# Parking Break

Multi-unit residential off-street parking requirements in Canada

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**Abstract**

Parking requirements are an important part of urban planning. Parking influences a number of behaviours and measures relevant to planning, including mode choice, density, urban form and housing affordability. Much research on parking has taken place in American cities which have different demographic, regulatory, and transportation contexts than Canadian ones. This research is an examination of off-street parking requirements in Canadian cities. It focuses on parking standards for multi-unit residential buildings, explores different approaches used in this regulatory practice and sheds light on the ways in which Canadian cities are dealing with parking requirements today. This is done through a scan of parking requirements across the 30 largest cities in the country, the detailed analysis of parking policies and of their objectives in four cities, and interviews with professionals in Toronto and Vancouver on the political, economic and institutional forces that have shaped their city's parking regulations. Findings suggest that large Canadian cities are facing pressure to better manage their parking systems, leading to the development of new tools to regulate parking in increasingly sophisticated ways. The paper concludes with recommendations for planners to consider when developing parking requirements, cautions them about the ways in which such requirements can be misused, and encourages them to continue to innovate and challenge accepted practices of parking regulation.

**Résumé**

Les normes de stationnement exigé sont un enjeu clé dans la planification urbaine. Le stationnement a une grande influence sur plusieurs facteurs liés à l'urbanisme, y compris le choix du mode de transport, la densité, la morphologie urbaine, et l'abordabilité des logements. La grande majorité de la recherche sur le stationnement a examiné des villes aux États-Unis qui montrent de grandes différences au niveau de la démographie, de la régulation, et du transport. La présente étude vise à examiner les normes de stationnements pour les immeubles avec plusieurs unités de logement au Canada, les approches différentes utilisés par les villes Canadiennes, et les outils dont les villes se servent pour gérer le stationnement hors rue. L'étude commence par une présentation des nombres d'unités de stationnements exigés dans les plus grands villes du Canada, se poursuit avec une analyse des règlements de stationnement de quatre villes particulières, et conclut avec des entrevues avec des professionnels et des membres de l'administration municipal à Toronto et à Vancouver sur les forces politiques, économiques, et institutionnelles qui ont influencé les règlements de stationnement de leurs villes. L'étude démontre que les plus grandes villes du Canada font face au besoin de mieux gérer leurs systèmes de stationnement, ce qui requiert la création de nouveaux outils pour influencer l'offre et la demande de stationnement de manière plus sophistiquée. L'étude conclut avec des recommandations pour les urbanistes qui développent les politiques de stationnement, les avertissant comment des abus qui peuvent avoir lieu dans l'utilisation des normes de stationnement et les encourageant à remettre en cause les pratiques courantes de la planification du stationnement.

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## List of definitions

**CBD / DT** – The Central Business District is generally the geographic, economic, and commercial centre of a city. It may also be referred to as the downtown.

**CIL** – Cash in Lieu of parking is a policy that can allow for the responsibility for the provision of a quantity of required parking spaces to be transferred from a property owner to the City in exchange for a set fee paid to the municipality.

**DU –** A Dwelling Unit is a residential unit regardless of size or type. A dwelling unit may be a bachelor apartment, a three-bedroom condominium, a townhouse, a single detached home, or a number of other forms.

**FAR** – Floor Area Ratio is the ratio of total net floor area of a building to the total lot area.

**GFA** – Gross Floor Area can be calculated differently by various municipalities, but is defined by the City of Toronto as "the total floor area, measured between the outside of exterior walls or between the outside of exterior walls and the centre line of party walls dividing the building from another building, of all floors above the average level of finished ground adjoining the building at its exterior walls."[1]

**NCC** – The National Capital Commission is a Crown corporation of the Government of Canada. The corporation is responsible for planning, as well as taking part in the development, conservation and improvement of Canada's Capital Region.

**NCR** – The National Capital Region is the designation given to the region of Canada's capital, including the Cities of Ottawa and Gatineau and the surrounding area.

**OCP** – An Official Community Plan is a planning document created by municipalities in British Columbia. An OCP is a statement of objectives and policies to guide decisions on planning and land use management, within the area covered by the plan, respecting the purposes of local government.[2]

**OP** – An Official Plan is a planning document created by municipalities in Ontario. An OP describes policies on how land in a community should be used.

**Parking regulation** – Parking regulation refers broadly to all municipal tools used to shape parking supply and demand, for example parking prices, time limits, taxes, residential permit programs, off-street requirements, and more.

**Parking requirements** – Are a specific form of parking regulation that requires a certain number of parking spaces to be associated with each lot based on its land use designation.

**ROI** – Return On Investment is the amount of value that accrues to an investment compared to initial cost.

**RPP** – Residential Permit Programs restrict the ability to park on some streets to holders of permits, typically residents of those streets.

**Section 37** – A section of the Ontario Planning Act that allows municipalities to enter into agreements with developers to allow increased height and density in exchange for "facilities, service or matters", generally cash contributions used for local community benefits, although construction of infrastructure or playgrounds/parks by a developer is not uncommon. These are known as Section 37 agreements.

**Section 45** – A section of the Ontario Planning Act that allows municipalities to permit minor variances through the Committee of Adjustment. This committee can also agree to conditions on such a variance though a process similar to Section 37, creating a Section 45 agreement.

**TDM** – Transportation Demand Management is a term used for a suite of programs and policies used to manage demand for transportation, typically by reducing reliance on single-occupant cars. These programs and policies may include infrastructural changes, education programs, subsidies or price increases and other tools.

**TMP** – A Transportation Master Plan is a document created by municipalities to set out their transportation objectives, goals, and policies.

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## 1.1 Issue

Parking requirements are a central issue when considering how a city is planned. They can be discussed in terms of a wide range of aspects of urban life including land use, transportation, urban form, emissions, equity, and more. The amount of parking that cities require to be provided in multi-unit residential buildings is a key part of this subject. The amount of parking required or permitted to be built influences the cost of housing, the likelihood of a resident choosing to own and use a car, where residents choose to live, the density of development, and what built form development will take. This paper will address how Canadian cities determine how much off-street parking to require for multi-unit residential developments.

Multi-unit residential buildings are the subject of this paper, rather than parking requirements for all land uses in general, since such an analysis of all land uses would be too great a scope. Multi-unit buildings are selected as focus over other residential types such as single-family dwellings or other building forms with lower density due to growing trends of multi-unit construction in Canadian cities, and the wider range of approaches that are possible in multi-unit buildings, compared with the surface parking that is ubiquitous for less dense forms.

The availability of parking, particularly free parking, is a major factor in mode choice. Requiring real estate developers to provide parking has been argued to distort the market for parking and increase the supply of parking spaces while reducing the price to the user – but not the costs – of parking, making the cost of car use more competitive relative to other modes. There is a growing awareness of the negative social and environmental impacts of planning cities with single-occupant automobiles as the primary mode of transportation. Communities suffer negative impacts from being designed in such a way as to privilege driving and discourage active transportation though low-density city layout, low walkability, euclidean zoning, and other planning choices. Such less-walkable areas have been shown to correlate with higher rates of obesity and diabetes,[3] increased greenhouse gas emissions,[4] and higher rates of traffic fatalities,[5] among other effects.

Requiring parking for most land uses reduces the price but not the cost of parking by transferring this cost from the person using it to all other users of a site. For instance, a convenience store must provide parking spaces, maintain the lot, and pay taxes on the land on which cars park. In the vast majority of cases, this parking is free for customers. The costs of parking are recouped through the higher price of goods for all customers whether they use the parking or not. Admittedly, free provided parking allows many customers to stop and shop that might otherwise take their business elsewhere, creating a benefit for non-drivers by facilitating complementary users that help make businesses viable. The same occurs for residential buildings: most municipalities require parking to be provided with residential dwelling units, and most buyers and renters must then pay for them regardless of their car ownership.[6]

Parking lots reduce density by dedicating space that could be put to other uses to the storage of automobiles.[7] While there is a role for the balanced provision of parking, many studies have shown that parking is oversupplied for the vast majority of the time.[8,9] The ways in which cities attempt to influence

parking supply and demand can directly influence the development of their built form and residents' transportation choices. Parking is an urban issue with significant consequences.

This paper is an examination of off-street parking requirements for multi-unit residential buildings, of different approaches used in this practice, and of ways in which Canadian cities are dealing with parking requirements. Multi-unit residential buildings, in the form of apartment buildings and condominiums, are defined in a range of ways by different cities. Typically the definition of a multi-unit residential building is based on the number of dwelling units – Toronto defines this as nine units or more, Ottawa as four or more, Vancouver as three or more, and other cities have selected different numbers. Despite the varying definitions, this paper will address the building type with the largest number of dwelling units permitted by each city's zoning bylaw.

## 1.2 Methodology

This paper will address the question of how Canadian cities determine how much off-street parking is required to be provided for multi-unit residential developments. This paper was developed through a series of methodological steps comprised of a literature review, a general scan of policies in 30 cities, an analysis of regulations in four cities, and interviews with professionals in two cities. This was a successful process for addressing the research question thanks to a progression from general understanding to specific findings.

First, this paper addresses the 'what' of parking requirements. A literature review was performed to provide a basic understanding of the subject and help to set the foundation of existing research on which this particular study could be developed. Moreover, the literature review enabled the researcher to understand and analyze the parking requirements, bylaws, policies, and interview responses that would follow in later sections of the research. In particular, it helped to identify a number of critical factors in the adoption and implementation of parking policies and standards and thereby helped to develop a set of criteria to use in the analysis of policies and standards and a set of questions to pose in the interviews. These factors included:

1. Policy context: How provincial laws and guidelines, regional and municipal plans, and parallel policy objectives influence requirements in specific sites, neighbourhoods, and areas. Parking requirements are a part of how a city shapes its long-term development pattern.
2. Institutional context: How cities' capacity and willingness to manage complex zoning and bylaw systems can influence the feasibility of context-specific requirements or the management of a limited parking supply through paid public parking. Parking requirements are one aspect of the overall management of the parking supply, and can take a range of levels of resources to manage.
3. Economic context: How development pressure, property and construction costs, demographic trends, and local supply help to shape demand for parking. Parking requirements are one aspect of the economic calculation of real estate development, and developers take buyer demand for parking into account in their pro forma calculations.

The next step was a scan of the multi-unit residential parking requirements of Canada's 30 largest cities by population. The scan helped to go from the general findings of the literature review to of the specific

findings of the interviews. It was needed to establish a base of existing parking requirements across Canada. It revealed the diverse ways that cities determine and define their parking requirements and showed that while there are broad commonalities between Canadian cities, the field is not entirely static and certain innovations are worth further study. In short, the scan allowed the researcher to find these innovations and divergences from common practice in order to identify four cities for further analysis.

The four cities in this deeper analysis were selected as examples of municipalities with unique parking requirements. Toronto was selected in part because of its role as Canada's largest urban area, the fact that its requirements are based on recent and rigorous study, as well as its use of requirements that are applied to reduce parking near transit. Vancouver was selected for further evaluation due to its strong development industry, unique method of calculating requirements, and interesting cash-in-lieu and community amenity contribution systems. Ottawa was selected due to its recent investments in Light Rail Transit (LRT) and studies into Transit-Oriented Development (TOD) at LRT stations with reduced parking supply, as well as the repeal of its Cash-in lieu (CIL) policy. Winnipeg was selected as the fourth city due to the lack of parking requirements in its downtown core, a novel situation in Canada.

This deeper analysis of four cities began to reveal how parking requirements can be applied through unique mechanisms in different areas, uncovering the flexible tools cities use to vary parking requirements. The analysis of these cities' policies helped the researcher to uncover the less-evident practices for shaping parking supply that do not exist as-of-right, or that have been applied on a site-specific basis, and begin to answer the question of how requirements are set in practice.

This study of practices in four cities included an analysis of the policy context of each set of requirements, the nature of current requirements and the ways in which they are adapted to different areas of each city, and a brief evaluation of the different perspectives on the regulation of parking that are evident in the parking requirements and complementary policies. The policy context of parking requirements includes the hierarchy of policies extending from provincial guidelines and laws, to municipal official plans, to community secondary plans, and in parallel the transportation plans, housing policies, and urban design guidelines that influence how parking is provided. Understanding this policy context helps to identify what is possible in the field of parking requirements and what municipalities can and cannot do. Revealing how requirements are adapted to different areas of a city shows the ways that tools are used to introduce flexibility in parking policies and what types of urban areas can benefit from each tool. If planners take into account how different perspectives influence the development of parking requirements, it may be possible to minimize incongruences between different aspects of plans such as mode share goals that aspire to reduced car use and parking requirements that are based on historic car ownership levels. It is important to analyze these elements in the four cities under study to reveal the influences on parking requirements of legal-political constraints, site- and location-specific considerations, and integration of other parking regulation controls. Considered as a whole, the analysis of these elements helps to set the stage for the interviews by creating a framework to describe the tools and approaches each city used and identifying which cities were experimenting with new approaches. The analysis also helped to develop city-specific questions for interviewees by locating developments

with requirements that were significant departures from the norm and identifying primary and secondary sources that explained how parking requirements had developed in each city over time.

Second, this paper addresses the 'why' of parking requirements. It does so by means of interviews with participants in Toronto and Vancouver who offer insight into the reasons for their cities' parking requirements and possible reductions. The interviews were needed to understand the practical experience of professionals in setting and applying parking standards and the way in which the application varies from a strict reading of zoning bylaws. The interviews in the two cities provided the most novel findings thanks to the personal testimony of professionals. They helped to discover variations between cities, to show how the planning process influences the outcome of parking requirements, and to develop lessons for other planners based on real-world experiences. These lessons concern the tools used by Toronto and Vancouver, their success and failures, and the political, institutional, and economic forces that must be taken into consideration.

These two cities were selected as the sites for interviews due to their size and to the existence of robust studies supporting the setting of parking requirements, as well as for the strong development industries in each city. In smaller cities with less development, there may certainly be other trends and findings to uncover, but it is easier to observe the application of parking requirements in cities where more real-estate development is occurring.

Interviews were selected as the research tool for this section in order to best uncover the qualitative experiences, perceptions, and opinions of experienced professionals in the field. While tools such as surveys and analysis of municipal committee minutes were considered, these were deemed to be insufficiently flexible and revelatory given the diverse range of potential interviewees. Invitations were sent to planners, politicians, leaders of non-governmental organizations, academics, journalists, consultants, and members of committees of municipal governments. Interviews were held with all those who responded to the invitation. They concerned their experience with multi-unit residential parking requirements, how they are set, what perspectives they reflect, and how they have changed over time. A standard set of interview questions was posed to each interviewee, which can be found in Appendix 1. As each interview progressed in a different manner, unique questions were posed in order to elicit further information on particular issues that the interview had brought up. The research and methodology for this phase, which involved human subjects, was approved by the McGill Research Ethics Board-I; the approved application is attached in Appendix 1. Seven interviews were conducted by phone, Skype, and in-person with Toronto participants and five by phone and Skype with participants from the Vancouver area.

The interviewees are listed below in Tables 1 and 2, and the findings for Toronto and Vancouver can be found in sections 3.1 and 3.2, respectively.

Table 1: Toronto interviewees

| Name | Organization | Position | Note |
|---|---|---|---|
| **Klaus Lehmann** | City of Toronto | Manager, Zoning By-law project | |
| **Joshua Engel-Yan** | Metrolinx | Manager, Hub and Station planning | |
| **Mike Layton** | City of Toronto | Ward 19 Councillor | |
| **Bruce Clayton** | City of Toronto | Manager, Traffic Operations | |
| **Tim Arnott** | BA Group | Principal | |
| **-** | City of Toronto | Zoning Examiner | Name held in confidence, per participant's request. |
| **Jim D'Abramo** | City of Toronto | Director, Zoning Bylaw and Environmental Planning | |

Table 2: Vancouver interviewees

| Name | Organization | Position | Note |
|---|---|---|---|
| **Patrick Santoro** | Urban Development Institute | Policy Analyst | |
| **Paul Storer** | City of Vancouver | Development Review Coordinator for Transportation | |
| **Chris Darwent** | City of Vancouver | Parking Policy Engineer | |
| **Megan Fitzgerald** | City of Surrey | Transportation Planner | |
| **Geoff Meggs** | City of Vancouver | Councillor | |

This paper shows that while larger Canadian cities are innovating with their parking requirements and demonstrating novel ways of regulating off-street parking to influence a range of municipal objectives, many cities retain simple one-size-fits-all parking requirements. Additionally, it discusses how differing perspectives on the role of parking requirements lead to different parking regulations. Finally, it presents the perspectives of professionals with experience in parking requirements in two of Canada's largest cities, and show how politics, economics, and other factors lead to very different approaches to parking. Using these three methods, this paper presents the state of off-street multi-unit residential parking requirements in Canada and shows that this is a field in transition with important implications for urban planning.

## 1.3 Literature Review

In order to lay out the state of current research on this subject, in this chapter the work of other authors on the subject of parking regulation is presented. While the subject has not seen the same level of detail of study as other more colourful aspects of urban planning, recently interest in the topic has increased as congestion levels have risen in many major cities. This section begins with a brief explanation of the history of parking and the types of parking regulations that exist. It continues with a review of the ways in which parking requirements are set, followed by a review of the arguments for different approaches to regulating and influencing parking supply and demand. It then continues with a discussion of costs that are associated with the provision of parking to different actors. Finally, it concludes with an analysis of the effects of the parking supply.

### *1.3.1 History of parking requirements*

While the popularity of the automobile has led to drastic changes to cities over time, personal vehicles initially fit into much the same role and physical space horses did. For many years they shared the road space that now is so wholly devoted to cars. Those wealthy few that could afford cars would park them where they once tied up their horses at the edge of public streets and house them in converted livery stables when they were at home. Early automobiles were not without their detractors, and early attempts to regulate their use and movement are now cited as absurdities; one act of Parliament in the United Kingdom sought to curb the early use of cars by requiring three men to operate them, one of whom was to walk in front of the vehicle with a red flag to warn other road users of the approaching machine.[10]

As cars grew in number, competition for space to park cars increased – particularly in downtowns – and businesses began to call for action. Detroit was the first US city to institute time limits on curbside parking in 1915, and Boston followed suit in 1920.[11] Many of the same debates over parking that take place today can be seen around this time. For instance, traffic engineers and chambers of commerce pushed for removing on-street parking in major city centres in order to improve traffic flow, believing that they would otherwise lose business to competitors in less congested areas. On opposing sides of the debate, the Chairman of the New York Traffic Committee declared in 1929 that “the parked car must go”, while a city businessman declared that “no parking means no business”.[12] In some cities on-street parking was banned in congested areas, including Chicago’s CBD in 1928 and overnight in Manhattan until the late 1940s.[13]

Concerns over how to ensure that enough parking was available won out over opposition to problems that parking caused. The first instance of parking meters being used occurred in Oklahoma City in 1935 in order to encourage more rapid turn-over of on-street parking.[14] All major US cities had followed suit by 1955, and metered parking in downtown cores remains common today. Yet rates have typically not risen at a rate commensurate with inflation or demand, watering down the effectiveness of pricing to encourage turnover.[15] As car ownership rates continued to increase, cities began to amend their zoning bylaws to require that parking be provided off the street in new developments or changes of use. Residential development, along with other types of uses, began to change in form, density, and price as new construction had to allocate space for on-site parking. While in 1946 only 17 percent of cities

surveyed in the US had parking requirements, five years later 71 percent of surveyed cities had such requirements or were in the process of adopting them. These requirements were designed to ensure that sufficient parking was available for the peak demand at a site without overflow to surrounding areas.[16] In the case of residential parking this often meant on-site parking facilities such as garages and driveways, combined with limited on-street parking, in order that each neighbourhood had sufficient parking for its residents.

Including requirements for parking to meet a set volume of demand within municipal zoning codes has been the dominant influence on parking in the past 60 years. Such quantities of parking have become so expected that many developers and lenders are hesitant to support projects that do not appear to provide sufficient parking.[17] In recent years as cities have faced increasing pressures of traffic congestion and downtown development there have been some efforts at innovating in parking regulation. In some cases cities have instituted maximum parking regulations rather than minimums. In yet others, cities have experimented with programs that try to share cars or parking supply, incentivize alternate modes of transportation, or reduce parking demand. The next section will detail these different tools in more detail.

