100%	92%	93%	94%	95%	96%
Revenue Target (%)	92%	93.6%	112%	100%	100%	100%	100%	100%
Customer:								
Parking Consideration Provided	27,168	31,872	44,855	33,000	34,000	35,000	35,000	36,000
Service Request Received	45,344	48,103	50,272	53,000	55,000	57,000	59,000	59,000
Employees/Innovation:								
Employee Engagement Survey/Job Satisfaction	N/A	N/A	58.8%	N/A	N/A	77%	N/A	N/A
Employee Engagement Survey/Employee Satisfaction with City	N/A	N/A	70.3%	N/A	N/A	74%	N/A	N/A
Internal Business Process:								
Licences Issued	36,522	38,298	41,353	39,000	39,000	39,000	39,000	39,000
Council Requests Meeting Turnaround Targets (%)	87.5%	86.3%	88.9%	92.5%	93%	94%	95%	96%

Exhibit 15 Revenue to Cost Ratio Review below shows an example of the financial performance of parking lots and on-street meters using the Revenue to Cost ratio KPI. Poor performing parking facilities may be reviewed with improvement plans and/or for possible disposal or sale. All paid parking facilities managed by the City should include R/C ratios as part of monthly, quarterly and annual reporting.

Exhibit 15 Revenue to Cost Ratio Review

Parking Facilities	No. of Spaces	2015 Occupancy	Annual Revenue	Annual Expenses	Net Revenue	Revenue/Cost Ratio	Revenue Per Space Per Year
LOT A	45	na	\$ 14,290	\$ 8,080	\$ 6,210	177%	\$ 317.56
LOT B	84	27%	\$ 14,000	\$ 27,320	\$ (13,320)	51%	\$ 166.67
LOT C	142	52%	\$ 33,315	\$ 38,455	\$ (5,140)	87%	\$ 234.61
LOT D	22	23%	\$ 600	\$ 8,870	\$ (8,270)	7%	\$ 27.27
LOT E	212	27%	\$ 2,200	\$ 50,325	\$ (48,125)	4%	\$ 10.38
LOT F	35	41%	\$ 665	\$ 8,755	\$ (8,090)	8%	\$ 19.00
LOT G	68	na	\$ 26,785	\$ 9,665	\$ 17,120	277%	\$ 393.90
LOT H	132	50%	\$ 47,200	\$ 37,040	\$ 10,160	127%	\$ 357.58
LOT I	157	57%	\$ 2,500	\$ 33,990	\$ (31,490)	7%	\$ 15.92
LOT J	77	14%	\$ 100	\$ 14,565	\$ (14,465)	1%	\$ 1.30
On-street Meters	346	23%	\$ 165,100	\$ 110,175	\$ 54,925	150%	\$ 477.17
Sub-total	1320		\$ 306,755	\$ 347,240	\$ (40,485)	88%	\$ 232.39

Source: Example from other parking studies completed by consultant.

Through some software development or programming in Excel, all of these KPIs can be shown in a monthly dashboard report.

OTHER KEY PERFORMANCE INDICATORS

There are a number of other basic parking service benchmarks relevant to municipal locations with paid parking that should be tracked on a monthly, quarterly and annual basis, they include:

- On-street parking spaces as a percentage of total parking spaces
- Surface parking spaces as a percentage of total parking spaces
- Structured parking spaces (i.e. City Hall garage) as a percentage of total parking spaces
- Administrative costs as a percentage of total operating costs
- Enforcement costs per metered space
- Maintenance costs as a percentage of total operating costs.

3.3.2 CAPITAL RESERVES AND RESERVE FUNDS

The City regularly tracks its capital reserves and reserve funds, including Cash In Lieu of Parking, as shown in Exhibit from the City's 2017 Budget, this should be continued.