### *1.3.2 Types of regulations*

The most common type of parking regulation is a requirement to provide a minimum number of off-street parking spaces. Cities have crafted detailed lists of types of land uses, from abattoirs to zoos, and assigned amounts of parking that must be provided for the new use to be in conformity with the law. These requirements typically take the form of a certain number of spaces per unit of area of the building's floor space (for instance, 4 parking spaces for every 1,000 square feet of floor space in a fast-food restaurant). Some requirements are more land-use-specific, such as a requirement based on the number of fuel nozzles at a gas station.[18] In residential real estate development, the number of parking spaces per dwelling unit is a common standard, although some also consider the floor space of each unit and whether the unit is to be rented or sold. Floor space is a common requirement for many types of use because it is easily measured and relatively stable. Creative requirements related to flexible attributes, such as the number of seats in a church for example, can be more easily circumvented.[19] How these requirements are set will be discussed in the following section.

Parking maximums are a relatively recent strategy in parking regulation.[20] Rather than setting minimums, or in coordination with parking minimums, some cities have amended their zoning codes to set out the maximum number of parking spaces that real estate developers can provide. These maximums are applied in various ways, with some cities choosing to employ them across their entire area, and some using them strategically in CBDs and areas close to frequent or rapid transit service. This is an example of geographically-specific or neighbourhood-specific application of parking requirements, a practice common in larger cities through which parking requirements vary not only based on building type but also location. For instance, an apartment building located close to a subway may have lower parking requirements than an identical building located far from rapid transit. This will be discussed in greater detail in the next chapter.

There are also more flexible tools that some jurisdictions have used to influence parking, generally in combination with minimum or maximum requirements. These influence the parking market in a range of ways. Car-sharing programs allow members to use one of a number of vehicles owned by the service, with varying levels of cost and booking flexibility. Such shared cars are generally parked at designated locations throughout a city, and encourage short trips that allow members to benefit from the convenience of a car for certain trips without the costs of ownership.[21] Some cities allow for reductions in required parking when spaces are reserved for such carsharing services.

Shared parking is permitted by some cities on a single lot or between nearby land uses with different peak parking times, recognizing that land uses such as banks and night clubs have different peak hours and can share parking space with little conflict.[22] Parking cash-out programs allow employees to receive the cash equivalent of the 'subsidy' that employers provide in the form of free parking for drivers, effectively demonstrating the value of the parking and 'unbundling' it from the rest of the employee's benefits.[23] Transportation demand management (TDM) programs broadly work to reduce travel demand, particularly during peak periods of congestion, by encouraging solo drivers to shift to carpooling or transit, shifting work schedules to permit off-peak commutes,[24] and instituting road pricing schemes.[25] Cash-in-lieu (CIL) of parking policies are used by many cities to allow real estate developers to contribute money to the city for the construction of public parking facilities instead of building all required parking spaces themselves.[26] Perhaps most controversial and visible for drivers, policies affecting pricing of on-and-off street parking are used to influence demand and turnover for the limited number of spaces. Raising parking prices and implementing more demand-responsive parking pricing schemes have been suggested and experimented with by a number of cities. Many of the listed approaches, such as CIL or TDM, are more commonly used in commercial and employment parking than residential parking.

### *1.3.2 Setting requirements*

Cities set different parking requirements based on land use categories. Cities have different levels of specificity of their land uses, some condensing commercial land uses into a handful of categories and some treating a fast food restaurant, a coffee shop, or a deli differently.[27] As discussed, most jurisdictions tie their parking requirements to the amount of floor space of a development. This has been criticized by some as being unrelated to the amount of parking demand that a site will generate. Tying parking requirements to the floor area of a site assumes, for instance, that larger restaurants will necessarily generate more demand for parking than smaller restaurants. Yet an evaluation of the disparity of parking used at fast food locations demonstrated that the variation in floor area accounted for only 4% in the variation of peak parking occupancy. Nonetheless, floor area is used as the defining measure of how much parking will be needed for a land use in most cities' zoning codes.[28] In setting residential parking requirements, cities will often attach a number of parking spaces for each dwelling unit. More nuanced zoning codes vary the requirement to stipulate that units with larger floor areas, or more bedrooms, must have more parking spaces.

Wilson and Kodama surveyed planners in 144 cities in 1996 to evaluate how cities set their parking requirements. They found that most respondents would develop their cities' parking standards based on two main sources of information: consultation of the standards of surrounding cities and consultation of

ITE (Institute of Transportation Engineers) publications. Less commonly, some cities cited drawing on American Planning Association and Urban Land Institute publications, and in few cases commissioning parking studies.[29]

In setting or revising parking requirements, cities first define the basis on which new requirements will be determined – simply considered, based on existing requirements, on empirical evidence, or on policy objectives. Taking the existing requirements into account and revising them in one direction or another fails to question the basis for the initial policy, and the revised quota will suffer from an anchor effect to the former.

Empirical surveys can approach the issue in a number of ways. Basing the requirement on the policies of nearby or comparable cities does not address the rationale for why the numbers are chosen, instead assumes that other cities have addressed such questions.[30] Other surveys can consider occupancy rates of parking lots to determine how well existing standards are meeting actual parking demand, although this fails to take into consideration the role of pricing in shaping demand for parking, as most parking is free. Such surveys also fail to consider the role of increased supply inducing increased demand, as providing additional parking in dense areas may simply increase car usage. Still other surveys can attempt to measure car ownership rates based on different demographic factors in order to attempt to project future parking demand in residential development.

Parking requirements can also be set based on policy objectives beyond the simple provision of parking, an approach that can be integrated with one based on empirical surveys. Requirements have long been set with the objective of reducing spillover parking and ensuring that there was sufficient space to meet peak parking demand at each site. Cities have also used parking requirements to meet objectives of limiting density.[31] In many cities, reduced parking minimums and the imposition of parking maximums have been used to increase the ability of developers to build more densely, to reduce open spaces in the urban form caused by surface parking lots, and to prevent the encouragement to drive that parking oversupply can cause. Many cities enact such policies in strategically chosen areas such as downtowns and other urban centres, which can also help to encourage transit use to walkable destinations with limited parking.

There are also a range of other factors that can be taken into account to more delicately set parking requirements, though many are rarely considered. These include urban features such as walkability or land use density, area demographics such as income and age, and parking demand management efforts such as pricing and existing parking supply.[32]

For instance, many cities allow reductions in parking minimums for lots that are within a certain radius of a high-order transit stop or station, in a belief that this service will reduce parking demand and allow more residents to choose to take transit. No cities do the same for walkable areas where many services and shops can be reached within walking distance. Studies have shown that Land Use Mix (LUM) is a strong predictor of residents of a neighbourhood choosing to make more trips on foot. Areas that have such a walkable and dense mix of land uses can have a lower rate of driving and thus having less need of a car and its associated parking space. However, being able to make some necessary trips by active

transportation does not necessarily mean a resident will not choose to own a car for other trips, meaning parking may still be necessary. This occasional need for a car is addressed in some urban centres by car-share programs.

Some cities have been hesitant to reduce parking minimums. Many cities have used reductions in parking requirements as a bargaining tool to extract concessions from developers as a part of the approvals process. This takes place both through cash-in-lieu programs as well as through outright variances and rezoning.[33] Such tools to shape supply and demand will be addressed in the next section.

### *1.3.3 Other ways to influence supply and demand*

It is important to realize that cities also have more nuanced tools than minimum and maximum requirements, and they are employed in different ways. These can help to shape both the supply of and demand for parking. This section will outline what these tools are and how they are employed by cities.

#### Cash-in-lieu

Cash in lieu (CIL) of parking is a policy that can allow for the responsibility for the provision of a quantity of parking spaces to be transferred from a property owner to the City in exchange for a set fee. Municipal zoning bylaws set the number of parking spaces required to be provided by property owners for different land uses, taking into account a range of mitigating factors such as proximity to transit, location in dense 'traditional mainstreet' areas, and others. If some developments or changes in land use are unable to provide the required parking, or find that providing it would lead to parking supply exceeding demand, CIL has been used to reduce requirements in exchange for a sum of money meant to pay for the City providing parking elsewhere.[34]

#### Transportation Demand Management

Transportation Demand Management (TDM) is a term given to a wide range of efforts to "use policies, programs, and services to influence whether, why, when, where, and how people travel".[35] TDM that reduces individuals' need to own a car can help to reduce demand for parking. TDM takes place in a range of settings and is employed by various actors; employers and governments work in employment and residential areas to encourage a change in mode choice. These efforts take two main forms: promotion and education, and incentives and disincentives.

Promotion and education can take many forms. For example, marketing alternative forms of transportation, ridematching services for commuters, or educating citizens on the benefits of active transportation. Incentive programs can also be varied in their approaches. Transit pass programs can incentivize people to use public transit, and some cities have experimented with requiring new condominium developments to provide transit passes to residents.[36] Pricing of different elements of transportation can also act as incentive or disincentive. Tax credits for active or public transportation, or for parking, can shift the competitive balance of different modes and the decision to own a car, and in so doing influence residential parking demand.

#### Car-sharing

Car-sharing is a membership-driven program that gives users access to a range of vehicles for short-term use. Vehicles are typically booked with short notice and parked in designated spaces reserved for them.

By July 2009 at least 17 jurisdictions in North America had policies on providing parking for car-sharing services and eight public transit services provided such parking at their facilities.[37] Studies have shown that car-share programs allow some residents to forgo the acquisition of a car or to sell their car. Other studies have shown that car-share programs can lead to reduced residential parking demand, and in some cases to slight increases in car use and associated parking demand for shopping trips.[38]

As car-sharing programs have grown in popularity in recent years, some cities have amended their zoning bylaws to permit reductions in parking requirements for sites that include dedicated parking for car-share vehicles. Others have begun to require that developers set aside a number of parking spaces for car-share vehicles.[39] Still other cities have integrated car-sharing with their residential permit program, allowing car-share vehicles to park in any areas requiring a permit, opening large numbers of residential streets to the programs without the need to designate specific spaces as dedicated.[40]

### Shared parking

While parking requirements are generally regulated based on discrete types of land use, many lots and buildings contain more than one use. Most cities require parking for such a circumstance to be equal or greater to the sum of the combined requirements for each of the uses. In some cases, however, cities permit shared parking, allowing land uses in a building or on a site that have peak parking demand at different times to share a proportion of their required parking. For instance, a bank may find its parking lot nearly full in the afternoon, but it will stand empty throughout the evening and night. Restaurants, cinemas, and nightclubs have the opposite timeline in parking use. By allowing each to claim the shared parking as meeting their requirement, oversupply can be avoided.

Some cities permit this within a single building with mixed uses, while others allow it more broadly across an entire project such as a commercial centre or strip mall. The degree to which sharing is permitted also varies by city and land use. For instance, Toronto's parking requirements allow banks to provide only 20% of their base parking requirements during the morning and 50% in the evening, during which times the spaces can count towards the requirement of another business on the same site.[41] Few municipalities permit car-sharing between residential land uses and others. This may be due to a recognition that need for a home parking space is less flexible than at destinations, due to most residential parking being individually owned and designated to a user, or due to much of the parking in multi-unit residential buildings being built with controlled access. A few cities have begun to experiment with shared parking for residential land uses, particularly in Transit-Oriented Development (TOD) scenarios, wherein some parking is available or reserved for the users for other uses during business hours.[42]

### Parking prices

Implementing or increasing prices for parking is one of the most visible and most contentious elements of parking policy. A much-cited 1990 Nationwide Personal Transportation Survey in the U.S. found that 99% of all automobile trips ended with parking that was free.[43] With free parking a longstanding practice, drivers are understandably attached to the perceived right to free parking in the many circumstances where they have come to expect it. Using parking prices to influence demand requires some explanation of the actual costs of parking. What's more, parking in multi-unit residential buildings

involves two elements: the cost of providing the parking, and the way in which the cost is passed on to users.

One of the most well-known researchers and authors on the subject of parking policy, Donald Shoup, has discussed the reasons and effects of parking pricing in great detail. In his seminal work, *The High Cost of Free Parking*, he addresses the differences between the cost of parking and the price paid by its users, both for on- and off-street parking. While a sound parking policy considers the entire parking supply including on- and off-street parking, this report is focused on a particular subset of off-street parking, and thus will focus its discussion on residential off-street parking.

There are a number of elements to consider that are not often considered when discussing the price of off-street parking. The value of land and the opportunity cost of a development where parking is being provided first helps to determine whether a surface lot is feasible. Whether the parking is provided in a surface lot, a structure, or underground has a major impact on the cost. Construction and operating costs, interest on financing for the construction, cleaning, lighting, insurance, maintenance, revenue collection, property taxes, and security all add to the costs for parking. Using data from parking structures built between 1961 and 2003, Shoup shows that the monthly cost of operating a parking space ranged between $127 and $201.[44] These costs, however, are the internal costs of the parking operator. Estimates of the external costs, including induced car trips from increased parking supply, associated congestion costs and emissions costs, further raises the cost of a parking space by an additional $116.[45] These costs are highly context-specific in terms of the land value and built costs, and are in 2002 dollars. However, when considered in light with the fact that most car trips end with free parking, and that even in 2012 the U.S. national average monthly parking rate for covered parking in CBDs – the most expensive type of structures in the most expensive land-value areas – was $164.80[46], it becomes clear that most parking prices do not reflect its full cost. Most parking spaces are free, or subsidized, or have prices that do not take into account the external costs of parking listed above.

Parking in multi-unit residential buildings is owned either individually by condominium owners or jointly by condominium associations or apartment owners for shared use. These prices are often are bundled into the overall cost of the dwelling unit, meaning condo purchasers must also purchase a parking space, apartment renters must also rent a parking space. Some cities have experimented with encouraging or requiring developers to sell parking spaces independently of residential dwelling units, rather than allowing buyers to experiencing parking as a ‘free’ or hidden cost bundled into their dwelling.[47] Cities can thus encourage or require the purchase price to be made visible and distinct from other prices in residential settings by ‘unbundling’ parking. Similarly, ongoing parking costs, whether monthly parking space rent or parking garage operating costs for condo buildings, can be levied only on those who use a space rather than generally from all building occupants.

The dominant paradigm in current planning research and writing favors mixed-use developments and increased urban density, and promotes active and public transportation over the private automobile. This should not be taken to mean that there is no place for the car in cities, nor that parking is unnecessary or even unimportant. Parking has benefits for non-drivers, whether by enabling the delivery of goods to stores or by allowing customers to frequent businesses that would otherwise not

receive enough sales to be viable without drivers. Indeed, there are three developing trends that may only emphasize the value of the limited parking stock: future changes in demographics, technology, and urban form. If the current demographic trends of decreasing car ownership among younger cohorts in urban centres continue, access to parking will still be important for occasional drivers, users of car-share programs, and habitual drivers. If the technology of self-driving cars and electric cars currently in development live up to the expectations of their proponents, urban driving may be more efficient and less polluting but it will still require ample space for storing cars. And if the urban form trend of the drive to densify and build mixed-use walkable neighbourhoods proves successful and long-lived, parking will still be required for visitors, deliveries, businesses, and many more uses. It should not be thought that parking is an evil or that it will disappear or be unnecessary for cities in the foreseeable future. However, given the significant costs, effects, and amount of space devoted to the storage of temporarily unused cars, it is important that we understand and adapt the ways that we plan for it.

# 2. *Check your surroundings* – Parking requirements in Canadian cities

In this second chapter, research based on documentary sources of the parking requirements made by Canadian cities will be presented in two parts to demonstrate the 'what' of parking requirements. This will take place in two parts. First, a scan of the largest 30 cities in Canada will permit a broad but shallow view of the range of parking requirements that exist in the country. Second, four large Canadian cities will be discussed in greater detail to permit a narrower but deeper discussion of the perspectives that are visible in each set of parking requirements.

## 2.1 Parking requirement scan

This section presents an overview of the parking requirements for multi-unit residential buildings from Canada's 30 largest cities by population in declining order. In many cases in Canada the largest 'cities' are in fact single urban areas comprised of multiple municipalities. In these cases, the 'core' city was selected for two reasons: to focus on the densest areas that will experience the greatest parking pressures, and to consider a selection of municipalities rather than the thousands of municipalities that exist across Canada. For instance, in the Greater Toronto Area, rather than including five adjacent municipalities, the City of Toronto itself is featured. This illustrates the range of requirements that exist and, keeping in mind the cost of building and maintaining such parking, how these requirements impose different costs on residents and change the balance of attractiveness of modes of transportation in different ways.

Each city sets its parking requirements independently, and some calculate requirements in different manners. Some cities calculate their requirements based on the number of dwelling units in a building with a number of parking spaces per dwelling unit. Others consider the number of bedrooms in a dwelling unit and assign a requirement accordingly, with more parking spaces for units with more bedrooms. Yet others consider the area of a dwelling unit, and require more parking spaces for larger units. Still others combine these approaches. Table 3 attempts to combine these approaches into a generally comparable set of figures in order to demonstrate roughly similar types of units – for instance, to compare a city that sets requirements based on area versus one that uses bedrooms, a bachelor apartment is assumed to be roughly the same size in both cities.

It is also important to note that different metropolitan areas are jurisdictionally fragmented in different ways. Toronto sets its parking requirements for all areas centrally across all wards. Montreal has one central municipal government, but parking requirements are set at the level of the borough government. The Vancouver metropolitan area has upper and lower-tier municipalities, and lower-tier city governments set requirements. Each major conurban area is treated as one set of requirements and presented as a range.

**Table 3: Multi-unit residential parking requirements in Canada's largest 30 cities**

| Province | City/Region | Municipality type | Minimum parking spaces per unit (by number of bedrooms) | | | | | | | | Maximum parking spaces per unit | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Tenant/owner parking | | | | Visitor parking | | | | Multi-unit residences (by number of bedrooms) | | | | |
| | | | B | 1 | 2 | 3+ | B | 1 | 2 | 3+ | B | 1 | 2 | 3+ | |
| ON | **Toronto**[48,49] | Single tier | 0.3-1.3 | 0.5-1.2 | 0.8-1.3 | 1.0-1.6 | 0.1-0.2 | | | | n/a-1.3 | n/a-1.2 | n/a-1.3 | n/a-1.6 | |
| QC | **Montreal**[50,51,52,53, 54, 5556, 57, 58, 59,60, 61, 62,63, 64,65,66] | Boroughs (lower-tier) | n/a-2.0 | | | | n/a-0.2 | | | | 0.67-1.5 | | | | Min is max near some rapid transit, % reduction for others. Some require % interior, some limit # exterior. |
| BC | **Vancouver**[67,68,69,70,71,72,73,74] | Lower-tier | 0.5-1.6 | 0.6-1.6 | 0.6-2.0 | 0.6-2.0 | 0.2-0.25 | | | | n/a-2.0[1] | | | | Minimums in City of Vancouver are reduced for 'secured market rental'[2] |
| AB | **Calgary**[75] | Single tier | 0.75-1.25 | | | | 0.1-0.15 | | | | 1.25-1.5 near LRT | | | | Live-work[3] |
| AB | **Edmonton**[76] | Single tier | 0.7-1.0 | 0.8-1.0 | 1.0-1.5 | 1.25-1.7 | 1 per 7[4] | | | | n/a-1.0 | n/a-1.0 | n/a-1.5 | n/a-1.75 | |
| ON | **Ottawa**[77] | Single tier | n/a-1.2 | | | | n/a-0.2 | | | | 1.5-1.75 near RT | | | | Rapid Transit reductions |
| QC | **Quebec City**[78,79,80,81,82] | Boroughs (lower-tier) | 0.5-1.2 | | | | n/a | | | | n/a-2.0 | | | | |

[1] In cases labeled n/a no requirement exists. To label 0.0 rather than n/a in this case would indicate a maximum of 0.0 spaces, while in truth in these cases there is no maximum.

[2] Buildings in which all units are required to remain rental units for 60 years or the life of the building, whichever is greater.

[3] Dwelling units that can incorporate other uses such as artist studios, offices, and counselling services.