Exhibit 16: Mississauga's Capital Reserve Funds

RESERVE FUND	Balance January 01, 2016 (\$000)	2016 Projected Contributions (\$000)	2016 Projected Interest (\$000)	2016 Projected Expenditures (\$000)	Projected Balance December 31, 2016 (\$000)	2017 Projected Contributions (\$000)	2017 Projected Interest (\$000)	2017 Projected Expenditures (\$000)	Projected Balance December 31, 2017 (\$000)
Development Charges Reserve Fund	38,343	26,154	265	(46,818)	17,944	25,000	46	(40,040)	2,950
Cash In Lieu of Parkland	58,397	14,500	1,863	(5,136)	69,624	13,890	2,276	(1,807)	83,983
Cash in Lieu of Parking	5,594	329	147	(573)	5,498	495	118	(1,330)	4,781
Developer Contributions Reserve Fund	18,042	3,300	649	(4,015)	17,976	394	639	(1,670)	17,339
Bonus Zoning	646	5	18	0	669	0	19	0	688
Lot Levy Reserve Fund	44,083	0	1,212	0	45,295	0	1,262	0	46,557
Total Development Related Reserve Funds	165,105	44,289	4,154	(56,542)	157,006	39,779	4,359	(44,847)	156,297

Note: Numbers may not add due to rounding.

3.4 ENFORCEMENT

Regular and consistent enforcement is critical to the success of any municipal parking service in order to achieve paid compliance. The City's Parking Enforcement section currently tracks parking violations (tickets) by type of parking ticket, fine amount, number of voided tickets and valid tickets. From the City's Violation Summary Report for 2015, the City issued 190,613 parking tickets amounting to \$8.6 million in fine revenue.

3.4.1 PAID COMPLIANCE

Paid compliance refers to those motorists who have paid for the proper amount of time they use a parking space in accordance with the posted parking rates; that is, the P&D ticket was paid for, unexpired and properly displayed on the dashboard of the vehicle. Paid compliance excludes vehicles which park free-of-charge by displaying Accessible Parking Permits. Hence, paid compliance rates reflect the degree to which vehicles which are required to pay actually abide by the paid parking by-laws.

With P&D machines the only way to measure paid compliance is to deploy surveyors to observe whether vehicles have a valid permit displayed on the dashboard, the time has expired or there is no permit present. In our review, the parking violation data was available, however, there was no data on paid compliance and therefore the City may or may not be optimizing compliance levels.

Depending on the frequency of enforcement patrols, paid compliance rates may vary from 60% to 95% and therefore, it's important to measure paid compliance through sample "snapshot" surveys annually.

SNAPSHOT SURVEYS – PAY AND DISPLAY

In order to determine the effectiveness of compliance to parking fees and posted time limits, it is recommended that annual "snapshot" surveys be undertaken, particularly at high utilization locations. A "snapshot" survey is synonymous with sampling of parking utilization at various City on street and off street parking facilities over a period of time (i.e. 9 a.m. to 4 p.m.) on a selection of days (i.e. a Monday, Thursday and Saturday) normally in the peak season i.e. October or May.

With pay and display (P&D) machines compliance snapshot surveys are done as part of the same parking utilization surveys. For example, surveyors are deployed during the weekday and weekend periods (covering the AM, Noon and PM) when pay parking is in effect at core area on-street pay parking spaces controlled by P&D machines. Each surveyor walks a predetermined data collection route and logs the following data on a survey sheet that is subsequently added into a database for analysis:

- Whether or not a P&D machine was operational, out-of-service or hooded (e.g. due to road closures; construction, special events, etc.);
- Whether or not a P&D receipt was displayed;
- Whether or not the P&D receipt showed evidence of payment;
- The amount paid;
- Whether or not the P&D receipt had expired;
- Whether or not an Accessible Parking Permit was displayed;
- Whether or not a parking violation ticket was present (for those vehicles in violation).

Mobile LPR (Licence Plate Recognition) technology is a very efficient method of collecting pure parking occupancy data, however, it is not useful for determining compliance because the LPR cameras cannot pick up the information related to Pay and Display operations i.e. presence of a P&D receipt, expiry, violation ticket issued and presence of Accessible or Monthly Parking Permit or regular monthly parking permit. Each surveyor must approach each vehicle and check dashboards and windshields for such information.

3.4.2 PARKING BY-LAW VIOLATION

Another way of looking at paid parking compliance rate is via the paid violation rate – the additional percentage of paid compliance required to reach a total of 100% paid compliance. The paid violation rate excludes vehicles which park free-of-charge with Accessible Parking Permits. The violations observed may be vehicles which carry an expired P&D ticket, were parked at an expired meter, or had not purchased a P&D ticket at all. In our review of the City data, there was no data on the paid violation rate.

Depending on the frequency of enforcement patrols, paid violation rates may vary from 5% to 40% and therefore, it's important to measure violation rates through sample “snapshot” annual surveys performed by surveyors.

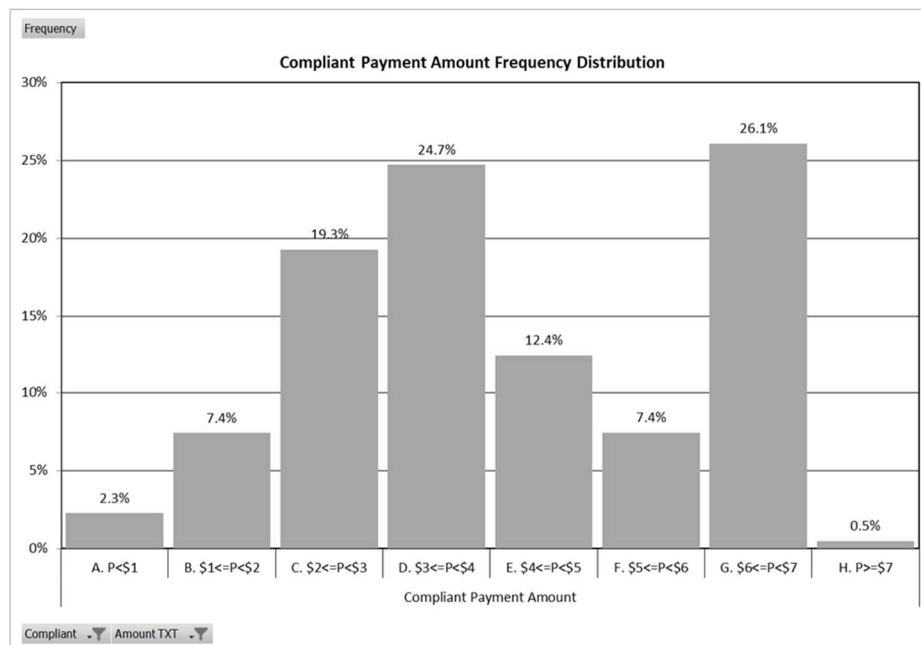
From the snapshot surveys and in addition to the parking utilization data tables and graphs previously outlined, the following are examples from various parking studies undertaken by our consulting team and how the data is used.

COMPLIANT PAYMENT AMOUNTS

The distribution of the compliant transactions is displayed in Exhibit 17.

In this example, of the compliant transactions, 2.3% were less than \$1.00, 7.4% were between \$1.00 and \$2.00 and over 90% exceeded \$2.00. Hence, the opportunity for potential abuse by motorists who purchase less than \$2 of parking time and exceed the time limit (with hopes of by-law violation ticket avoidance), represented less than 10% of the total.