[4] While most cities require visitor spaces per dwelling unit as numbers with decimal places, Edmonton's requirements stipulate one visitor space for every seven dwelling units.

| Multi-unit residential parking requirements in Canada's largest 30 cities (continued) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Minimum parking spaces per unit (by number of bedrooms) | | | | | Maximum parking spaces per unit | |
| Province | City/Region | Municipality type | Tenant/owner parking | | | | Visitor parking | Multi-unit residences (by number of bedrooms) | Comments |
| MN | **Winnipeg**[83] | Single tier | n/a-1.5 | 10%[5] | n/a | No DT min/max | | | |
| ON | **Hamilton**[84] | Single tier | 1.0 | | | | n/a | n/a | 0.3 for <50m$^2$ |
| ON | **Kitchener**[85] - **Cambridge**[86] - **Waterloo**[87] | Regions (upper-tier) | 1.0-1.75 | | | | n/a-0.25 | n/a | 0.165 for <51m$^2$ |
| ON | **London**[88] | Lower-tier | n/a-1.25 | | | | n/a | n/a | No DT min/max |
| BC | **Victoria**[89, 90, 91, 92, 93, 94, 95, 96, 97,] | Lower-tier | 1.1-2.0 | | | | n/a | n/a | |
| ON | **St. Catharines**[98] | Lower-tier | 1.0-1.25 | | | | Generally, n/a some except. | n/a | Reduced for mixed-use |
| NS | **Halifax**[99] | Lower-tier | 0.5-2.0 | | | | n/a-0.2 | 3.0 in Bedford | |
| ON | **Oshawa**[100] | Lower-tier | 1.0-1.45 | | | | 0.3-0.33 | n/a | |
| ON | **Windsor**[101] | Lower-tier | 1.0-1.25 | | | | 15% | n/a | First 6 DU exempt in DT |
| SK | **Saskatoon**[102] | Single tier | 1.0-1.25 | | | | 0.125 | n/a | |
| SK | **Regina**[103] | Single | n/a-1.5 | | | | n/a | n/a | |
| ON | **Barrie** [104] | Lower-tier | 1.5 | | | | n/a | n/a | |
| NL | **St. John's** [105, 106] | Single tier | n/a-1.0 | | | | n/a | n/a | |
| BC | **Kelowna**[107] | Lower-tier | 1.0 | 1.25 | 1.5 | 2.0 | 1 per 7 | 125% | |
| QC | **Sherbrooke**[108] | Lower-tier | n/a-1.5 | | | | n/a | n/a-1.2 | |

[5] Winnipeg requires that 10% of the spaces required for tenants/owners be reserved for unassigned visitor parking.

| Multi-unit residential parking requirements in Canada's largest 30 cities (continued) | | | | | | |
|---|---|---|---|---|---|---|
| | | | Minimum parking spaces per unit (by number of bedrooms) | | Maximum parking spaces per unit | |
| Province | City/Region | Municipality type | Tenant/owner parking | Visitor parking | Multi-unit residences (by number of bedrooms) | Comments |
| QC | **Trois-Rivieres**[109] | Lower-tier | 1.5 | n/a-0.25 | n/a | |
| ON | **Guelph**[110] | Lower-tier | 1.25-1.5 | 20% in R3A | n/a | 1.5 for first 20 units, 1.25 for following |
| ON | **Kingston**[111] | Lower-tier | 1.0-1.4 | n/a | n/a | |
| NB | **Moncton**[112] | Single tier | n/a-1.25 | n/a | DT off-site min is max. | 0.5/br in one area. |
| ON | **Sudbury**[113] | Single tier | 1.0-1.5 | n/a | n/a | Conversion of old in DT exempt from requirements |
| QC | **Saguenay**[114] | Single tier | 1.5 | n/a | n/a | |
| ON | **Thunder Bay**[115] | Lower-tier | 0.25-1.5 | n/a | n/a | |

A reading of this table shows three general findings. First, that while larger Canadian cities are innovating with their parking requirements, many smaller cities have not embraced more complex forms of parking requirements. A reader will note that while many of the large cities (upper rows) have ranges in their requirements, many smaller cities (lower rows) have a smaller range of potential requirements or even a single standard. This indicates that larger cities are tailoring their parking requirements in more discrete units, applying a number of as-of-right requirements based on more factors – geography, transit service, permissible reductions in requirements, among others. This may be due to a greater organizational capacity on the part of large cities to manage context-specific requirements in their zoning, or a more ambitious policy agenda making use of parking requirements to advance other ends.

Second, while larger cities are treating types of dwelling units differently, smaller cities are applying requirements with less nuance. A reader will note that while the fourth column (minimum parking spaces per unit) is divided into four sub-columns based on number of bedrooms, most of the smaller cities (lower rows) have only one column. This indicates that smaller cities' parking requirements do not take into account the number of bedrooms – that is to say, a dwelling unit with one bedroom has the same number of parking spaces required as one with three. Again, this may be due to a greater organizational capacity on the part of large cities to manage context-specific requirements in their zoning, or a more ambitious policy agenda making use of parking requirements to advance other ends. Equally so, there may be less parking pressure in smaller towns, meaning there is less need to fine-tune the requirements.

Third, smaller cities tend to have larger as-of-right parking requirements. While many of the largest cities have a range of requirements that include fractional requirements in certain areas (0.5 spaces per dwelling unit required in some Quebec City boroughs, for example), most of the smaller 15 cities do not allow less than 1 space per dwelling unit. This may be to due smaller populations and lower population densities leading to fewer transportation alternatives and a subsequent greater reliance on the private automobile causing the perception that higher parking requirements are necessary. It may also be a policy choice of smaller cities to act as residential areas for citizens who prefer to drive and have convenient access to parking, and thus ample parking provided through off-street requirements is a conscious choice of urban form.

## 2.2 Parking Policy in Toronto, Vancouver, Ottawa, and Winnipeg

In this section a more in-depth analysis of the parking requirements of four cities is presented. These four have been selected from the initial scan based on the contents of their parking policy. Their regulations show evidence of recent revision and evolution. Each bylaw contains elements of parking regulation beyond simply minimum requirements. And each is corroborated by other studies, past policies, and supporting documentation to permit an evaluation of the bylaw beyond its own text. Each of the selected cities is discussed in the context of its own parking requirements, what the current regulations require, and a critical analysis of the requirements.

### Regulation Contents

Parking requirements are generally set out in zoning bylaws in a chapter dealing with off-street parking and loading. As discussed above, municipalities determine a number of types of land uses and assign a

number of parking spaces required for each type based on an intensity of land use. This is the case with residential land uses as well, wherein different types of residential uses are subdivided and assigned a requirement. An example of a section of the City of Guelph's requirement is provided below in Figure 1.[116]

4.13.4.3 Residential Land ***Use*** Ratios

| Type of ***Use*** or ***Building*** | Minimum Required ***Parking Spaces*** |
|---|---|
| ***Apartment Building*** | for the first 20 units: 1.5 per unit, and for each unit in excess of 20: 1.25 per unit |
| ***Bed and Breakfast*** establishment | 1 per guest room and 1 for the proprietor |
| ***Group Home*** | 1 per ***Building*** plus 1 for staff |
| ***Lodging House Type 1*** | 1 per ***Building*** plus 1 per 3 ***Lodging Units***. |
| ***Nursing Home*** | 1 per 3 beds |
| ***Semi-Detached/Duplex Dwelling*** | 1 per unit |
| ***Semi-Detached Dwelling*** with an ***Accessory Apartment*** | 3 |
| ***Single Detached Dwelling*** | 1 per unit |
| ***Single Detached Dwelling*** with an ***Accessory Apartment*** | 3 |
| ***Townhouse*** | 1 per unit |
| ***Tourist Home*** | 1 per ***Building*** plus 1 per guest room |

**Figure 1: Land use parking requirements of the City of Guelph**

The content of off-street parking requirements is regulated in municipal zoning bylaws dealing with residential development and can be divided into four categories: location, quantity, access, and price.

- Location: bylaws stipulate where parking for residential development must be provided – whether on-site, on the surface, underground, in parking structures, or off-site.
- Quantity: bylaws set the minimum amount of parking that must be provided, and sometimes a maximum that can be permitted. Some allow certain mitigating factors to permit reductions in requirements, as discussed in the literature review.
- Access: bylaws state for whom the parking is provided and how it may be shared. This may reserve some parking for dwelling unit owners, tenants, visitors, disabled persons, and others.
- Price: bylaws can also set out how parking can be purchased or rented. Bylaws may permit parking to be 'bundled' with other goods such as housing, and determine whether visitor parking can be priced.

## Evaluation Criteria

Planners have used different approaches for decades to influence how vehicles are stored, and the problem remains one of the most controversial urban issues – a truly wicked problem. Indeed, planning

for parking and parking requirements more broadly exhibit many of the characteristics of wicked problems that Rittel and Weber describe. There is no definitive solution to how much parking should be required. There is no defined way to tell when the 'problem' of parking is solved. Solutions to parking are not true or false, but good and bad. Every attempt at changing parking results in real-world consequences. There is no exhaustive list of potential solutions. Problems with parking can be considered to be symptoms of other problems. The ways that parking can stymie planners are numerous. [117] The way that the problem of parking is defined determines how we evaluate approaches to its regulation and potential 'solutions'. There are a number of perspectives on what are valid criteria for cities to consider when evaluating parking problems – whether to better control supply, influence demand, provide better information, or manage externalities. These elements are not exclusive or exhaustive, but rather exemplary. Some elements touch on broader issues outside of parking; defining parking problems as a matter of inadequate transportation choice means that greater availability of active or public transportation choices are needed to reduce parking demand.

Many authors have discussed how to define planning problems and how different ways of defining problems help to determine what solutions will be considered. In the field of parking regulation, a number of authors have discussed the kinds of perspectives that are evident in discussions of parking problems and the policies used to address them.[118,119] This paper will refer to seven such perspectives and use them to highlight the priorities of parking policies and regulations in Canadian cities. Some perspectives that have been proposed by parking researchers are less applicable to off-street residential parking than others. For instance, perspectives that focus on access to information regarding parking availability are less relevant to off-street parking given that residential parking tends to be owned or rented on a long-term basis and be less dependent on changing information for its accessibility. Similarly, perspectives that emphasize the enforcement of parking restrictions are less important to off-street parking since it tends to have controlled access.

The seven foci listed in Table 4 that have been selected apply to off-street residential parking requirements and are considered in the analysis of policies in each of the four cities discussed in this chapter. This analysis addresses how each policy prioritizes some criteria over others. For example, a city that applies a number of tools related to parking efficiency by allowing for parking to be shared between land uses and by encouraging parking to be paid for by drivers would have a high priority for efficiency but a low priority for pricing convenience. Similarly, a city with high off-street parking requirements combined with a RPP (Residential Permit Program) demonstrates a prioritization of parking supply and spillover impacts perspectives. The identification of each prioritization as high, medium, or low is a qualitative designation based on the researcher's reading of the parking requirements, official plans, transportation master plans, and other documents. The same foci are used for each city and are used to make comparisons at the end of the chapter. Each city is discussed individually, and a comparative table of the foci is presented at the end of the chapter.

**Table 4: Foci of parking regulations**

| Focus | Problem Definition | Potential Solutions |
|---|---|---|
| Supply | Inadequate supply, excessive price. | Increase minimum parking standards. |
| Choice | Inadequate consumer options for parking or transportation. | Increase the range of parking convenience and price levels available to consumers. Improve alternative transportation options. |
| Pricing convenience | Paying for parking is inconvenient. | Allow parking price to be bundled into housing costs. Prohibit charging for visitor parking. This reflects a view that parking should be 'free' for drivers. |
| Efficiency | Inefficient use of existing parking capacity. | Share parking facilities. Implement transportation and parking demand management. |
| Demand | Excessive automobile use. | Transportation and parking demand management programs. |
| Spillover impacts | Inadequate parking causes problems in other locations. | Use supply management to respond to spillover problems. Improve enforcement of parking regulations. |
| External impacts | Parking facilities impose external costs. | Reduce parking minimums. Price parking. Improve parking facility design. Implement TDM programs. |

[120]

Evaluations of residential parking requirements take these criteria into account in different ways. A city concerned with political support for the zoning bylaw may prioritize supply and efficiency while minimizing spillover, as voters are often vocal in their frustrations with limited parking, paying for parking, and the perception of outsiders parking in their neighbourhoods. A city concerned with congestion may prioritize demand management and external impacts, as parking oversupply can make it easier for residents to choose to drive rather than take alternative modes of transportation.

### *2.2.1 Toronto*

Toronto's parking policy exists in its zoning bylaw, which was approved in 2013. Previously, different areas of the city and elements of zoning were regulated by 43 different pieces of legislation, some dating as far back as the 1940's. The former lower-tier municipalities of Metropolitan Toronto, York, East York, Etobicoke, North York, Scarborough, and Toronto were amalgamated in 1998 into the current City of Toronto. The powers of the City of Toronto are set out in the City of Toronto Act, and while this act gives certain greater powers to Toronto than other municipalities enjoy, there is no variation in the ability to require off-street residential parking.[121] These changes in municipal organization and governance led to a patchwork set of regulations in Toronto dealing with both zoning in general and with parking in particular.

#### Policy Context

Toronto's parking regulations are situated in a hierarchy of legislation from both the municipal and provincial governments. While the power to enact these regulations is set out in provincial statute,

namely Ontario's *Planning Act, 1990*, this explanation of policy context will deal with legislation that offers direction on how to set parking requirements rather than legislation that gives authority to do so.

The *Places to Grow Act, 2005* and its subsequent amendments and orders set out the growth areas and plans for parts of Ontario and require municipalities to amend their official plans to conform to these plans. These plans do not set out requirements or limits on parking, but do contain density and intensification targets and require that intensification take place within designated growth areas. This effectively encourages the development of vacant lots, brownfields, and surface parking lots by requiring infill development, while discouraging parking oversupply by setting density targets.[122]

The *Provincial Policy Statements* were issued under the Planning Act. They guide land development planning by municipal governments. They also do not set out guidance on parking requirements, but do influence land use planning policy by requiring reviews of conversions of employment lands in order to maintain a mix of land uses, stricter review of the expansion of settlement area boundaries, and comprehensive reviews of non-resource rural development. These policy statements effectively discourage outward growth in favour of more intense urban development, which encourages the consolidation of parking and the adoption of lower parking requirements.[123]

Toronto's *Official Plan* is the overarching document that sets out Council's vision for the city and orientations for other bylaws to follow. It sets out a vision for Toronto and delineates the city into five areas, displayed below in Figure 2: Citywide Zoning By-law Policy Areas: downtown and the central waterfront (Policy Area 1), the Yonge-Eglinton centre (Policy Area 2), rapid transit avenues (Policy Area 3), other major corridors (Policy Area 4), and the rest of the city (visible in white).

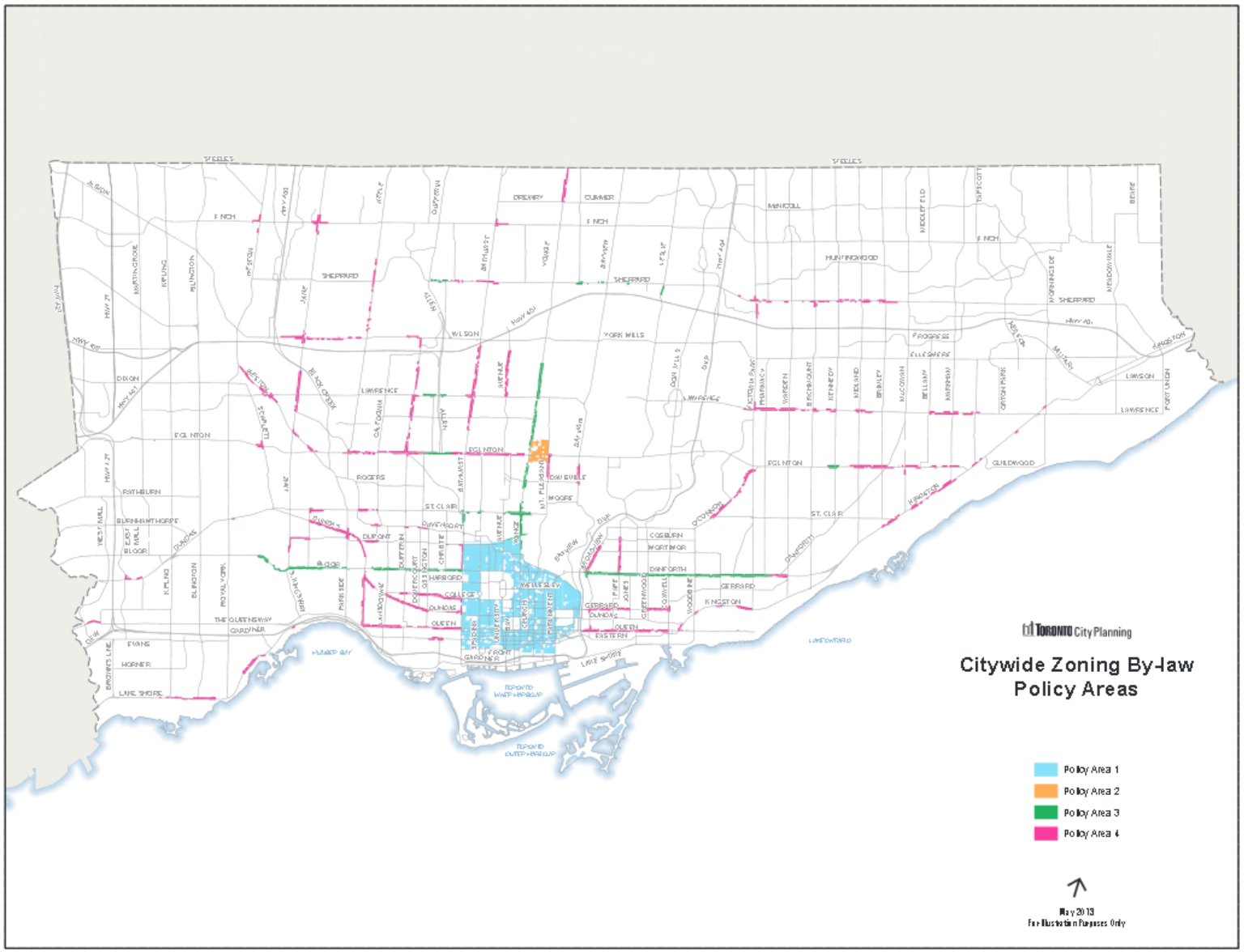


**Figure 2: Citywide Zoning By-law Policy Areas in Toronto**[124]

The Official Plan deals with a number of policies related to residential parking requirements and other development policies that touch on parking, land use, and mode choice. Much like in provincial policies, the Official Plan sets out a number of principles that are not direct controls on parking but help to shape how parking regulation will be enacted. For instance, the Official Plan:

- promotes growth that is less reliant on the private automobile
- directs development to areas well-served by transit and promotes transit development in growth areas
- protects the physical character of established low-rise neighbourhood
- protects heritage buildings[125]

These principles work against high levels of parking supply. Greater density does not preclude parking, but less density does require it. Less density and fewer controls on the amount of available surface parking tends to spread out land uses, leading to a greater reliance on the private automobile to perform daily tasks, and therefore to a greater need for parking. Toronto's City Council, through the Official Plan and the bylaws which enact it, has set out to work against these trends. The most relevant of these policy statements in the Official Plan are presented below.

- "For sites in areas well serviced by transit, consideration will be given to the establishment of minimum and maximum parking requirements."
- "Better use will be made of off-street parking by encouraging the shared use of parking and developing parking standards for mixed use developments which reflect the potential for shared parking among uses that have different peaking characteristics."
- "Infill development that may be permitted on a site containing an existing apartment building will provide adequate on-site, below grade, shared vehicular parking for both new and existing development."
- "Development in Apartment Neighbourhoods will contribute to the quality of life by including sufficient off-street motor vehicle and bicycle parking for residents and visitors."[126]

How these statements are reflected in actual parking regulation will be presented in the next section.

### Current Parking Policy

Toronto's multi-unit residential parking requirements are presented in Table 5: Toronto parking requirements. More specifically, the requirements vary based on a number of factors: location, tenure, number of bedrooms, size of unit, and proximity to transit. The City treats developments differently based on geographic location, size, and number of bedrooms.