Exhibit 17: Compliant Payment Amount Frequency Distribution

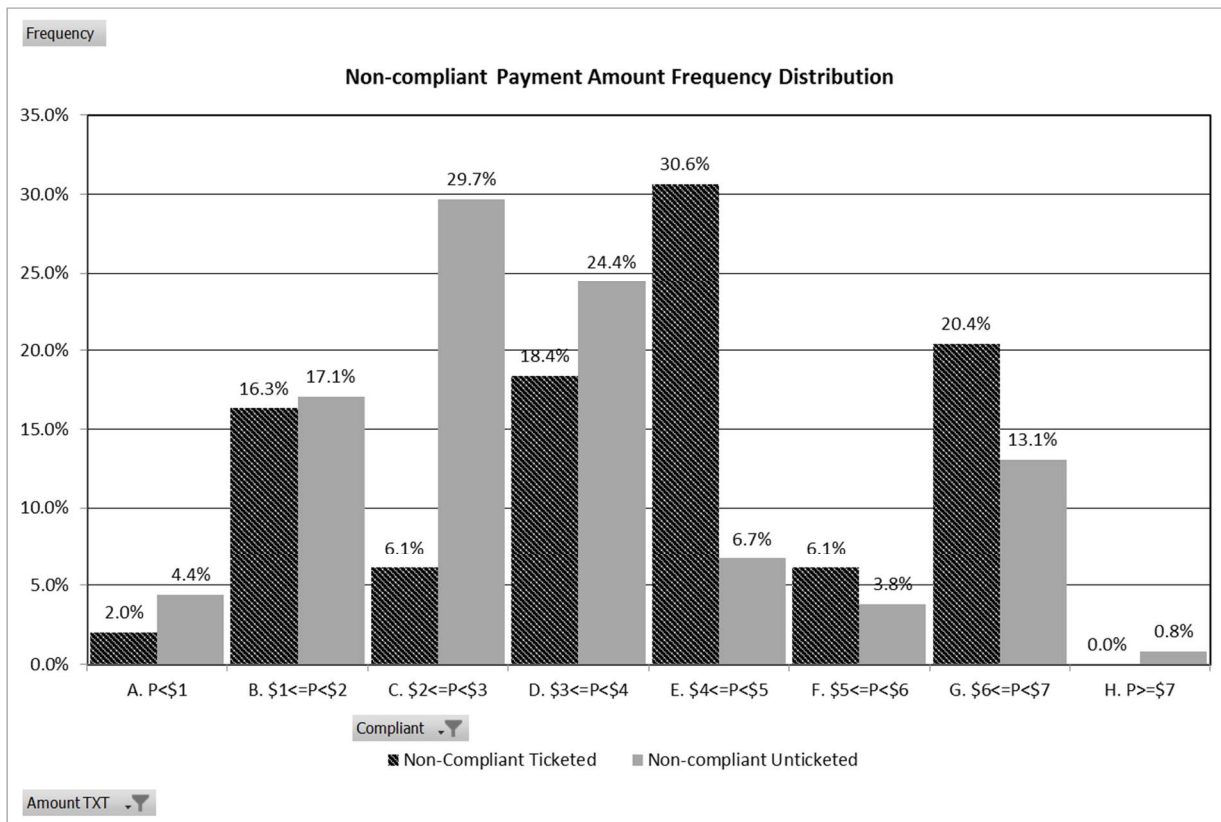


NON-COMPLIANT PAYMENT AMOUNTS

Another example, the distribution of the compliant transactions is displayed in Exhibit .

The highest positive variance between un-ticketed parking incidents and ticketed parking incidents occurred between the \$2.00 and \$3.00 payment amounts, where 29.7% of non-compliant un-ticketed vehicles were observed, but only 6% of non-compliant ticketed vehicles were counted. This finding suggests that paying between \$2.00 and \$3.00 while parking longer would give a person the best chance of evading a ticket. The highest positive variance between ticketed parking incidents and un-ticketed parking incidents occurred between the \$4.00 and \$5.00 payment amounts, where 30.6% of non-compliant ticketed vehicles and 6.7% of non-compliant un-ticketed vehicles were counted. This finding suggests that paying between \$4.00 and \$5.00 while parking longer would give a person the greatest chance of being ticketed for non-compliance with parking by-laws.

Exhibit 18: Non-compliant Payment Amount Frequency Distribution



3.4.3 BY-LAW ENFORCEMENT

The parking violation ticket capture rate is the percentage of total parking infractions that are actually issued parking violation tickets by By-law enforcement officers. It is impractical to issue tickets to 100% of violators as every parking space would have to be enforced continuously over several hours throughout the day. This would be prohibitively expensive and inefficient with current technology. It is also unnecessary, as enforcement can be random (motorists unaware of the timing of enforcement patrols), yet reasonably frequent to encourage compliance. In our review, there was no City data on the violation ticket capture rate.

Parking violation ticket capture rates may vary widely depending on the frequency of enforcement patrols. In downtown cores, violation ticket capture rates are typically less than 20% i.e. out of the total violations, 20% are actually issued parking tickets. The City should conduct surveys to determine the violation ticket capture rate. The surveys would include, surveyors record the number of vehicles with expired P&D tickets (or no P&D tickets) and record on their survey sheet whether a parking violation ticket was issued by a By-law enforcement officer for each of the violation.

PARKING VIOLATION TICKET CAPTURE RATE

The parking violation ticket capture rate is the percentage of total parking infractions that are actually issued parking violation tickets by by-law enforcement officers. It is impractical to issue tickets to 100% of violators as every parking space would have to be enforced continuously over several hours throughout the day. This would be prohibitively expensive and inefficient with current technology. It is also unnecessary, as enforcement can be random (motorists unaware of the timing of enforcement patrols), yet reasonably frequent to encourage compliance.

Parking violation ticket rates from an example survey are shown in Exhibit 19.

The total parking violation ticket capture rates are relatively close across-the-board, ranging from 10% to 17%. Examination of specific on-street sub-zones in the table hints at the existence of parking violation ticket capture rates which are significantly greater than the average. Several sub-zones with ticket capture rates in excess of 20% can be identified. If the frequency of enforcement patrols were increased combined with careful observations by by-law enforcement officers of P&D receipts, paid compliance levels would increase substantially.

Exhibit 19: Parking Violation Ticket Capture Rates

On-Street Sub-Zone	Ticket Capture Rate		
	June 2013	Fall 2013	June 2014
4B	7%	20%	11%
4C	20%	18%	0%
5A	50%	49%	6%
5B	0%	7%	9%
5C	17%	22%	10%
6A	8%	0%	52%
6B	30%	22%	0%
6C	0%	0%	3%
6D	22%	10%	18%
8A	1%	0%	6%
8B	1%	3%	10%
9C	12%	61%	8%
9D	3%	23%	14%
9E	7%	0%	8%
Sub-Zone Average Total	10%	17%	10%

4 SUMMARY OF PARKING DATA COLLECTION AND MANAGEMENT FRAMEWORK

The proposed Parking Data Collection and Management Framework is inherently linked to the broader objectives of the PMPIS. The following provides the major element of a parking data management framework and the outline in data that should be collected and its subsequent analysis. The details must be updated over time to reflect changes in the system.

DATA MANAGEMENT FRAMEWORK

- A. In the long term the City should invest in smart parking database and software program these system has the following benefits to the City:
 - Improved traffic flow / reduced congestion
 - Statistical and real-time information on parking vacancies
 - Intelligent usage of infrastructure
 - Simplified parking data collection at a reduced cost
 - Possibility of convenient cashless parking via automated up-to-the-minute billing
 - Safer traffic with efficient enforcement of illegal parking activities
 - Usage of smart parking infrastructure and data for multiple applications in and beyond traffic Management
 - Encourage the use of public transportation at times of congestion
- B. Prior to having a smart parking system in place the City should develop a database that houses the parking data provided through the Precise data warehouse for all its machine, supplement this data through parking surveys of the missing data in order to have a complete database.
- C. The database should have GIS capabilities that allow the addition of data attributes, including spatial information.
- D. The Database should be updated on very regular interval (monthly) and link with other key city database or information such as land use, zoning, building, transportation and transit.

DATA COLLECTION

- A. The City should consider developing an annual parking data collection program. At a minimum the program should include the following:
 - ✓ Parking utilization and duration at all (not just those currently under the Parking Unit control) City Parking facilities where the Precise data is not available
 - ✓ Paid Compliance Surveys

The surveys should capture seasonal difference at key locations such as Port Credit.

- B. The City should update the database with planned and approved development and identify sites with parking variances.
- C. The City should conduct follow up parking surveys for at least three years at key locations where the approved parking supply is different than the By-law and conduct comparison with the By-law requirements
- D. The City should conduct annual parking utilization on private properties to understand actual parking demand trends and compare the results with By-Law requirements. The site to be selected should be representative of the City (rural, downtown, suburban, neighbourhood, and transit corridors). The land uses should also vary and include residential condo, townhouse, office, employment, retail, institutional (various religious Place of Worship).
- E. The City should conduct annual or bi-annual Customer Service Surveys that capture all its facilities.