**Table 5: Toronto parking requirements**

| Toronto Multi-Unit Residential Parking Requirements by Policy Area (PA)[127] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Region** | **Minimum parking spaces per unit (by number of bedrooms)** | | | | | **Visitor parking spaces per unit** | | | | **Maximum parking spaces per unit** | | | | |
| | **B < 45m²** | **B > 45m²** | **1** | **2** | **3+** | **B** | **1** | **2** | **3+** | **B < 45m²** | **B > 45m²** | **1** | **2** | **3+** |
| **PA1** | 0.3 | 1.0 | 0.5 | 0.8 | 1.0 | 0.1 | | | | 0.4 | 1.2 | 0.7 | 1.2 | 1.5 |
| **PA2** | 0.6 | 1.0 | 0.7 | 0.9 | 1.0 | 0.1 | | | | 0.9 | 1.3 | 1.0 | 1.3 | 1.5 |
| **PA3** | 0.6 | 1.0 | 0.7 | 0.9 | 1.0 | 0.1 | | | | 0.9 | 1.3 | 1.0 | 1.3 | 1.5 |
| **PA4** | 0.7 | 1.0 | 0.8 | 0.9 | 1.1 | 0.15 | | | | 1.0 | 1.3 | 1.2 | 1.3 | 1.6 |
| **Other Areas** | 0.8 | 1.0 | 0.9 | 1.0 | 1.2 | 0.2 | | | | 1.0 | 1.3 | 1.2 | 1.3 | 1.6 |

Toronto employs few of the tools that other cities employ to permit reductions in parking space requirements for different land uses. These are shown in Table 6 below. The downtown area (PA1) allows for reductions for additional bicycle parking and providing dedicated car-sharing parking spaces permits a further reduction, but other potential reduction-permitting policies are not addressed.

**Table 6: Types of parking reductions permitted by Toronto**

| Type of reduction in number of required spaces | Permitted | Explanation |
|---|---|---|
| Permit residential parking spaces to be counted toward shared requirements with other land uses. | No | Not permitted. |
| For providing bicycle parking or other bicycle facilities. | Yes | 1 space for each 5 bicycle space provided in excess of minimum requirement, to maximum of 20% parking reduction in PA1.[128] |
| For providing car-share parking. | Yes | Up to 4 spaces per car-share space, pending City approval. This is not set out in bylaw, but occurs regularly. [129,130,131] |
| For providing transit passes to new buyers. | No | Required for new developments in some areas, but is not tied to parking reductions. |
| For being close to frequent transit. | No | Not through reduction, but reflected in initial zoning requirements. |
| For payment of money to the City for the public provision of parking. | No | Permitted for commercial land uses, but not residential. |
| For payment of money to the City for other uses such as active or public transportation. | No | Not permitted under provincial law. |
| For placing parking underground. | No | Not permitted. |

There have been unique cases in which development applications have been approved despite their nonconformity with parking requirements. In two recent cases this occurred in proposed developments in which density was higher than initially permitted and the proposed amount of parking was lower than was required. In one case, the Ward Councillor negotiated a Section 37 agreement in which additional density and reduced parking was permitted for three developments in return for a monetary contribution to the City's bike-share program, a reduction which is not typically permitted as-of-right.[132] In another case, the Councillor, over the objections of planning staff, persuaded City Council to approve the development of a 300-unit condo tower on a narrow lot with only nine parking spaces rather than the 140 that would normally be required, arguing the development was the only way to save elements of the existing structure to be incorporated into the tower's base.[133] Cases such as these indicate a willingness to give Councillors a certain flexibility to use parking supply as a lever to extract other benefits from developers and weigh a reduced parking supply against other aims.

## Policy Analysis

Toronto's harmonized parking requirements are based on a study completed in in 2007 to bring the disparate existing parking requirements into one text. This study evaluated the relationship between car ownership and a number of factors that zoning can take into account to match supply requirements to observed demand-related trends such as tenure, unit size, building size, and geographic location. A survey was taken of 4698 condominium and apartment unit residents in buildings constructed after 1975 to assess their car ownership levels and car parking needs. The study found the following.

- car ownership is lower in high rise buildings than in low- or mid-rise buildings
- car ownership is lower in rental tenure than in ownership
- car ownership is lower in buildings closer to subway stations
- car ownership is lower in buildings closer to the downtown core
- car ownership is lower in dwelling units with fewer bedrooms
- car ownership is lower dwelling units with smaller floor sizes.
- visitor parking demand is lower in buildings closer to subway stations and in the downtown core

These findings are reflected in the nuances of the requirements. For instance, requirements are modified to be lower closer to frequent transit and to the downtown. However, parking requirements are far from wholly empirical, as a close reading of the requirements reveals that certain perspectives on parking lead to different elements of parking regulation being prioritized. Table 7 shows a summary of the perspectives evident in Toronto's parking requirements.

**Table 7: Evaluation Toronto's parking requirements**

| Focus | Priority | Explanation |
|---|---|---|
| **Supply** | High | Ensuring an adequate parking supply is seen as a principal way to avoid problems. |
| **Choice** | High | Providing alternatives to the private automobile is seen as a principal way to avoid problems. |
| **Pricing convenience** | High | Ensuring the ease of paying for parking by including it with other costs is widely used. |
| **Efficiency** | Low | Promoting ways to reduce parking spaces standing empty are not common in residential contexts. |
| **Demand** | Medium | Parking's problem is partly excessive demand, and ways to reduce this demand are employed in setting requirements. |
| **Spillover impacts** | High | Avoiding parking from one site taking space from other sites and on streets is a principal concern. |
| **External impacts** | Medium | Some consideration is given to reducing the effects of parking. |

Toronto's parking regulations are, as with most cities, concerned first with parking supply. In many instances the Official Plan states that 'sufficient' or 'adequate' parking will be provided, without defining how this should be interpreted. Overall, the language reflects the widely-held view that parking is an important service for residents, that land uses should manage their own parking demand without negatively affecting others, and that parking should be used efficiently. The zoning bylaw translates this view into requirements for parking to be provided for residents. All other considerations regarding parking, from location to type, begin from a requirement that it be provided. Certain actions allow for the requirement to be reduced, but the need for 'sufficient' parking to be provided on-site in residential developments is not questioned. Many applications are refused by staff due to insufficient parking, although some high-profile developments have been approved by Council despite this opposition, and permitted to proceed despite parking provision well below that which is required by bylaw. [134]

Developments in areas with greater transportation choice are permitted to have reduced parking requirements. This is visible through the Policy Areas in the zoning bylaw, which delineate that the lots in the downtown, in major centres served by transit, along subway corridors, and on streets well served by surface transit, have lower minimum parking requirements. This is a measure that recognizes that there are options present other than driving, and that helps to encourage transit use. Zoning does not consider whether trips are likely made via active transportation based on a lot-level basis by considering land use mix.

There is little consideration of how residential parking is paid for in Toronto's zoning bylaw. Managing the way that residents pay for parking is not seen as a problem, and is subject to developers. No requirement exists to 'unbundle' parking from housing purchase costs. Charging for visitor parking is prohibited. The cost of maintaining visitor parking is thus carried by all tenants and owners of each building.

While Toronto has more accommodating shared parking regulations than many municipalities, no sharing is permitted of residential parking. Some cities allow for undesignated (non-resident-specific) parking to be shared in mixed-use developments, particularly when the shared use has peak demand during the standard work day. Toronto's lack of such a policy indicates a strong tie to the concept of parking spaces as personal property rather than a common resource.

Toronto's parking regulations do seek to curb parking demand in certain ways. Maximum parking limits help to prevent parking oversupply to avoid encouraging increased car ownership and parking demand. Allowing parking reductions for providing car-sharing programs in developments encourages reductions in parking demand. No effort is made to shape parking demand through pricing regulation such as requiring parking to be sold separately from housing or allowing developers to reduce the number of parking spaces during pre-sale. The City briefly tried requiring transit passes be provided to condo buyers in certain areas, which can help to lower parking demand, but discontinued the program after a short run. Toronto's approach to parking demand is reflective of its supply-focused view that parking is best regulated by ensuring the appropriate amount of spaces are built and leaving other choices to individuals.

Viewing spillover impacts as a problem of parking reflects a focus on supply and ownership. Neighbourhood residents are often vocally opposed to parking in the public right-of-way in their area being taken up by users of surrounding land uses. Toronto's residential permit program works to limit to nearby residents the ability to park on the street. These programs are used in developed neighbourhoods and are in some cases not issued to meet the parking needs of new developments. This demonstrates a common view of parking as a right accruing to residents who lived in the area first, with some areas lobbying that residents of new developments not be permitted to park on the street.[135]

Toronto does have regulations that seek to mitigate some of the negative externalities of parking, but this is accomplished through controls on their intensity rather than trying to make drivers pay the associated cost. For instance, design standards for parking lots help to reduce the impact on the urban form and certain reductions in parking requirements are tied to reducing parking demand, but no additional cost is levied on drivers for the impact of car use and parking.

Toronto's parking requirements are based on a great deal of study, including surveys of parking occupancy and car ownership. They reflect observed car ownership levels and a number of factors that tend to influence parking demand. They are applied in context-specific ways across the city, and permit developers some degree of flexibility to alter and meet their requirements.

The parking requirements reflect a view that the city rather than the market must control parking requirements. Through parking minimums and maximums, the zoning bylaw reflects a concern that developers will provide either too few or too many parking spaces. Recently developers have sought to provide less parking than the city allows in many cases [136], though concern that in providing too few the burden of parking will be shifted onto nearby streets remains. In many studies developers have noted that the amount of parking is closely watched by financiers and that if they were to offer a building that

did not have sufficient parking, they would be unable to finance construction due to projected inability to sell units.[137]

### *2.2.2 Vancouver*

The City of Vancouver is a lower-tier municipality located in the regional municipality of Metro Vancouver on the southwest coast of the province of British Columbia. The City of Vancouver comprises 603,000 of Metro Vancouver's 2.4 million residents.[138] Vancouver is one municipality within the wider conurbation, meaning its policies require collaboration with surrounding cities to meet shared goals. The City of Vancouver's authority is derived from the Vancouver Charter, a provincial act that sets out the City's powers. Vancouver's parking requirements exist in its parking bylaw. The requirements in the bylaw are the result of two regional studies of parking in multi-unit residential buildings and have been the subject of ongoing revision in recent years.[139]

#### Policy Context

Vancouver's parking requirements exist in a policy context that must take into account legislation from other levels of government. While other municipalities in British Columbia must have an Official Community Plan (OCP), the City of Vancouver's Charter permits it to enact a number of Official Development Plans (ODPs) for specific geographic areas of the city. This permits flexibility for local contexts in planning.

The City is further empowered and subject to other restrictions based on a more recent act, the Local Government (Green Communities) Statutes Amendment Act. This act requires municipalities to include greenhouse gas emission reduction targets, policies, and actions in their Regional Growth Strategies (RGS) and Official Community Plans (OCP). Most directly relevant to parking are the changes to cash-in-lieu (CIL) programs. While previously municipalities were restricted to using the money received from forgone parking spaces from CIL programs to provide other parking, this act allows them to use such money for sustainable transportation programs such as active and public transportation.[140]

The OCPs and the parking bylaw must reflect the RGS of the Metro Vancouver regional district. The Regional Growth Strategy, titled "Metro Vancouver 2040: Shaping Our Future", does not set out specific parking requirements. Rather, it lays out general goals for each constituent municipality to reflect in their plans. A number of these touch on parking requirements, such as creating a compact urban area and supporting sustainable transportation choices.

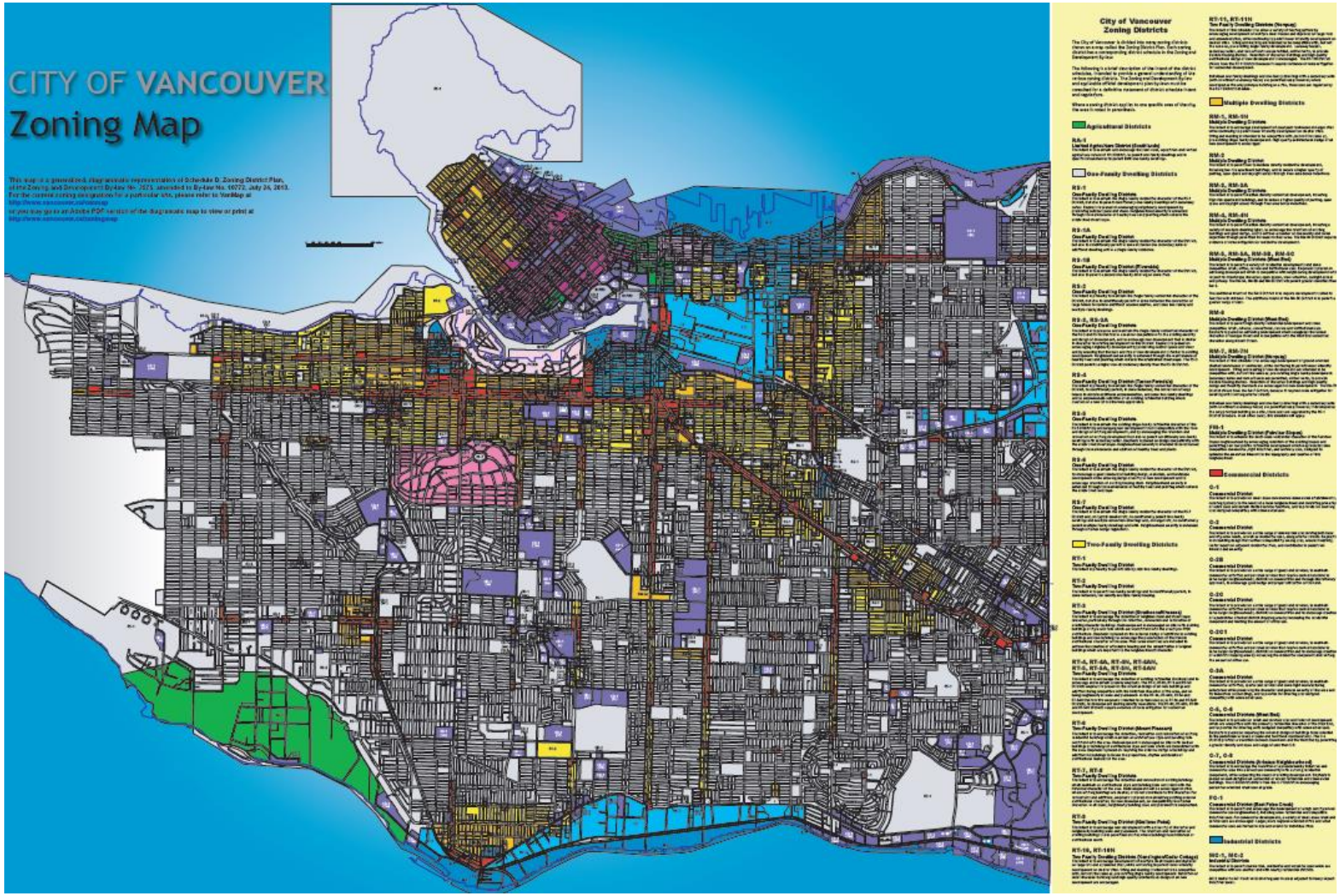


Figure 3: City of Vancouver Zoning Map[141]

The RGS aims to contain urban development within the Urban Containment Boundary. This effectively encourages the development of vacant lots, brownfields, and surface parking lots by limiting the amount of developable land and the ability of municipalities to grow through outward expansion. Such limits have served to increase density, which makes structured parking more financially viable than surface parking. Similarly, increased density can make public transit and active transportation more competitive relative to driving by putting more potential destinations within a convenient range of these modes. The RGS also aims to focus growth in urban centres and along corridors served by frequent transit. It encourages municipalities to maintain lower parking requirements in such areas. Finally, the RGS aims to coordinate land use and transportation to encourage active and public transportation over private automobiles, including encouraging cities to use parking pricing and supply measures to promote more sustainable forms of transportation. These goals combine to direct municipalities to revise their parking requirements and focus on using parking supply as a tool to achieve broader goals of transportation and urban design.[142]

The City of Vancouver's Transportation Plan also commits the city to use off-street parking to support reduced auto ownership and use. The City plans to consider eliminating minimum parking requirements in strategic areas such as downtown and near frequent transit service, and using maximum parking limits throughout the city based on current ownership levels and mode share.[143]

The City of Vancouver's parking requirements differentiate between geographic areas through zoning schedules that are assigned on a lot-by-lot basis. Multiple dwelling unit residential buildings are permitted in various Dwelling Districts (DDs). They are generally permitted in all Multiple Dwelling Districts, designated by one of several RM-x labels. They are also conditionally acceptable in some One- and Two-Family Dwelling Districts (RS-x and RT-x), as well as in several areas regulated as Comprehensive Development Districts. These areas can be seen in the deep yellow, light yellow, and purple areas, respectively, of the zoning map in Figure 3.

### Current Parking Policy

The City of Vancouver differentiates between buildings in its parking requirements based on Dwelling Districts (DD) and Comprehensive Development Districts (CDD), within which different types of urban form are meant to be developed. Within these DDs and CDDs, the City sets requirements based primarily on the size of dwelling units. In some cases, an initial number of spaces is required with additional spaces required based on increases in unit size, with a limit on the minimum that can be required despite increases in unit size. In other cases the City requires a number of spaces equal to the lesser of a set requirement or a requirement based on unit size. In some CDDs there are requirements for visitor parking as well as maximum parking limits. Vancouver's requirements are presented in Table 8.

**Table 8: Vancouver parking requirements**

| Vancouver Multi-Unit Apartment Building Parking Requirements by DD and CDD[144] | | | | | | |
|---|---|---|---|---|---|---|
| | **Per DU minimum** | **Additional GFA requirement** | **Maximum Minimum** | **Visitor Parking per DU** | | **Maximum Requirement per DU** |
| **Single Family** | 0.5 per <50m$^2$<br>0.6 per >50m$^2$ | 1.0 per 200m$^2$ | | Min | Max | |
| **Two Family** | | | | | | |
| **Multiple Family < 500m$^2$ in RM-4 and FM-1** | | | | | | |
| **Multiple Family > 500m$^2$ in RM-4 and FM-1** | Lesser of above requirement or 1.0 | | 1.0 | | | |
| **Sites > 500m$^2$ in FM-1 and RM-1** | 1.0 | - | 1.0 | | | |
| **RM-7** | 0.65 | - | 0.65 | | | |
| **Downtown** | Lesser of 1.0 per 140m$^2$ or 1.0 per DU | | | | | |
| **Southeast False Creek** | Lesser of 1.0 per 140m$^2$ or 1.0 per DU | | | 0.075 | 0.15 | 0.5 per <50m$^2$<br>0.65 per >50m$^2$<br>1.65 per >140m$^2$<br>2.0 per >189m$^2$ |
| **East Side** | | 1.0 per 70m$^2$ | 2.2 | | | |
| **Secured market rental housing[145]** | | 1.0 per 125m$^2$ | | 0.075 | 0.15 | 1.5 |

Vancouver encourages developers to reduce their parking requirements in a number of ways. These programs are laid out in Table 9, below.