DATA ANALYSIS

- A. The City should conduct detail analysis of the database information on an annual basis to identify trends, changes in parking behaviours and parking problem by locations.
- B. The analysis should include:
 - a. Parking Utilization, duration and compliances
 - b. Customer Surveys
 - c. Financial Review of Key Performance Index and Compliance Rates

ACTION PLAN

Based on the results of the annual review the City should develop an Action plan on how to address key issues. These action items should be coordinated with the PMPIS for consistency of the Vision and policies. This information must be shared with other City departments.

APPENDIX

A GLOSSARY



APPENDIX

Accessible Parking Permit (also referred to as an APP or Handicap Permit): A provincially authorized parking permit for persons who have disabilities, which allows vehicles to park for free in certain municipalities, such as Ottawa.

Accessible Permit Occupancy: The proportion of operational paid parking spaces occupied by vehicles displaying Accessible Parking Permits (APPs).

$$\text{Accessible Permit Occupancy} = \frac{\text{Number of Vehicles with APPs}}{\text{Number of Operational Metered Spaces}}$$

Blockface The geographic area along one side of a street, from one intersection to a subsequent intersection upon which vehicles park either in parallel formation or angled (typically 45, 60 or 90 degrees) from the curb of the street.

Capacity: The maximum number of parking spaces available for use.

Capture Rate (also referred to as the Violation Ticket Rate or Ticketing Rate): The proportion of parked vehicles in violation (i.e. have an expired P&D ticket or no P&D ticket) which were issued a municipal parking ticket by a by-law enforcement officer.

$$\text{Capture Rate} = \frac{\text{Number of Parking Tickets Issued}}{\text{Number of Occupied Expired and/or Unpaid Parking Spaces}}$$

Demand: The number of vehicles seeking a parking space at a particular location during a specific time period. The demand indicator is the number of vehicles parked at any time. However, demand may exceed the number of parked vehicles, as once all of the parking spaces are full, vehicles must park elsewhere.

Empty (also referred to as Vacant): The total number of operational metered parking spaces which were not occupied by a vehicle during a survey period.

Hooded: A metered parking space controlled by a P&D machine fitted with a hood, a bag or other covering placed by authorized personnel to indicate that it not to be used.

Occupancy (also referred to as Utilization): The percentage of operational parking spaces occupied by parked vehicles at any one time. Occupancies in excess of 100% suggest overflow conditions.

Operational Metered Spaces: The total number of P&D machine controlled parking spaces which were considered operational during the survey period.

$$\text{Operational Metered Spaces} = \text{Total Metered Spaces} - \text{Out of Service spaces} - \text{Hooded Spaces}$$

Out-of-Service: A metered parking space with a defective P&D machine or a P&D machine rendered unusable due to construction activities, maintenance activities, special events or vendor activities.

Paid Compliance Rate: The proportion of parked vehicles in compliance (i.e. have time remaining on their P&D tickets) in relation to all parked vehicles which are required to pay to park. This rate excludes vehicles which park free-of-charge because they display Accessible Parking Permits.

$$\text{Paid Parking Compliance Rate} = \frac{\text{Number of Parked Vehicles in Compliance}}{\text{Total Number of Parked Vehicles Required to Pay (excludes APPs)}}$$

APPENDIX

Pay & Display Machine (also referred to as a P&D Machine or Multi-space Meter): A type of parking permit issuance machine used for regulation of both on-street parking and/or off-street parking. A customer purchases a permit (referred to as a P&D ticket or receipt) from the machine and displays the ticket on the vehicle dashboard such that it is visible to parking by-law enforcement officers on patrol. One machine services multiple vehicle spaces. Purchases can be made by coins, credit cards and smart cards.