**Table 9: Types of parking reductions permitted by Vancouver**

| Type of reduction in number of required spaces | Permitted | Explanation |
|---|---|---|
| Permit residential parking spaces to be counted toward shared requirements with other land uses. | Yes | In a few circumstances developments have been permitted to count parking spaces toward two land uses. |
| For providing bicycle parking or other bicycle facilities. | No | Requirements for bicycle parking are set out in the bylaw. Exceeding these does not allow for parking reductions. |
| For providing car-share parking. | Yes | At a maximum reduction of 5 spaces for every 1 shared vehicle, and 1 vehicle per 50 inhabitants.[146] |
| For providing transit passes to residents. | Yes | Permitted in secured market rental housing if provision of passes is guaranteed for 60 years or the life of the building, whichever is greater. |
| For being close to frequent transit. | Yes | For secured market rental housing within two blocks of a rapid transit station or the intersection of two distinct north-south and east-west bus lines.[147] |
| For payment of money to the City for other parking.[148] | Yes | Permitted in the downtown area at a cost of $20,200 per space. |
| For payment of money to the City for other uses such as active or public transportation.[149] | Yes | Permitted in the downtown area at a cost of $20,200 per space. |
| For placing parking underground. | No | Not permitted. |

## Policy Analysis

Vancouver's multi-unit residential parking requirements take into account ongoing research and a number of past studies, including a study completed between 2011 and 2012 to evaluate current and emerging trends in parking supply and demand in the Metro Vancouver area and in other Canadian cities.[150] This study evaluated the ways that parking regulation could be used to further the Metro region's land use and urban form goals. It made a number of key findings. The most important of these are:

- parking supply in apartments near rapid transit exceeds demand by a wide margin
- parking demand is lower in apartments near rapid transit, both for bus and rail service
- parking demand is lower in rental apartments than in condominiums
- visitor parking is typically oversupplied
- car ownership is lower in households that are members of car-share programs

The findings of the study are reflected in the City of Vancouver's requirements – for instance, that the required amount of parking is modified in zoning to be lower closer to frequent transit and to the downtown. However, parking requirements are not a wholly empirical exercise, and even when based

on rigorous study the parking requirements reflect different perspectives on what effects of parking should be permitted or avoided. A summary of these perspectives and their relative priorities are presented in Table 10, below.

**Table 10: Evaluation of Vancouver's parking requirements**

| Focus | Priority | Explanation |
|---|---|---|
| **Supply** | Medium | Ensuring an adequate parking supply is seen as a way to avoid problems. |
| **Choice** | High | Providing alternatives to the private automobile is seen as a principal way to avoid problems. |
| **Pricing convenience** | Medium | Ensuring the ease of paying for parking by including it with other costs is used by practice, but not always required. |
| **Efficiency** | Medium | Promoting ways to reduce parking spaces standing empty are used in limited residential contexts. |
| **Demand** | High | Parking's problem is in large part excessive demand, and ways to reduce this demand are employed in setting requirements. |
| **Spillover impacts** | Medium | Avoiding parking from one site taking space from other sites and on streets is a concern. |
| **External impacts** | Medium | Some consideration is given to reducing the effects of parking. |

While the parking bylaw does require the provision of residential parking in many areas, Vancouver's plans treat parking as a tool to be used to further other ends. For instance, the Transportation Plan speaks of reducing parking demand in order to improve housing affordability and explicitly states that the City will "Use off-street parking requirements to support reduced auto ownership and use".[151] The parking requirements themselves reflect a range of mitigating factors that help to lower requirements, and the use of maximum limits on parking underlines that the City sees it as a means to influence other fields such as transportation and housing.

The as-of-right zoning works to concentrate development in areas that are well served by transit by having lower parking requirements in these areas. In addition, the parking bylaw builds on findings that residents who live in rental buildings and near transit are less likely to own a car, and offers further reductions to rental buildings built within two blocks of certain transit links.[152] This option has been implemented alongside improvements to the Frequent Transit Network of bus lines throughout the Metro area.[153] The City has responded to evolving choices and alternatives to private parking by incentivizing car-sharing programs with further parking reductions.

Vancouver has made a number of policy statements regarding parking pricing that have not been reflected in legislation. While the City has supported individual projects that included parking that was unbundled from dwelling units and offered reductions in requirements for those that do so, it has neither included standards for such reductions in its bylaws nor required unbundling in any areas.[154] Developers have cited such unclear expectations as a concern in municipal approaches to parking, and have expressed that clear standards parking reductions would be preferable to dealing with such matters through negotiation.[155]

Again, Vancouver has included statements regarding parking use in its policies that are not yet reflected in legislation. In this case, the Transportation Plan speaks of encouraging shared parking in order to more efficiently make use of valuable limited space and requiring developers to make parking publicly accessible to enable its use as a shared resource.[156] However, the City has not enacted efficiency-improving policies such as allowing developers to modify the amount of parking after pre-sale of units, setting standards for shared parking that allows residential spaces to be shared with nearby land uses, or requiring condominiums to allow the sale of parking independently of dwelling units.[157] The City has acted in some aspects, allowing reductions in requirements based on TDM measures such as providing car-share spaces.

Vancouver's parking regulations treat limiting demand as a key factor in urban development. Despite increasing numbers of jobs and residents in the downtown, the number of vehicles entering the City has declined over the past 15 years.[158] The City aims to continue this trend by shifting trips to active and public transportation. Maximum parking limits help to prevent parking oversupply, and discouraging increased car ownership and parking demand. Allowing car-share spaces in a development and linking such spaces to lower parking requirements encourages reductions in parking demand. The City does not substantially shape parking demand through pricing regulation such as requiring parking to be sold separately from housing, allowing developers to reduce the number of parking spaces during pre-sale, or requiring transit passes be provided to condo buyers.

Vancouver has implemented a Residential Permit Program (RPP) to help to limit spillover parking, though the focus of the city on reducing parking demand can be seen in this as well, as it allows car-share vehicles to park in all RPP districts.[159] However, the low price of these residential permits has led to over-purchasing and made on-street prices highly competitive with off-street residential parking. In some areas the City has sold far more on-street permits than there are spaces while off-street private lots stand empty, in large part due to the low cost of permits. This may demonstrate concern over spillover parking but an unwillingness to tackle local spillover from residences that otherwise have their own dedicated parking.

Vancouver's transportation plan and parking bylaw makes frequent and explicit reference to the impacts of parking. As mentioned, the City makes efforts to limit the parking supply through lowered minimums and maximums, TDM programs, and improved transit. In some aspects an attempt is made to levy costs onto drivers' parking to capture these externalities, but these efforts take place at other levels of government. For instance, the sale of parking rights is taxed in Vancouver and the surrounding area by TransLink, the regional transit provider, but this tax does not apply to residential parking, and is applied in limited areas.[160] This policy is a first step towards pricing parking and capturing the cost of its external impacts, but currently has no residential impact.

Vancouver's parking requirements follow from comprehensive studies of apartment parking supply and occupancy rates. They are situated in a complex context of superior levels of government and neighbouring municipal partners. They reflect an ambitious and long-held vision for the city that has seen population, jobs, and transit ridership grow while the growth in number of vehicles has slowed and the absolute number of vehicles entering the downtown has declined. The City has begun to experiment

with more ambitious experiments in parking, including removing visitor parking requirements and instituting maximum parking requirements.

### *2.2.3 Ottawa*

The City of Ottawa is a single-tier municipality located in eastern Ontario along the border with Quebec. It has a population of 883,000 people. The area of the city is more than 2,700 $km^2$ due to the amalgamation of surrounding towns and hamlets in 2001, though the actual urban area is much smaller, comprising 500 $km^2$.[161] Ottawa is one city within the National Capital Region (NCR), which also includes Gatineau, Quebec and the surrounding area. For geographic context, the NCR (titled on the map as the National Capital Area) is presented in Figure 5.The City of Ottawa's authority is derived from the Planning Act, a provincial act that sets out the powers of Ontario's municipalities. Ottawa's parking requirements are set out in its zoning bylaw, which has undergone revision in recent years as the city moves toward the construction of the Confederation Line LRT and the overhaul of its transit system.

Although this study is evaluating the current parking requirements and how they were enacted, it is interesting to see how perspectives on parking have changed over time. The 1950 plan for the national capital by Parisian architect Jacques Gréber emphasized the importance of clearing cars from streets to allow rapid traffic, and building as much off-street parking as possible. The plan states:

> The basic principle is to avoid crowding of running lanes by parking, to increase the number of off-street parking areas, to build the greatest possible number of covered parking spaces[…] Most of the new public buildings, and even large private commercial buildings should provide in their plans *the necessary space for day and night parking*.[162]

This may be Ottawa's earliest move to require off-street parking in new developments, if only at first in commercial buildings. This requirement would begin a long trend that continues to today that still influences the land use and transportation patterns of the city.

#### Policy Context

Ottawa's planning efforts are situated within a hierarchy of plans and requirements. Some of these are guidance offered by the Province of Ontario through  elements that the Province requires be included in Official Plans, and some are complementary plans such as the Transportation Master Plan that do not themselves state parking requirements, but state positions and intentions of the City and help to discern its approach to parking.

As indicated earlier for the City of Toronto, the *Places to Grow Act, 2005* and its subsequent amendments and orders set out the growth areas and plans for parts of Ontario and require municipalities to amend their official plans to conform to these plans. These plans do not set out requirements or limits on parking, but do contain density and intensification targets and require that intensification take place within designated growth areas. This effectively encourages the development of vacant lots, brownfields, and surface parking lots by requiring infill development. Simultaneously, this policy discourages parking oversupply by setting density targets that would be more difficult to reach if parking standards are high.[163]

Additionally, the *Provincial Policy Statements,* are issued under the Planning Act. They guide land use development planning by municipal governments. They also do not set out guidance on parking requirements, but do influence land use planning policy by requiring reviews of conversions of employment lands in order to maintain a mix of land uses, stricter review of the expansion of settlement area boundaries, and comprehensive reviews of non-resource rural development. These policy statements effectively discourage outward growth in favour of more intense urban development, which encourages consolidation of parking and lower parking requirements.[164]

Ottawa is unique in Canada in that it also has the National Capital Commission (NCC), a federal Crown Corporation that is empowered to "prepare plans for and assist in the development, conservation and improvement of the National Capital Region in order that the nature and character of the seat of the Government of Canada may be in accordance with its national significance."[165] The NCC has substantial land holdings in the area, including much of the land that comprises Ottawa's greenbelt, a 200 $km^2$ crescent of land on which development is strictly controlled. While the NCC does not set parking requirements or dictate expectations to the City of Ottawa, its role as a steward of close to 11% of the NCR's land gives it significant influence in many discussions of land use or transportation changes. The NCC recognizes that Ottawa has a dispersed urban form that leads to automobile dependency, and seeks to constrain urban sprawl through protection of its greenbelt lands from development and coordination of plans with municipal governments.[166]

Section 2.2 of Ottawa's Official Plan touches on parking requirements and their role in a number ways. First, it addresses the issue of managing growth sustainably. It seeks the "most cost-effective pattern for the provision of municipal services, transit and other infrastructure [that] supports a cleaner, healthier city"[167] by using intensification and growth within established urban areas to develop a more compact urban form and land-use pattern. Reducing the amount of land used for parking and reducing parking requirements are noted as tools to accomplish this goal.

The Official Plan commits the city to working towards a transportation system that prioritizes both mobility and accessibility. This means also using measures to "enhance the relative attractiveness of transit over private automobile use", including controlling parking supply. In particular it sets out the need to set maximum and minimum parking requirements for land in close proximity to existing and proposed rapid transit stations.[168]

Parking is also addressed in Ottawa's Transportation Master Plan. This document notes the role of surface parking in reducing the density of developments, and in making walking more difficult while enabling car use. It commits the City to encouraging the use of parking that is shared between land uses to allow space to be used more efficiently, and to encouraging the consolidation of parking within structures and underground rather than on surface lots in order to reduce its effect on density. Similarly, it underlines the role of parking in residential areas in promoting compact development and mode choice. The role of parking requirements near rapid transit is emphasized, explaining the need for maximum parking limits, well-designed and situated structured parking, and high densities in areas close to rapid transit stations. In short, the TMP states the City's position that parking requirements will be used to meet broader objectives of urban form and transportation.[169]

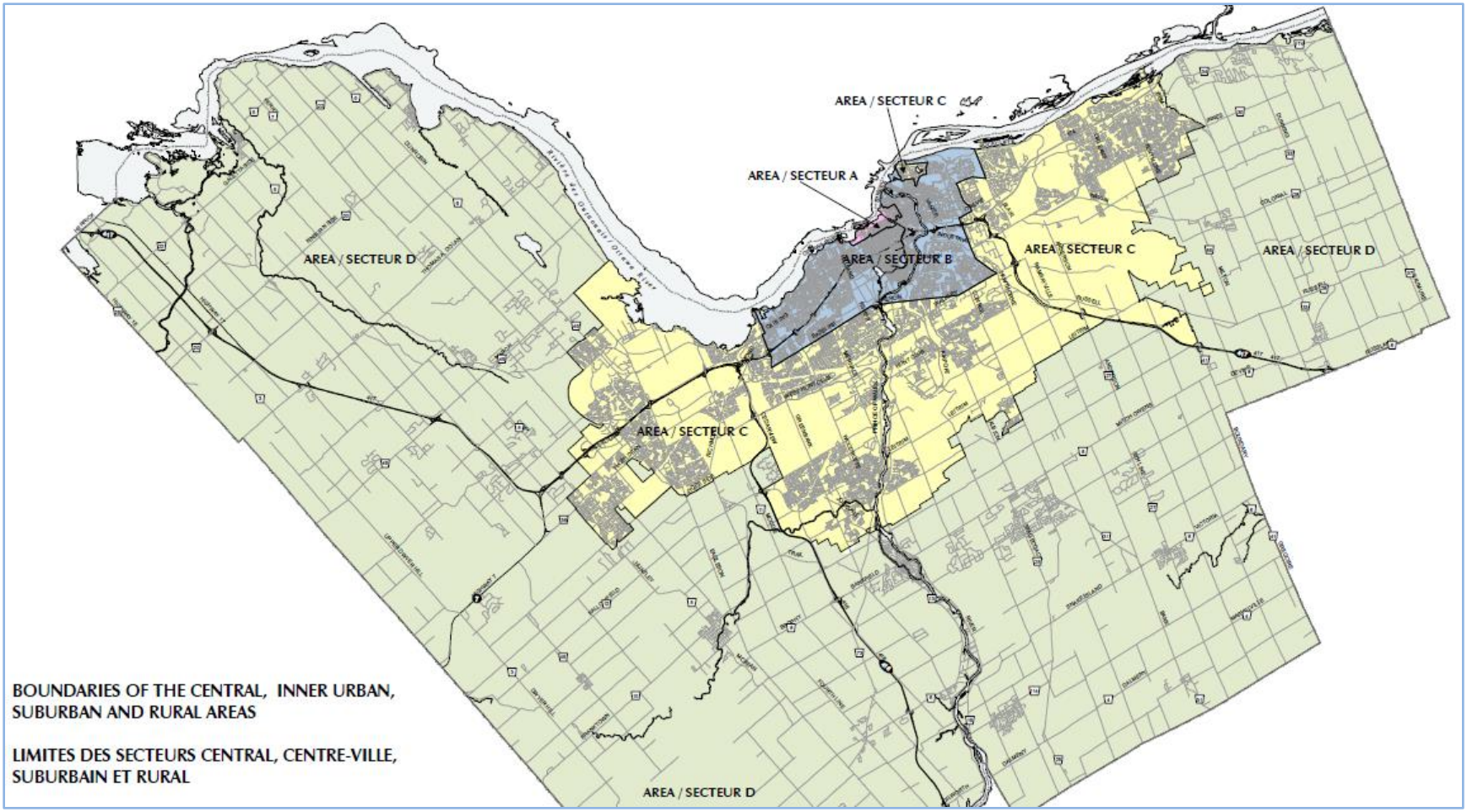


Figure 4: Ottawa Zoning Bylaw Schedule 1[170]

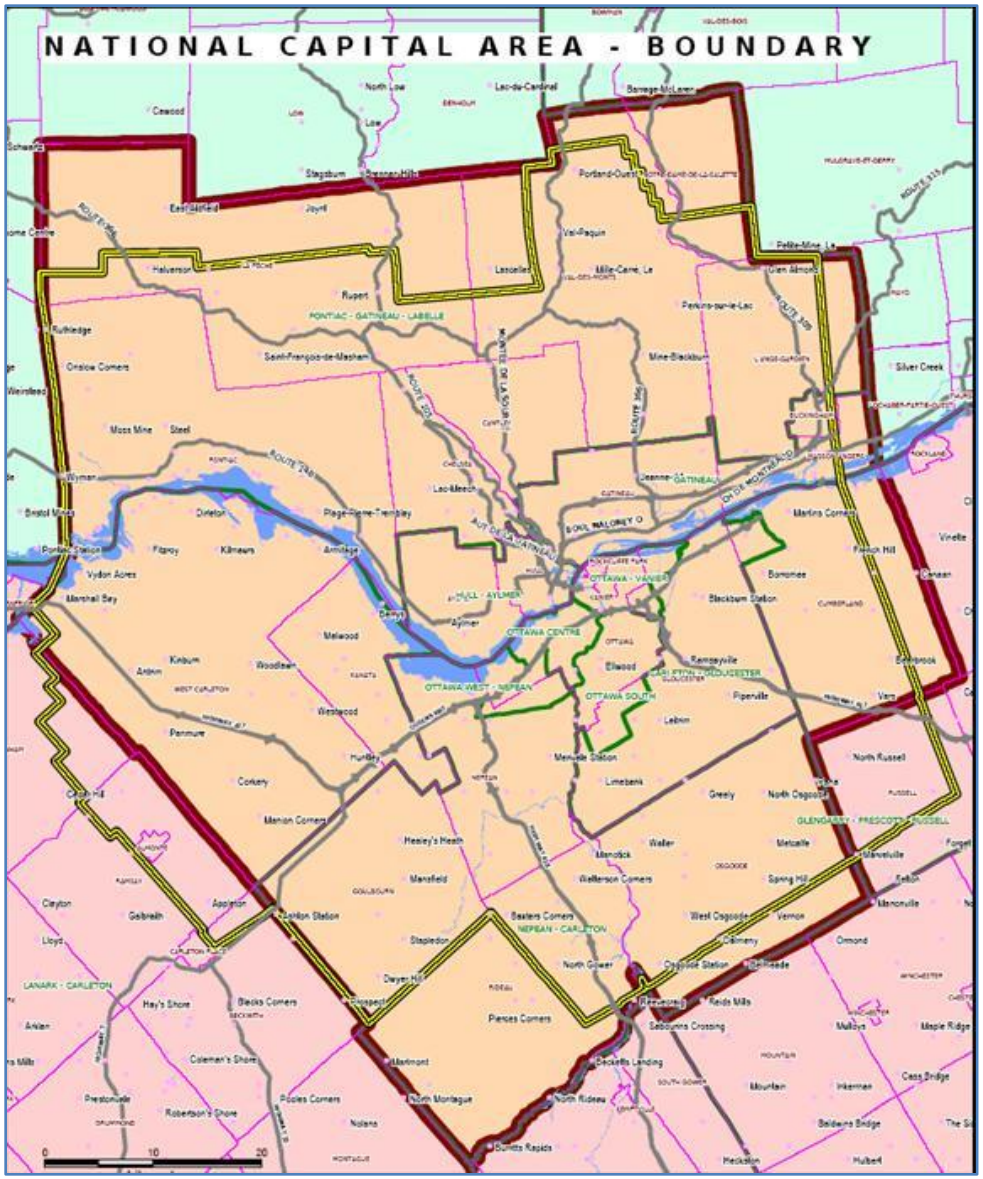


Figure 5: National Capital Area Boundary[171]

## Current Parking Policy

The City of Ottawa applies different parking requirements for buildings based on their location in four geographic regions that are roughly concentric crescents expanding outwards from downtown. These areas can be seen in Figure 4. Allowances for lower parking requirements are also made based on proximity to rapid transit stations along the city's Bus Rapid Transit system known as the Transitway. These requirements are demonstrated in Table 11, below. The four zones are indicated by their letters, with A being central area, B the inner city, C the suburbs and D the rural area. Note that A is divided into two sub-areas, west and east of the Rideau Canal.

**Table 11: Ottawa parking requirements**

| Ottawa Multi-Unit Apartment Building Parking Requirements by Area[172] | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Minimum Requirement | | | | | Visitor Minimum | | | | | Maximum Allowed | | | |
| | A | | B | C | D | A | | B | C | D | A | B | C | D |
| | W[6] | E[7] | | | | W | E | | | | | | | |
| Close to rapid transit[8] | 0 | 0.25 | 0.5 | 0.5 | 0.5 | - | - | - | - | - | 1.5 | 1.75 | 1.75 | 1.75 |
| Not close to rapid transit | 0 | 0.25 | 0.5 | 1.2 | 1.0 | | | | | | n/a | n/a | n/a | n/a |
| First 12 dwelling units | - | - | - | - | - | 0 | 0 | 0 | 0.2 | 0.2 | - | - | - | - |
| Next 300 dwelling units | | | | | | 0 | 0.1 | 0.2 | 0.2 | 0.2 | - | - | - | - |

Ottawa also permits a number of ways to reduce parking requirements which are common in other cities, but there are two noteworthy ways in which Ottawa's permissible reductions stand out from other cities. Ottawa recently repealed its cash-in-lieu of parking policy, opting to deal with requests for reductions in requirements through minor variances and rezoning applications. It also allows lower parking requirements for building all parking underground. The permissible reductions are presented in Table 12, below.