Pay & Display Ticket: A paper receipt (also referred to as a P&D permit) issued by a P&D machine which shows the location of the machine, its operator, the parking expiry time, the fee paid and the date/time stamp for the transaction.

Paid Parking Occupancy Rate: The proportion of operational paid parking spaces occupied by vehicles which are in paid compliance (i.e. have paid time remaining on their P&D tickets).

$$\text{Paid Parking Occupancy Rate} = \frac{\text{Number of Parked Vehicles in Paid Compliance (excludes APPs)}}{\text{Number of Operational Metered Spaces}}$$

Parking Ticket (also referred to as a Parking Violation Ticket): A metered parking space occupied by a parked vehicle with an expired P&D ticket or without a P&D ticket, which has been issued a parking violation notice by a municipal by-law enforcement officer.

Pay-By-Phone: A paid parking space occupied by a parked vehicle with a license plate validated as paid-for by an official pay-by-phone registry. Validation is conducted via handheld wireless devices operated by municipal by-law enforcement officers.

Pay-By-Phone Occupancy Rate: The proportion of operational paid parking spaces occupied by parked vehicles which are listed in the pay-by-phone registry.

$$\text{Pay by Phone Occupancy Rate} = \frac{\text{Number of Parked Vehicles which use Pay by Phone}}{\text{Number of Operational Metered Spaces}}$$

Revenue to Cost Ratio: The revenue to cost (R/C) ratio of a paid parking service is the fraction of operating costs which are met by the parking fees paid by parkers. It is calculated by dividing the parking services total parking revenue by its total operating expenses.

Single Space Parking Meter: A device used to collect money, usually coins, in exchange for the right to park a vehicle at a parking space for a for a specific amount of time. The most common application is one parking meter which serves one parking space.

Total Metered Spaces: The total number of metered parking spaces or P&D parking spaces surveyed during a survey period.

Total Parking Occupancy Rate (also referred to as the Utilization Rate): The proportion of operational paid parking spaces occupied by a parked vehicle.

$$\text{Total Parking Occupancy Rate} = \frac{\text{Number of Parked Vehicles}}{\text{Number of Operational Metered Spaces}}$$

Zone: A geographic area consisting of a cluster of sub-zones with an underlying rationale for the grouping.

APPENDIX

B SAMPLE CUSTOMER SERVICE SURVEY

'A Local Company with a Regional Presence Serving Yo...

CUSTOMER SATISFACTION SURVEY

Dear Valued Customer:

As a measure of our service and as a commitment to our goal of continuous improvement, we would like to thank you for taking the time to submit this survey letting us know how we're doing.

At Landmark Parking, we take pride in the operation and appearance of all of our facilities, as well as the level of service provided to each of our clients and customers. We encourage feedback from everyone we serve at all times, whether it's a 'pat on the back' or a suggestion to improve our service delivery.

Thank you for choosing Landmark Parking and for taking the time to let us know how we are doing.

Management & Staff,
Landmark Parking, Inc.

Name

Email Address (Optional)

Phone (Optional)

Would You Like us to Contact You?

☐ Yes

☐ No

Parking Facility (If Applicable)

Select ▼

Please Select a Rating as Applicable

(5) Excellent (4) Very Good (3) Good (2) Fair (1) Poor

General Facility

1. Overall appearance of the facility (Sound structure, lighting, etc).

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

2. Accessibility to walkways, Stairways and elevators (inc. Handicap accommodations).

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

3. Condition of stairways, elevators, etc.

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

4. Signage (Parking areas, restrictions, directions, etc.)

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

5. Posting of rates, policies and regulations.

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

6. Overall cleanliness of facility.

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

Personnel

1.Overall appearance of staff.

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

2. Friendly service and assistance

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

3. Knowledgeable (Policies and procedures, rates, specials, general area, etc.).

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

Other

1. General security of facility (Staff awareness, controlled access vs. general access to the public).

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

2. Special Security (Onsite security staff).

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

3. Parking equipment ease of use (Ticket machines, payment centers, etc.).

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

4. Administrative Services (Obtaining monthly parking permits, payment reconciliation, problem resolution, etc.).

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

Additional Comments

Submit