[6] West of the Rideau Canal
[7] East of the Rideau Canal
[8] Defined as a 600 metre perpendicular measurement between lot lines, extended to an 800 metre walking distance when divided by a physical barrier to pedestrian access.

Table 12: Types of parking reductions permitted by Ottawa[173]

| Type of reduction in number of required spaces | Permitted | Explanation |
|---|---|---|
| Permit residential parking spaces to be counted toward shared requirements with other land uses. | No (with exception) | A limited amount of the required visitor parking may be shared and counted towards the requirements of other uses on the same lot. |
| For providing bicycle parking or other bicycle facilities. | Yes | One parking space reduction is permitted for every 13m$^2$ of floor area provided for shower, change, or locker areas for cyclists. |
| For providing car-share parking. | No reduction permitted | Not permitted. |
| For providing transit passes to new buyers. | No | Not permitted. |
| For being close to frequent transit. | No | Not through reduction, but reflected in initial zoning requirements. |
| For payment of money to the City for other parking. | No | Not permitted. |
| For payment of money to the City for other uses such as active or public transportation. | No | Not permitted. |
| For placing parking underground. | Yes | 10% reduction in requirement, up to 20 spaces. |

## Policy Analysis

Ottawa's multi-unit residential parking requirements are found in the Zoning By-law, which is a comprehensive consolidation of the 36 zoning by-laws of the pre-amalgamation municipalities and which applies across all of the City of Ottawa. Ottawa undertakes a number of parking studies each year in city neighbourhoods, but these focus on on- and off-street parking supply and demand by visitors, customers, employees, and other non-residents. Studies related to residential off-street parking typically focus on future developments rather than existing occupancy evaluations.

With Ottawa's ongoing investments in its transit, much of the focus of existing studies has been on the role of zoning in supporting transit and changes to the transportation system. This, along with other perspectives, can be seen when evaluating the approaches taken by Ottawa in its off-street parking requirements for multi-unit residential developments. A summary of these perspectives and their relative priorities are presented in Table 13, below.

**Table 13: Evaluation of Ottawa's parking requirements**

| Focus | Priority | Explanation |
|---|---|---|
| **Supply** | Medium | Ensuring an adequate parking supply is seen as a way to avoid problems. |
| **Choice** | High | Providing alternatives to the private automobile is seen as a principal way to avoid problems. |
| **Pricing convenience** | High | Ensuring the ease of paying for parking by including it with other costs is widely used. |
| **Efficiency** | Medium | Promoting ways to reduce parking spaces standing empty are used in limited residential contexts. |
| **Demand** | Low | Parking's problem is not principally excessive demand, and few ways to reduce this demand are employed in setting requirements. |
| **Spillover impacts** | Medium | Avoiding parking from one site taking space from other sites and on streets is a concern. |
| **External impacts** | Medium | Some consideration is given to reducing the effects of parking. |

Ensuring that there is an adequate parking supply is an aim of Ottawa's multi-unit residential parking requirements. While there are minimum parking requirements in all areas except for some parts of the downtown, these requirements are low in comparison to other cities. In its Transportation Master Plan, the City notes greater concern for the appropriate control of the parking supply through minimums and maximums as opposed to the need for an increased parking supply. In the policies of its Official Plan it states that "development should have adequate on-site parking", although this is qualified based on context and transit availability.[174]

The Official Plan and Transportation Master Plan do not explicitly state that parking problems will be managed by encouraging other modes of transportation, but parking is described as a land use to be avoided and reduced. Similarly, the TMP commits the City to prioritizing public transit and encouraging walking and cycling rather than driving. These efforts provide alternatives to the need to park, thus increasing transportation choice.

Ottawa's zoning bylaw, OP, and TMP do not address the pricing of residential parking. The TMP does recognize that the way that parking is priced helps to determine its demand, but it only addresses City-provided parking as a tool to influence this demand rather than a way to influence overall car ownership and use. Instead, the means by which residential parking is paid for is left to developers and landlords, and the common practice of bundling parking costs with housing prevails.

The City recognizes in several areas of its Official Plan and Transportation Master Plan that parking is an inefficient use of space that frequently stands empty. The Zoning Bylaw does permit some commercial land uses on the same lot, and does allow visitor parking in residential land uses to count in limited

cases, but at no time does it allow required residential parking spaces to be shared towards the requirements of other land uses.

Ottawa manages parking demand as one way of dealing with overall transportation problems, but has not employed many tools to make the price of parking more visible in order to reduce its demand. Maximum parking limits do help to prevent parking oversupply in areas well served by transit and in the downtown. However, the City does not shape parking demand through pricing regulation such as requiring parking to be sold separately from housing, allowing developers to reduce the number of parking spaces during pre-sale, or requiring transit passes be provided to condo buyers.

Ottawa has implemented a RPP to help to limit spillover parking, and does require parking for most land uses in most cases. The policies of the Official Plan state that "development should have adequate on-site parking to minimize the potential for spillover parking on adjacent areas", although the City is currently considering removing requirements for narrow-lot infill developments.[175]

Ottawa's parking requirements are based to some extent on concern with external impacts caused by parking. In many cases the TMP and OP address parking as a surface land use that detracts from the accessibility of pedestrians and cyclists, and reductions in requirements are offered to developers for placing parking underground. Design guidelines also help to mitigate some of the negative effects of parking by requiring screening from the street and landscaping in the parking lots to reduce speed and the risk of pedestrian accidents.[176] No effort is made to levy charges on drivers for their emissions and other externalities.

Ottawa's multi-unit residential parking requirements are heavily focused on the role of transit in providing alternatives to driving. Reduced minimums and the maximum limits on parking near transit are tools that the City has used to ensure that future development will not oversupply parking in areas with rapid transit alternatives. However, the city has not employed many of the other tools that are available to shape parking supply and demand: the repeal of the Cash-in-Lieu policy now leaves the City to deal with requests for reductions through minor variances; the lack of reductions permitted for providing car-share spaces does not encourage the use of such programs compared with private car ownership, and no reductions are granted for additional TDM programs like transit passes or increased bicycle parking.

### *2.2.4 Winnipeg*

The capital of Manitoba, Winnipeg has a population of 663,000 residents. Originally founded as a trading post at the junction of the Red and Assiniboine Rivers, Winnipeg has an urban form that follows the pattern of many Canadian cities, with the oldest areas of the city built up around its centre at the river junction, 'The Forks', form a dense downtown with many historic structures. As the city expanded, concentric rings of post-war growth have a less dense, more suburban form. This geography is reflected in the parking requirements of the city. Winnipeg's authority to zone and regulate parking is set out by The City of Winnipeg Charter, a provincial act that sets out the municipality's powers.[177]

## Policy Context

Winnipeg's urban planning efforts exist within the guidance of the Manitoba provincial government. This guidance comes in the form of the Provincial Planning Regulation and Provincial Land Use Policies, which set out directions that municipalities must generally adhere to within their official plans. These policies provide guidance for the protection of agricultural lands, direction of future urban growth, safeguarding of renewable resources, and development of a multimodal transportation system.

As with many provincial policies, particular elements such as off-street residential parking requirements are not specifically addressed. However, the language that is used indicates that parking requirements will be affected by this guidance and that they can be used as tool to meet the goals of the policies.

For instance, the province sets out a goal of developing a transportation system that can "move people and goods in an efficient, safe and environmentally responsible way". Within this goal, a link is made between transportation and land use planning, with the Province's Planning Regulation states stating that municipalities can "encourage certain ***development*** patterns, land use mixes and densities that promote transit, walking and cycling" (emphasis original). The policy goes on to note the need to promote modes of transportation other than the private automobile, discussing the need for increased density, mixed land use, walkable communities. Further goals set out the province's intention to concentrate growth in certain urban areas while limiting development in low density and rural areas.[178]

The Official Plan lays out concerns about the sustainability of outward growth given the City's surrounding land constraints. In response to these concerns, the City plans to develop more complete communities based on mixed land use, mixed tenure, and increased height and density in strategically chosen areas. These would be located in mixed-use centres and corridors that are well served by transit. While these aims do not necessarily require the City to have lower off-street parking requirements, by constraining growth and seeking higher density parking is more likely to be built underground in order to reach density targets, raising parking costs and reducing its demand. Similarly, increased density and land use mix allow otherwise unfeasible modes of transportation such as active transportation, car-sharing, and higher-order transit service to be implemented.

Similarly, the Transportation Master Plan seeks to affect a shift from the private automobile to more sustainable modes of transportation. It states that the City will support "innovative parking strategies that allow for reductions in parking space requirements"[179], and affirms that no parking minimum requirements are needed in the downtown. As with many cities, Winnipeg aims to provide an "appropriate" level of parking supply, but does not clarify what an appropriate supply entails – nor what aims such a supply should serve. The TMP sets out the need for more on-street short-term parking and opportunities for developers to reduce parking requirements, but lacks explanation of the role of on-street versus off-street parking or how the two are to be planned in a coordinated manner. Thus, while it contains many of the aims of progressive parking policy, it is unclear in exactly what role the parking supply is meant to serve.

Winnipeg's residential off-street parking requirements exist in two bylaws: one for the historic downtown centre of the city and one for the more recently developed lower-density surrounding remainder of the city. The downtown bylaw is the result of a series of changes that culminated in its adoption in 2004, moving away from the previous 1919 bylaw's strictly enforced single-use zoning and parking requirements that contributed to a decline in the downtown population and the proliferation of surface parking lots.[180] The bylaw for the surrounding area was the product of a major review of the City's zoning bylaws that took place in 2008, taking into account the bylaws of the seven former municipalities that were amalgamated with Winnipeg in 1994. The areas covered by each bylaw can be seen in the map below – the central pink area identifies the Downtown Bylaw 100/2004 area, while all other areas within the city boundaries are dealt with by the Winnipeg Zoning 200/2006 bylaw.

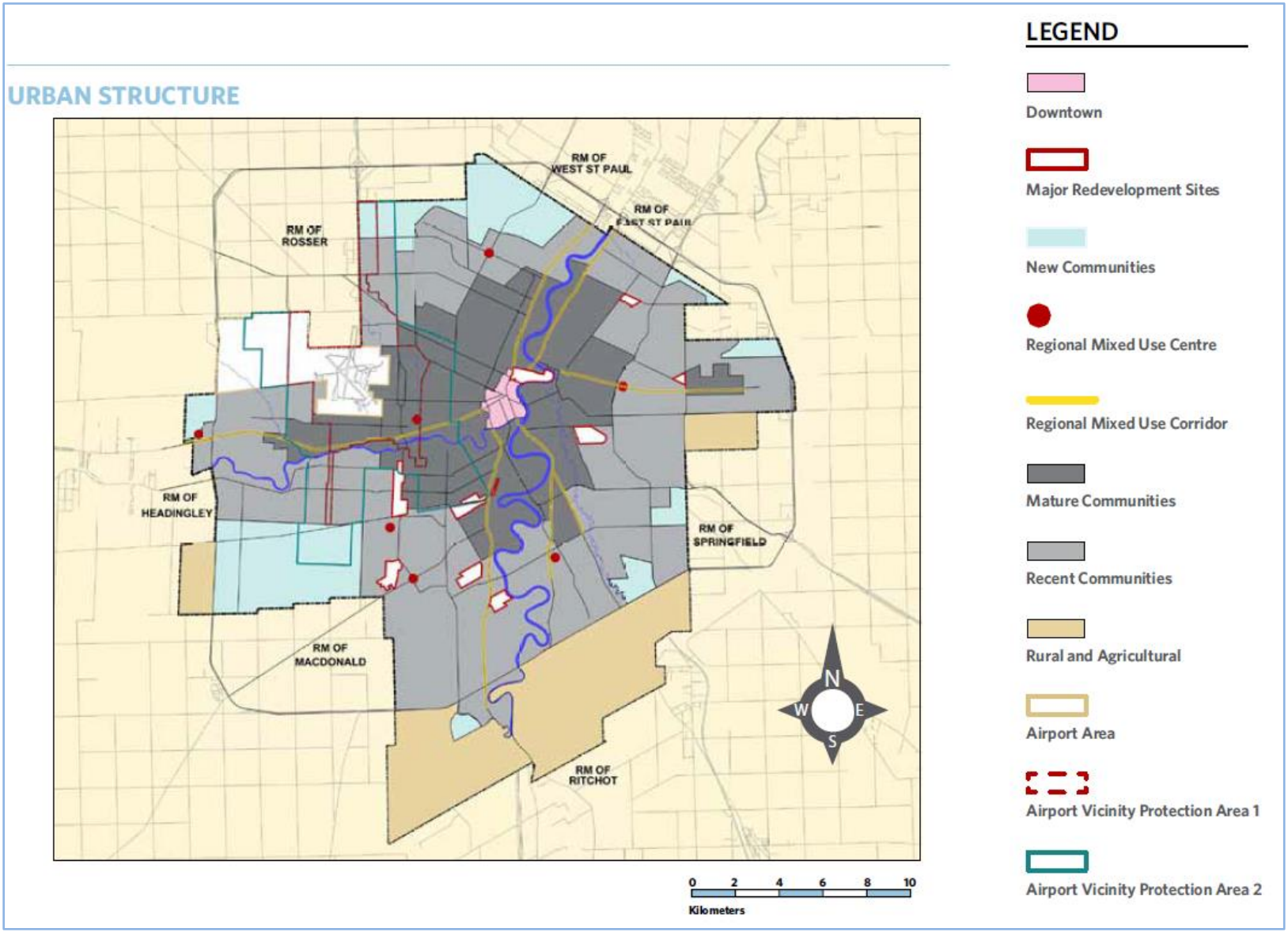


Figure 6: Winnipeg Urban Structure[181]

## Current Parking Policy

Winnipeg's parking requirements are straightforward compared to other major cities in Canada. They differentiate between multi-unit residential buildings based primarily on location. The different locations can be seen in Figure 6. Buildings located downtown face no parking requirements, while those located within the area of the rest of the city must provide 1.5 parking spaces per dwelling unit. These requirements are shown in Table 14.

**Table 14: Winnipeg parking requirements**

| Winnipeg Multi-Unit Apartment Building Parking Requirements by Area | | | |
|---|---|---|---|
| | **Minimum Requirement** | **Visitor Minimum** | **Maximum Allowed** |
| **Downtown** | **-** | **-** | **-** |
| **Rest of City** | **1.5** | **10%** | **-** |

Two types of reductions are permitted. First, in some areas immediately adjacent to the downtown, titled Infill Areas, requirements can be reduced to 80% of the bylaw minimum in cases where an existing building does not meet the requirement or a new development fronts on a regular public transit route. Second, in cases where different land uses exist within a single building, the number of required parking spaces is reduced to 80% of the bylaw minimum requirement. These two reductions can be applied together under certain circumstances. Other requirements were considered in earlier drafts of Winnipeg's zoning bylaw, such as cash-in-lieu of parking policy, but these were not retained in the final document. The reductions in parking requirements that are permitted by Winnipeg are presented in Table 15.

Table 15: Types of parking reductions permitted by Winnipeg

| Type of reduction in required spaces | Explanation | Permitted |
|---|---|---|
| Permit residential parking spaces to be counted toward shared requirements with other land uses. | The number of required parking spaces in buildings with multiple uses can be reduced to 80% of the minimum requirement | Yes |
| For providing bicycle parking or other bicycle facilities. | Bicycle parking is required at a rate of 1 per 10 auto parking spaces, but do not allow for parking reductions. | No |
| For providing car-share parking. | Not permitted by bylaw, but has been allowed through variance.[182] | No |
| For providing transit passes to new buyers. | Not permitted. | No |
| For being close to frequent transit. | In Infill Areas with regular transit service, a reduction to 80% of the minimum requirement is possible. | Yes (limited cases) |
| For payment of money to the City for other parking. | Not permitted. | No |
| For payment of money to the City for other uses such as active or public transportation. | Not permitted. | No |
| For placing parking underground. | Not permitted. | No |

## Policy Analysis

Reviewing the actual requirements of a zoning bylaw rather than simply taking its stated aims at face value is important in order to identify the congruence of stated intentions and enacted policy, as well as how the bylaw can be modified to bring its aims and requirements into congruence. Winnipeg's bylaw is particularly interesting in this light, as the City plans broadly for density and progressive reduction of parking requirements, and then zones for cars and parking. A summary of these perspectives and their relative priorities are presented in Table 16.

**Table 16: Evaluation of Winnipeg's parking requirements**

| Focus | Priority | Explanation |
|---|---|---|
| **Supply** | High | Ensuring an adequate parking supply is seen as a principal way to avoid problems. |
| **Choice** | Low | Providing alternatives to the private automobile is not seen as a way to avoid problems. |
| **Pricing convenience** | High | Ensuring the ease of paying for parking by including it with other costs is widely used. |
| **Efficiency** | Medium | Promoting ways to reduce parking spaces standing empty are used in limited residential contexts. |
| **Demand** | Low | Parking's problem is not principally excessive demand, and few ways to reduce this demand are employed in setting requirements. |
| **Spillover impacts** | High | Avoiding parking from one site taking space from other sites and on streets is a principal concern. |
| **External impacts** | Low | Little consideration is given to reducing the effects of parking. |

Providing ample supply is a clear intent of Winnipeg's parking requirements. A blanket requirement of 1.5 spaces per dwelling unit across the city outside of the downtown provides little context-sensitivity. Mature neighbourhoods close to downtown are provided some potential reductions, but not all such pre-war construction areas are included; the North End, immediately north of the downtown, is a clear example of one such excluded area. Requirements are not altered based on frequency of transit service beyond a potential reduction for lots fronting on a street with "regular daily service". That the downtown lacks requirements is not a repudiation of the need for an ample supply but rather displays a recognition of the disconnect between downtown supply and demand: Winnipeg has more downtown parking per census metropolitan area resident than any other Canadian city, nearly three times as many downtown spaces as downtown residents, and 20% of downtown real estate devoted to parking.[183]

Winnipeg's Official Plan and Transportation Master Plan speak broadly of the need for alternative modes of transportation and commit the City to supporting them by providing reductions in parking requirements. The City does require a baseline of bicycle parking, but it only requires 1 lockable space per 10 automobile parking spaces and does not require un-secured bicycle parking. No incentive is given to provide additional cycling facilities by allowing parking reductions. Similarly, no as-of-right reduction is permitted for providing car-share spaces, although due to the fledgling nature of the industry in Winnipeg this may be understandable. In short, the City does little in its zoning to use parking requirements to improve alternatives to the private automobile.

Winnipeg does not address the pricing of residential off-street parking in its zoning code, leaving it to be administered by developers. In practice, this leads to parking costs being bundled with the cost of

housing, making for an easier – if less cost-representative – transaction. The desire for ease of parking payment and aversion to charging full cost is also seen in the on-street parking price, which is typically $1 per hour, among the lowest in Canada and far below the cost for its provision.

Winnipeg can be seen to address parking efficiency in two ways. First, due to the lack of parking requirements in the downtown area, parking demand is pushed to use existing public parking facilities and on-street parking rather than dedicated private off-street spaces. Second, a slight reduction in parking requirements for buildings that contain multiple uses encourages parking to be shared between uses whose peak demands complement each other. Outside of these modest policies, the majority of required parking cannot be shared, leading to its inefficient use.

Reducing demand for parking is not a prominent role of Winnipeg's parking requirements. Indeed, it is relatively recently that the city has moved away from zoning regulations that act in the opposite direction. A change in approach to zoning occurred in the mid-2000's to permit a greater mix of land uses, for instance. As mentioned, efforts to provide alternatives to driving, which can help to reduce demand, are also not substantial components of the City's approach to parking. There is no visible effort to reduce parking demand by making its cost more visible through unbundling, or even to cap parking by implementing maximum parking limits.

Winnipeg's multi-unit residential requirements demonstrate a clear concern that parking by residents should take place within their buildings. This is particularly visible in the requirement to provide more than 1.0 space per dwelling unit. Within the downtown, spillover is the norm as there is little on-site parking and no requirements to provide it exists. However, the presence of many public parking lots and a municipal strategy to ensure adequate parking in the downtown reinforces the need for proximate parking that does not spill over and inconvenience others. The City has implemented a hybrid RPP program for downtown that allows purchasing residents to park beyond time limits on certain streets, but within limits. Other streets with time limits have an annual fee for a permit for residents to park.

Winnipeg addresses the external impacts of parking only through attempts to contain parking demand with adequate supply on each site. Downtown parking prices are low, and the cost for on-street residential parking permits is well below the market rate for a parking space. What's more, the city provides very few incentives for developers to seek lower parking requirements – few reductions in requirements are permitted for efforts that reduce car dependency or parking demand. In this way, there is low priority placed on minimizing the external impacts of parking.

Winnipeg is simultaneously an interesting case for its lack of downtown requirements, and an example of how nearly all Canadian cities approach parking through its lack of context-specific requirements outside of the downtown. The blanket requirements and lack of potential reductions in requirements are emblematic of many Canadian cities' preference to treat parking zoning requirements in a way that facilitates easy enforcement rather than addressing concerns of unrestricted demand, external effects, low transportation choice, and inefficient use of urban space.

### *Comparison of city priorities*

Having discussed how each city's parking requirements prioritize different concerns related to parking, it is interesting to take all four cities' foci at a glance. They are presented in the table below. While qualitative in nature, the analysis of foci in municipal policies can give a sense of what concerns the parking requirements translate and of the objectives they are meant to achieve. In general, ensuring that parking is readily available, easily accessed, and not paid for based on use, which are objectives that are directly tied to the parking experience, are prioritized by all surveyed cities. This can be seen in the emphasis on supply, choice, and pricing convenience. In contrast, perspectives that focus on elements tied to the broader effects of parking are less prioritized. For instance, there is comparatively little concern for whether parking spaces are being efficiently used or if they stand empty for much of the time. There is also less emphasis on reducing demand for parking or avoiding the external impacts of parking on others. It is understandable and evident that parking requirements more clearly reflect the perspectives that are most closely tied to the act of parking. However, it may be that the lack of priority of the other broader foci can lead to conflict between parking goals and other city goals. For instance, city goals regarding air quality or urban design may conflict with a lack of emphasis on mitigating the external impacts of parking. The following comparative table, Table 17, is presented to provide a summary of the foci of the four surveyed cities.

**Table 17: Comparison of parking foci for Toronto, Vancouver, Ottawa, and Winnipeg**

| Focus | Toronto | Vancouver | Ottawa | Winnipeg |
|---|---|---|---|---|
| **Supply** | High | Medium | Medium | High |
| **Choice** | High | High | High | Low |
| **Pricing convenience** | High | Medium | High | High |
| **Efficiency** | Low | Medium | Medium | Medium |
| **Demand** | Medium | High | Low | Low |
| **Spillover impacts** | High | Medium | Medium | High |
| **External impacts** | Medium | Medium | Medium | Low |

# 3. *No Free Parking* – Interviews on setting parking requirements

As discussed in the Methodology section, interviews were held with planners, politicians, consultants, and developers in Toronto and Vancouver. These interviews serve to address the 'why' of parking requirements to complement the 'what' of the previous section. These interviews touch on the experiences of each professional interviewed, their views on parking requirements, the trends they see in their cities, and the lessons that they can share for future improvements in parking requirements and parking regulation writ large.

Interviews were selected as the research tool for this section in order to best uncover the qualitative experiences, perceptions, and opinions of experienced professionals in the field. It was hoped that interviews would reveal participants' experiences with multi-unit residential parking requirements, how they are set, what perspectives they reflect, and how they have changed over time, among other questions most pertinent to each respondent's experience.

## 3.1 Toronto

Interviews with participants familiar with the requirements of the City of Toronto took place in April of 2014. While Toronto is Canada's largest city in terms of population, it is also a diverse city made up of a number of distinct former municipalities with their own urban forms and transportation patterns. Much as Toronto's parking requirements vary geographically, the market forces, buyer expectations, modal splits, and other forces are not homogenous. Much of the focus of the interviews was on the downtown area, in part because of the experience and expertise of the participants that knew this area best, but also because it is the densest area with the most transportation options and development pressures. There may be many common trends between these findings and other dense urban areas, but not all will be applicable to all urban or suburban contexts. The findings from these interviews are condensed into themes in order to summarize and contrast the responses of different participants. The themes are: parking and long-range planning (vision and policy), the economics of parking regulation (costs and benefits), framing/designing parking regulation (science vs. politics), perspectives implementing parking regulations (complexity, discretion, negotiation).

### *Framing parking regulation: science versus politics*

Discussions with participants revealed differing views on the nature of parking requirements as a balance of scientific data versus political choice. Comments on this subject can be separated into three ideas – that parking requirements are a political choice best left to politicians, that parking requirements have technical aspects that require experts and data, and that there is a gap in understanding between politicians and professionals.

Interestingly, professional interview participants spoke at great length about the politics of parking requirements, while the sole political participant saw parking requirements as primarily a technical exercise. A number of professional participants noted that there were many examples of individual councilors spearheading their own initiatives for parking that were not supported by city staff. For

instance, a pilot project to provide transit passes to new condo buyers was not supported by staff, was guided to Council approval by the councilor, but was left to lapse immediately following the departure of the supporting Councillor. Similarly, there are a number of examples of individual developments that were not approved by city staff due to parking deficiencies, but were nonetheless approved by City Council following the intervention and support of the local ward councilor. For example, a 20-storey condominium development required by bylaw to provide 194 parking spaces, but was approved by City Council with only 9 spaces over the objections of staff. The sole councilor interviewed expressed a limited familiarity with the process for determining parking requirements, stating rather that "we rely on experts to give us those technical pieces" when dealing with requests for parking reductions.

Participants agreed that parking requirements were *political* based on their long-term role in shaping a city, the behavior of its residents, and the opportunities afforded to them. For instance, in describing Toronto's goals through its off-street parking requirements, the manager of the Zoning By-law Project cited the Official Plan's aim as that "there should be a reduction in auto-dependency." While the Councilor interviewed expressed the opinion that the overarching goal of setting parking requirements was to accurately predict future demand to ensure an adequate supply, he underlined the importance of selecting the correct requirements – due to the near-impossibility of adding more parking to a building in the future. He argued that providing insufficient parking would drive potential residents to live elsewhere, and that over-supplying parking and tying its price to all housing units would unnecessarily raise housing prices. Interviews with planners responsible for Toronto's zoning bylaw harmonization process noted that a great deal of time and research went into defining the general parking requirements, but that these were then politicized in their application to specific developments as Councilors would undermine their strength by bargaining with developers, offering reductions in exchange for community financial contributions.

Participant responses highlighted other political choices involved in parking. Several noted the role of RPPs in managing on-street parking, and the control that cities can exert over eligibility for these programs. In neighbourhoods with high parking demand and high construction prices, developers can be tempted to under-provide parking and future residents of new developments may understandably desire to forgo the $30-70,000 cost for a parking space and to purchase an on-street permit instead at a cost of $15 per month. In some cases the City will exclude new developments from RPPs in order to preserve the ability of existing residents to park on the street and keep parking for new developments on-site. This sort of choice on the allocation of scarce public goods is an example of the political nature of parking regulation.

Interview participants highlighted the need for *professional analysis and data to inform parking requirements,* although there was disagreement over the degree to which such data can ever accurately predict demand. In Toronto's case, there was not an agreement on this subject among planners and politicians or public- and private-sector respondents. Some planners with the City of Toronto were understandably proud of the work that went into the new harmonized bylaw and the rigorous studies that support its requirements. Calling it the largest residential survey in Canada's history, they cited car ownership surveys, parking occupancy studies, and context-specific data like transit service availability as useful and relevant considerations that Toronto's new requirements take into account. Some other

planners took a more critical view, noting several challenges. Selecting which buildings to include or exclude from the study may prejudge the results, as the study excluded buildings built pre-1975 but may have included recently-build buildings that have not reached 'maturity'. The sample size of 9,323 and final response group of 4,698 may have been insufficient, and was described by one respondent as follows: "If you look at some of the statistics and sample sizes underneath the data, it amounts to 400 to 500 units. When you're talking about the central downtown of Toronto, that's half a building nowadays." Others questioned the data points used in the study, saying that many considered in both the general zoning bylaw and in site-specific development agreements should not be used. Car ownership was cited by some as a useful factor to consider, as some residents may own a car but not need to use it frequently and thus not need to park it on-site, while others disagreed with using parking sales data, as its numbers are vulnerable to manipulation by developers based on price. Overall, the ability of empirical data to accurately determine of parking requirements was largely rejected by respondents, summed up by one planner as saying "I have a lot of concern over how the data is manipulated to determine parking requirements." Empirical data was seen as an important first step to determine existing demand and supply, but one that must be tempered with context-specific considerations and policy objectives.

Participants largely agreed on the lack of an empirical basis for parking requirement reductions. The importance of this was underlined by a Toronto zoning examiner, who said:

> In a site-specific development, especially in the downtown area, I don't think that I've seen a development yet that's met the requirement in the general bylaw. There is always some sort of reduction[…] A lot of work goes into the bylaws, and in setting the parking requirements, but they're only followed for small and not even medium-sized developments. Most developments have site-specific bylaws and site-specific requirements that are set through the process of rezoning and variances and Section 37 [agreements] and discussions with staff and the Councilor. When it comes right down to it, those parking requirements are more of a guide than anything else. A starting place for the negotiations.

The permitted reductions in parking were seen as a field in flux. Many participants discussed the evolution of reductions accorded for car-share spaces: from how they initially were not permitted, to how the city allowed a reduction of nine parking spaces for providing one car-share space which caused a rush of developers implementing them, to the eventual permitted reduction to a reduction of three or four spaces. Indeed, reductions based on providing car-share spaces proved to be complex enough that they could not be granted as-of-right in the general zoning bylaw, but are negotiated in site-specific agreements, leading to different reductions for each development. Other participants noted reductions that had been implemented based on political support from a single councilor without any empirical basis, such as the short-lived effort to require developers to provide a transit pass to all new buyers. Similarly, allowing reduced parking requirements for providing additional cycling infrastructure downtown was noted as a growing trend. Participants provided a handful of examples of developments being permitted additional height and density through Section 37 agreements, and reduced parking through site-specific development agreements, with developers contributing funds toward bike share

programs as a condition of their approval. Two participants succinctly summed up their feelings on empirical evidence being used to justify parking reductions. A Toronto planner said they were aspirational but not necessarily well founded, “we might be able to reduce a little bit here or adjust a little bit there, but I honestly can't say that there is any scientific way.” A private consultant underlined that while there is experimentation in parking reductions, it’s important to find what numbers are available and use them to build the case: “you need to be able to stand on some lilypad and say there's a basis in some experience for recommending those kinds of things.”

There was some evidence of a *gap in understanding/perception* between different types of participants. This was not explicitly stated by most participants, but was inferred from diverging statements. For instance, most planners interviewed in Toronto were most familiar with the technical nature of parking requirements and glad to speak of the work necessary for them, but they would emphasize the political nature of parking in many developments. They spoke with disappointment of the constant variances from parking requirements that undermined their consistency, and how they would be used by Councilors to extract concessions and money from developers for their community. Despite this commonly noted occurrence, an interviewed Councilor emphasized that parking reductions were a technical exercise and that “we rely on experts to give us those technical pieces” when it came to approving reductions.

Overall, while participants disagreed over how much of a political or technical exercise it was to select parking requirements, all agreed that the consequences of parking requirements were of importance and deserved political attention.

### *Economics of parking regulation: cost versus benefits*

The economics of parking was consistently underlined by participants as being a primary driver of developer choice of how much to provide as well as buyer/tenant choice of whether to choose a dwelling unit. Comments related to economics and parking can be divided into four categories – cost and demand, visibility of cost, the role of minimums and maximums, and that cities are typically resistant to innovation in their requirements.

The *cost* of parking in terms of construction is a primary determinant of how much will be built and how much residents will demand. In the case of areas where the cost of providing parking is high and other transportation options exist, participants emphasized that developers don’t want to build parking, and preferred to provide the minimum amount that they could be certain to sell. However, while high parking costs may decrease demand for such high-cost spaces, it may also increase the likelihood of residents attempting to find lower-cost alternatives; in some cases, they may opt to buy on--street permits or to move to areas with lower-cost parking, as has been discussed. There are also broader social and environmental costs to parking that are reflected in other perspectives.

The *demand* for parking was described by some participants as being influenced by the number of parking spaces compared to the number of dwelling units. In buildings where the number of spaces provided is set at slightly below the number of dwelling units, the parking spaces are effectively unbundled as not all units can have a space. Conversely, a supply higher than the number of units can

increase housing costs and make tenants more likely to buy a space, as developers may find it easier to sell spaces if they are bundled with units. Finally, high supply rates of parking can depress parking cost to drivers and concurrently increase demand in a "if you build it, they will come" scenario, according to one Toronto consultant. This is particularly evident in older buildings with higher parking space provision rates, but the same relationship applies. Higher parking space provision rates means less competition for parking, which means lower parking prices or a lack of direct charge for parking, and consequently more people will choose to use the parking. In some cases transportation modal trends have changed sufficiently that there are many empty spaces in over-supplied buildings, but interview participants noted that it was not uncommon for such excess supply to be taken up by other drivers from surrounding areas, even if this is in violation of local bylaws.

The role of the *visibility* of the cost of parking, best seen in 'unbundling' parking spaces from dwelling units when buying or renting, and much cited in literature, was also noted by several participants. In some cases they emphasized that unbundling parking spaces from dwelling units provided greater choice rather than imposing a space, but more commonly they noted that it has become the norm in Toronto – at least in the downtown. Many participants agreed that current trends in the core of Toronto are such that developers allow residents to opt for a parking space or not, and that the cost for these spaces is levied independently of the dwelling unit price. This independently visible price, it was surmised, helps to dissuade buyers from purchasing parking. While part of this trend was stated to be due to the high cost of parking – cited as being typically between $30,000 and $70,000 per space –the declining demand was also noted to be due to condominium properties being purchased by investors. Investment buyers were seen to be purchasing units without parking, renting the units to other tenants, and leaving it to tenants to manage their own parking needs. This trend was seen as a problem by some City respondents in terms of creating a distortion between the sales rate of parking spaces and the potential true future demand once a building is 'mature' and inhabited by long-term tenants rather than short-term tenants, as it may depress the perceived parking demand below actual future needs.

Finally, there was little division in the perception of participants in the importance of *minimums* requirements and *maximum* limits. Participants from both the private and public sectors broadly agreed that minimum requirements were necessary. In some cases this was phrased in terms of 'equity', to prevent developers from abrogating their responsibility to provide any parking in pursuit of higher profit margins, while others believed the existing requirements accurately reflected the true need for parking based on rigorous study. The idea that "developers don't want to build parking" was recurrent. All participants agreed that even without parking minimums a demand for parking is not likely to vanish in the foreseeable future. Interestingly, one planner cited the importance of maintaining parking minimums in order to ensure a manageable and predictable supply, calling parking an important part of a city's infrastructure that must be regulated and not left to the market. Maximum limits were seen as desirable to prevent oversupply and set a common ground for developers provided that they were sufficiently high to allow for a range of target markets for developments. All participants noted that there is little effort on the part of developers to build residential buildings that are even approaching parking maximums.

While all participants spoke to some degree about change in parking requirements, many mentioned forces that caused *resistance to change*. Some participants noted that municipalities may be hesitant to lower parking requirements because negotiated reductions can be tied to financial gain for the city. One planner told of a now-former City Councilor who would oppose any effort to reduce parking requirements because he would use them to negotiate for higher community amenity contributions. A private consultant explained the hesitation succinctly: "I wonder whether the impetus to change the bylaw to reflect something more realistic, or more progressive, or more urban, is not stymied a bit by the fact that you can get a lot of money out of a development." Others noted that there was difficulty in managing the parking system both on- and off-street due to unwillingness to properly price on-street parking. When residents can choose between purchasing a $50,000 underground space or buying an on-street permit at $15 per month, it becomes difficult to manage on-street demand. One participant described on-street parking in Toronto as "dramatically underpriced" and undermining other municipal transportation goals, saying: "Ideally you don't want your parking passes to be any cheaper than your monthly transit pass, or you are inducing a flow from a desirable mode to an undesirable mode." Finally, there are hesitations to change in the private sector as well, as some participants noted that developers were unwilling to be the first to make changes to their parking offering or pricing models for fear of losing sales to competitors. This first-man disadvantage was described as a 'marketing disadvantage' in a case where suburban municipalities were trying to encourage unbundling parking, and developers were hesitant to do so.

### *Parking and long-range planning: vision and policy*

As this study deals with parking requirements and how they are set, interviews with participants frequently touched on the process for setting them and their role in the long-term planning of a city. The subjects raised by participants included studies used to justify requirements, data relevant to them, different perspectives that planners and politicians use when considering them – an epistemology of parking. The responses of Toronto's interview participants related to how parking is understood can be grouped into three themes: the need for policy to inform parking requirement choices, the value of generating policy from various levels of the municipal administration, and the recognition that there will be failures in parking regulation.

Most participants agreed that *policy-informed requirements* based on a multi-criteria analysis were the soundest way to plan for parking. As has been mentioned, the data to be used in studying parking is a source of disagreement – parking occupancy, car ownership, demographics, modal share, parking sales data, and transit accessibility are all possible sources of data. However, more input is needed; some participants emphasized the need for all departments in a city to have a role in setting requirements. Transportation planning for future transportation changes, engineering standards for the amount of parking a site can contain, social services for what community needs may exist that could benefit from developer contributions, affordable housing groups for where residential pressures are high and could benefit from lower cost through reduced parking requirements – parking requirements touch a number of municipal objectives and can benefit from broad input. Each of these reflects a different perspective on parking requirements, which are intimately tied to the long-range planning and politics that frames the vision for a city. Having taken these data sources into account and considered them in light of the

perspectives of various city departments, participants then underlined the need for the 'policy lens' to finally shape parking requirements based on how the city wants to position itself and what it wants to become. One participant explained how this led to Toronto reducing requirements in strategic areas: "we're pushing growth in the downtown, in our centers, and along avenues that have good transit accessibility. So what we did was essentially we lowered [the parking standards], despite the empirical data, we lowered them because of this policy lens."

A curious common observation by participants' was that attempts at innovating come from *various levels of the municipal administration* – that is to say, staff and Council. In the face of Council overruling staff recommendations that projects be rejected for providing too little parking – politics of development trumping technical parking requirements – Toronto city staff began recommending that developments be charged a fee for forgone parking spaces that would then be directed to transit. This would effectively be a CIL program, but it had no basis in existing city policy. A few interview participants described this effort by staff to innovate from below, finding ways to fund transit and reinforce parking requirements and distance them from constant variance processes. Similarly, there has been a willingness among Councillors to experiment with development in their wards. One project was discussed by several participants, a previously-discussed development at 456 University Ave with 200 dwelling units and only 9 parking spaces. One participant described the project as a political win and an experiment: "So was it a technical win? No, it was a political win. The politicians in Toronto, and a few in particular, said, "Well, I'm willing to experiment with that - off you go, build your building."

Participants also noted that innovation is a risky venture, and that it can lead to failures in parking regulation. The effort to provide transit passes to all new condo buyers in exchange for reduced parking requirements was cited as an example, described by interviewees as "wasn't support by staff" and "a bit goofy". Some comments underlined the need to change incrementally, citing instances where sudden changes were mistakenly taken to be evidence of long-term changes. For instance, the initial reduction of nine spaces for providing a car-share space was noted as being too drastic, and reduced to three. Similarly, one participate recounted a push during the 1980's energy crisis to reduce the size of parking spaces based on a belief that large vehicles would no longer be used. These sorts of sudden changes were noted by several participants to be cautionary experiences to weigh against efforts to remove parking requirements entirely or attempt to get rid of parking entirely. Implementing parking regulation: tools, complexity, and flexibility

The implementation of parking requirements was raised by several participants. In particular, participants discussed the ways that parking requirements can be applied with different levels of nuance and discreteness, from blanket requirements across a city to site-specific requirements for every development. Comments on the subject of the implementation of parking regulations can be considered under three themes: the development of new tools for parking reductions, the ease of blanket requirements, and the value of flexible requirements.

*New tools for parking reductions* were a recurring topic for interviewees. In some cases these tools have proven to be successful. Car-sharing in dense urban centres has borne out in studies and observation by decreasing parking demand. In some cases the success will not be measured for years to come: a

project in Markham, for instance, will progressively lower the amount of parking permitted to certain developments in its urban centre through site-specific agreements and holding provisions, changing land uses to allow for parking lots to be developed without increasing parking supply. Some ways of regulating parking have only seen a few instances of use and are difficult to gauge such as the practice of allowing shared residential and commercial parking, which has only occurred in very few cases. In one case some residential visitor parking was permitted to be converted into commercial parking in the same building with the provision that the condominium building was required to purchase permits for the spaces, effectively creating a shared parking environment.

Several participants explained the *ease of using blanket parking requirements*. They noted the evolution of parking requirements in Toronto and how previous requirements were more similar to those seen in many other cities – namely, that parking requirements are applied broadly and with little differentiation between areas. Such requirements were seen to be common in Section 2. *Check your surroundings* – . One planner interviewed described that in his experience many planners appreciated that blanket requirements make little sense and that there is a need for greater context-specificity, but that such measures were difficult to implement and increased the workload for the municipality. Some explained that tying parking requirements to changeable circumstances such as transit service or car-share spaces can cause problems in the future. If a car-share provider removes the vehicles due to insufficient revenue or a change in transit service leads to reduced accessibility, permitted reductions that led to a reduced supply no longer apply and can leave either a nonconforming building or an insufficient parking supply or both. In a lesson that may be useful for smaller municipalities, participants underlined the fact that increasing the context-specificity of requirements leads to greater complexity in zoning approvals – an argument for blanket parking requirements when zoning resources are low.

Finally, based on the ease of blanket requirements and the benefits of context-specific requirements, participants often spoke of the *value of flexible requirements* in being able to fit requirements into a long-term vision. This flexibility was discussed in a number of formats. First, as has been discussed, participants spoke of initial as-of-right parking requirements that are context-specific rather than applied as a blanket requirement. Flexibility is provided by allowing 'relief', as some private-sector participants called it, in the form of parking reductions based on policy-backed initiatives such as car-share spaces, increased cycling infrastructure, and for developments designed for lower-car-ownership lifestyles. Flexibility may be allowing developers to reduce parking after pre-sale of units but before construction if parking sales are lower than unit sales. Flexibility may be allowing conversion of parking from private residential parking to shared commercial parking post-construction if there is excess supply. Flexibility may also be taking parking requirements into account in a broad negotiation process alongside height, density, community benefit contributions, and urban design guidelines in order to allow developers to reduce cost and cities to meet multiple objectives. However, some participants were hesitant about such negotiation processes and flexibility, noting that they can undermine the consistency of requirements and the hard work and consultation that goes into as-of-right zoning, and that such processes can add a level of cost and unpredictability to development that may dissuade some developers. These negotiations raised other concerns of responsibility and authority. Toronto has developed a culture of Councilors playing a central role in negotiating with developers for projects in

their wards, implicitly tying politicians to the development process and the determination of standards – parking, height, density, setback – that would otherwise be set through arguably technical zoning standards.

## 3.2 Vancouver

These four themes from interviews in Toronto are repeated in the interviews in Vancouver. These included framing and designing parking regulation, as a balance between science and politics; the economics of parking regulation, as a balance of cost and benefits; the long-range planning involved in parking regulation, as a tool for implementing a vision and policies for a city; and the implementation of parking regulation through tools of different complexity and nuance.

Interviews with participants familiar with the parking requirements of the City of Vancouver and the changes in parking regulation in the region took place in April of 2014. These participants included five respondents, who are listed below. The City of Vancouver is the urban centre of the Metro Vancouver area, and one municipality in a metropolitan area that is comprised of many municipalities. The interviews focused on the City of Vancouver. As each municipality in the Metro Vancouver area sets its own parking requirements, each has its own approach and perspective on parking. The City of Vancouver was selected as the subject due to its large size, strong development trends, and well developed transportation system. These forces, it is believed, will allow for parking to be approached in more novel ways than in most other cities which lack the dense urban form and transit system to provide alternatives to the need for a car, and the rapid development to demonstrate how such innovation occurs. The findings from these interviews are condensed into themes in order to summarize and contrast the responses of different participants. The themes are: parking and long-range planning (vision and policy), framing/designing parking regulation (science vs. politics, perspectives), the economics of parking regulation (costs and benefits), implementing parking regulations (complexity, discretion, negotiation).

### *Framing parking regulation: science versus politics*

All participants to some degree discussed the intersection of parking requirements and politics. However, unlike Toronto participants, Vancouver's interviewees were less divided in their responses and largely viewed the setting of parking requirements as a technical rather than political matter. Although there were some comments related to the politicization of the issue, more comments were related to citizens' perception and the political pressure they would exert on Councilors based on their understanding of parking. The general themes related to politics and parking raised by the participants can be grouped into three areas: the technical-political balance of setting requirements, the different roles of city staff and council, and the importance of the appropriately framing parking.

Contrary to findings in Toronto, there was only mild disagreement over the nature of setting parking requirements as a *political or technical exercise*. Participants were largely united in their responses that setting general parking requirements was a technical exercise. Planners emphasized the data that is collected to justify the requirements and that such data is useful to set an appropriate standard in a range of circumstances. For instance, data can assist in accurately predicting the future demand in market buildings, while allowing planners to set requirements slightly below future demand for rental

buildings near transit in order to promote affordability. Equally so, data was cited as being useful for having productive conversations with concerned citizens about parking, with a City of Vancouver planner stating that "parking is a very emotional thing, and to have rational discussions about it requires a lot of data." Where politics enters into the process of setting requirements, according to participants, is when on-street parking is not well managed. In cases where on-street parking prices are too low or restrictions on time/requirement of residency are too liberal, parking from residential development is able to spill over onto surrounding streets. One participant said: "Parking requirements are intended to be a technical decision, based on parking data and professional judgment. It gets political when there isn't enough parking, particularly with respect to on-street parking." Precisely how this functions will be discussed below. While the parking requirements are ultimately approved by City Council and reflect a vision for the city backed by an elected mandate, participants were united in their view that setting them is a technical exercise.

The second theme common to interview participants related to framing parking regulations is the importance of understanding *appropriately framing parking*. Participants discussed the language used to discuss parking, the way that changes are presented, and the gap that can exist between perception and reality. In speaking with participants, it was interesting to note the different language used to discuss the issue of parking. For instance, the City's Transportation 2040 plan states one policy as "Use off-street parking requirements to support reduced auto ownership and use", but a question to staff supporting reducing car ownership was answered with hesitation and different terms to frame the issue:

> That might be an inference from [the plan], but I don't think we have every gone out explicitly saying we want to reduce auto ownership . . . we were pretty particular about trying to keep the plan positive working to encourage walking, cycling and transit usage, like city policies have been here since the early 90's, but they were very clear that we didn't want to have the war on the car happening in Vancouver.

A similar question to a city councilor was met with a much more emphatic answer: "This city has been reoriented towards transit-oriented development on arterials and the idea is to get people to not have to have cars." The difference between staff members and a Councillor in phrasing and word choice in answering questions about auto ownership is understandable given the relative roles of staff, who are expected to perform their work in a nonpartisan and apolitical manner, versus councilors who are able to speak more freely and politically. At its core, the issue does not appear to be one of different understanding or goals, but of language used to couch the issue. This can be seen in other subjects raised by participants. The same councilor framed the city's approach to transportation mode split over the long term not as active and public transportation use as a change or decline in drivers but rather a growth of other users. The City plans for the same absolute number of car trips alongside a growth in the number of trips made by active and public transportation. The perception that this is intended communicate to drivers is not that they are being forced them from their chosen mode but rather that new trips will be made via other modes. This emphasis on perception of parking can be seen in a third example when perception and reality are incongruent. In two instances participants discussed situations

in which residents and business owners expressed concern over limited parking supply that did not bear out after analysis. In one case, overly-liberal on-street parking regulation through low prices and excessive issuing led to 6,000 residential permits being issued for an area with 2,700 on-street spaces. An occupancy count of rental residential buildings in the area found most are rarely more than two-thirds full. Despite complaints of insufficient downtown parking, counts of commercial and city-run parking garages have shown thousands of empty spaces. One participant described the downtown parking as having a supply that "far far exceeds current demand". In these cases it may be, rather than a lack of parking as is expressed by complainants, a lack of inexpensive parking immediately adjacent to destinations. The concerns from residents based on their perceptions of parking can influence the set parking requirements, said one private-sector participant, who noted a greater role for politics in setting requirements than others: "a lot of the time cities set the standard high. When a new development is proposed, Council will hear from existing residents, saying that if they approve this 15-storey tower, parking is already a big concern in our neighbourhood and there aren't enough spaces." High requirements, in this way, can be used both for "ensuring the adequate supply [of parking] and providing comfort to existing residents", regardless of the actual parking demand. In these ways, through the language used to discuss parking, the way that changes are presented, and the gap that can exist between perception and reality, the perception of parking is a political concern.

### *Economics of parking regulation: cost versus benefits*

As with all aspects of real estate development, economics was a recurring subject of discussion. Participants included professionals with experience in both public service and private development, and shared a range of thoughts on the role of the economics of parking in setting its requirements, supply, and demand. The subjects raised by participants are divided into four themes: the role of the market in shaping demand, the importance of the visibility of cost, the management of on-street parking, and understanding the perceptions of the development community.

The *role of the market* in determining parking demand and influencing supply was a recurring point made by several participants, although the direction of the influence was not a point of agreement. Questioned about why Vancouver had decided not to pursue maximum parking limits in most of its neighbourhoods, participants offered two avenues of response. First, planners identified the hesitation and opposition of the development industry as having influenced them and Council to withdraw the subject. They noted that, lacking maximums, "A developer can put in as much as he think the market wants" and that many of the downtown developments provided one space per dwelling unit, which is slightly above the general minimum. In many higher-end buildings, there is more parking supplied. An interviewed councilor and consultant disagreed with the comments of planners, saying that the market forces were pushing down the supply and demand for parking. The consultant argued that parking requirements were an inefficient way of determining the necessary supply, saying "a developer has a better understanding of the market and what the buyer is demanding than a municipality does", and that the price of parking was high enough in the city to push down demand. The councilor echoed the market-based comments, saying that implementing maximum limits was "kind of a moot point right now because of our parking costs. The high market cost of parking acts as a deterrent." This may indicate that parking minimums and maximums can be useful in oversupply situations but that in certain

markets the price and demand will roughly approximate the supply that the city is pursuing. Despite comments disparaging the validity of parking sales data, it may be useful to continue to monitor parking construction, sales, and occupancy rates in order to understand the evolutions of the market. Participants also expressed concerns about parking supply as it relates to condominiums being purchased as investment properties. These comments diverged from those in Toronto, as in Vancouver participants noted such buyers of investment properties were more likely to buy parking both due to the relatively small increase in price that a parking space entailed due to the high price ($800,000-$1,000,000) of condominiums, and the perceived necessity of a space in order to resell a unit in the future. In these ways, participants highlighted the importance of understanding market forces on parking – that developers will provide what they believe the market wants, that high prices will depress demand, and that investment property purchases may have inflated parking demand.

The *visibility of the cost* of parking was highlighted as an important issue, much as it was in Toronto. Participants explained that it was uncommon in Vancouver for parking to be sold 'unbundled' from dwelling units in the case of market condominiums. Parking with a visible cost, and parking that is not obligatory with the purchase or rental of unit, allows residents to make a more informed and flexible choice over whether and where to park. Beyond condominium parking, the lower parking requirements for rental units makes unbundling parking more common; as mentioned, there are areas of the city with high rental rates that face strong on-street parking demand, in part because residents can opt out of on-site parking in favor of higher-competition, lower-price, on-street parking. Participants expressed the belief that not unbundling condominium parking was "just the culture of development", and that given the "robust development industry over the past 15 years" with "usually higher end and more expensive units being sold on the market", unbundling has not been an issue for buyers. It was speculated that if developers came under market pressure to lower prices, unbundling would become more attractive. As there was much discussion over affordability and the prevalence of high-end development in the downtown, it would be interesting to know in future research if the lack of parking maximums in the downtown is encouraging developers to build luxury condos for a target market that has high parking demand rather than lower-demand, lower-cost units with lower profit margins. Overall comments from participants indicated that increasing visibility of the cost of parking may reduce parking demand, but that currently Vancouver developments do not commonly unbundle or demonstrate the parking price.

*Management of on-street parking* was a dominant theme that was brought up by most participants, with some participants emphasizing the subject's importance before any questions related to it. Broadly speaking, participants agreed that well-managed on-street parking was critical to the success of off-street parking requirements. They also noted the role of on-street parking in influencing mode choice, active transportation, traffic speeds, sense of place, and other factors important to urban life. As has been described in both the Toronto chapter and in previous comments in Vancouver, an under-priced on-street parking program can draw residents away from purchasing or renting off-street parking. This can lead to overcrowded on-street parking and an inefficient use of off-street parking. One consultant summed this up well:

> It's only going to lead to parking pressure on the street if cities don't regulate their street parking properly. In downtown Vancouver it's pay parking everywhere on the street. No one is going to keep their car on the street because you are going to have to keep putting money into the parking meter. In the west end, you need a parking pass. There are definitely strategies to ensure that people aren't parking their cars on the street, you just need to regulate that.

Areas with time-based pricing for on-street parking, or permits which limit access to parking to existing residents see less conflict over parking in new developments because spillover is constrained. However, pricing is even an issue with permits: charging too little for these residential permits can lead to excessive demand, as was highlighted by two planners, one of whom said:

> Our biggest problem right now is that we're very underpriced. In Vancouver the most expensive parking permit is $70 per year, which is ridiculously cheap. At that price we sell too many, we sell more than are spaces on the street.

Conversely, suburban areas with few parking restrictions and no price frequently see residents opposing developments based on concerns about insufficient parking. Comments from participants illustrating the frustration of residents with on-street parking and the sense of ownership that residents have over the parking in front of their houses, were very illuminating: "[residents say] there are people parking in front of my house, they're driving in front of, it's terrible". Overall, participants explained that managing on-street parking, whether through paid on-street parking or RPPs, was critical to the appropriate management of the overall parking supply.

Understanding and managing the *expectations of the development community* was also raised by several participants. These comments dealt with the development community's expectations in two ways: how it shapes what they build and how they sell, and how it influences their lobbying and political feedback. Developer understanding and expectations in terms of parking and buyer demand will shape what they build. A city councilor explained how developers with more experience in Vancouver were more familiar with TOD and willing to try initiatives like reduced parking supply, car-share parking spaces, and bicycle facilities. He explained:

> There's a cultural shift that is taking longer for developers that are from outside of town than for those from within Vancouver. Those developers who are from Vancouver are focusing primarily on condominium tower projects…and now that they are understanding transit oriented development they are becoming great advocates of it.

As projects with TOD elements have succeeded, developers have been more willing to build them in greater numbers and in wider areas. Developer understanding and expectations in terms of parking and buyer demand will also shape how they sell. One participant noted how this shaped buyer's propensity to bundle parking with condominiums, saying "it has been considered an article of faith you can't sell a condominium without parking spot attached to it" but that this was beginning to shift. Others noted that unbundling was not a part of the development culture in Vancouver, but that they could see

circumstances where that would shift. Beyond what they build and sell, developers also play a role in influencing what standards are adopted. An interview with city staff revealed that the concerns of the development community were enough, during a review of downtown parking standards which recommended maximum limits for residential parking, to convince Council to defer considering such a proposal. Staff said:

> I think it's a real concern for the development community. Next time we do a big piece of policy work were going have to look at how we can get more support from various sectors in Vancouver, like the development community.

It is clear that developers' expectations and understanding of parking informs how they act to influence policy and local politicians. As actors that play a significant role in the growth and change in cities, it is important to understand how developers perceive and react to changes in parking regulations.

### *Parking and long-range planning: vision and policy*

Interview participants in Vancouver spoke frequently about the role of parking requirements in achieving a vision for the city, such as Mayor Robertson's commitment to making Vancouver 'Canada's greenest city'. This touches on aspects of the goals that Vancouver has set for itself, namely promoting housing affordability, encouraging a shift in transportation modes, and keeping families living in the City of Vancouver. Each an ambitious goal, it was interesting to hear participants make links from such diverse aims with parking requirements. Comments related to vision as it relates to parking requirement can be discussed in three broad themes: goals related to demographics, transportation, and the role of streets.

Several participants spoke of the city's goals related to *demographics*. For instance, a principal city aim is to ensure housing affordability and thus allow residents with a different income levels to live in the city. Geographically restricted by its boundaries and having built to these limits with the exception of a handful of protected green areas, Vancouver has little choice but to rely on infill development and densification to grow. This has been attempted through new development at greater height, as well as allowing greater residential density in mature neighbourhoods through the addition of basement rental suites, laneway houses, and apartments above garages. Efforts have been made to use parking requirements to ensure this affordability by allowing for reduced parking requirements for multi-unit residential buildings located near transit that are secured to remain market rental units for 60 years or the life of the building, whichever is greater. With underground parking, a common format for parking in Vancouver's high land value situation, costing between $50,000 and $80,000, forgoing the necessity for it when other options for transportation are available can present significant reductions in rent. One participant noted that parking requirements near rapid transit stations in surrounding municipalities unnecessarily raised housing costs, making it difficult to afford to live in the Metro Vancouver area. Others underlined that reduced parking standards could in some cases make rental projects viable when they otherwise would not be, particularly given Vancouver's strong condominium market. The City also aims to ensure demographic diversity by preventing the outflow of families to more suburban locations. This is accomplished in part by requiring that a certain number of dwelling units have three or four bedrooms, but also by setting appropriate parking standards. One participant noted that families with

children would have higher parking demand, and if parking maximums were set too low then the families would be encouraged to move elsewhere. The interviewee said “If you have kids, you are likely to have a car, so if we are building housing that doesn’t have sufficient parking for families, and that is another reason for them to choose that suburban lifestyle.” In these ways, parking requirements help the City of Vancouver to meet its demographic goals.

The setting of parking requirements also ties into the city’s goals related to *transportation*. Participants noted that while the population of the downtown peninsula has grown, the number of cars traveling into the downtown over the past 20 years has declined at roughly 1% per year. A Councilor noted: “It’s hard for people to understand that, but we managed all that growth while reducing in absolute terms the number of cars coming into the city center. And it’s all to do with rapid transit investment, and mixed-use development.” Reduced parking requirements near both Skytrain stations and the intersections of bus routes, has played a role in this. Many participants noted the important role of appropriately managing on-street parking, but this will be , below. The geographic constraints of the city play a role in emphasizing the necessity to shift transportation modes, as one participant noted: “We are built out from the road perspective. We have to find other ways to move people.” Thus, the City encourages active transportation through mixed use development and investments in infrastructure, works to expand the reach and frequency of public transit, and discourages travel by private automobile. Much like in Toronto, the role of the car is not shut out, and access to cars is promoted in ways that do not require ownership. Many participants discussed the ‘exploding’ car-share market, including the growth of car-share programs within residential developments, how car-sharing is used to allow reductions in parking requirements, and the innovation in the program’s deployment. For example, one recent entrant to the market includes a one-way car-share service where the vehicle can be left at a destination within the service area without needing to be returned to its origin, allowing for more flexible transportation options. By setting parking requirements that encourage such choices, namely through reductions to minimums in circumstances where competitive alternative exist, the city aims to meet its transportation goals.

Parking requirements are also closely related to the city’s goal of reorienting the role of streets. This differs from goals related to transportation in that such a reorientation is not solely about the movement of people and goods as a behavior, but the physical configuration of the street as a means to afford certain behaviours. This occurs in two ways: designing streets so as not to allow solely high-speed traffic, and limiting the presence of on-street parking in strategic areas. In order to prevent city streets from being solely for the movement of traffic, there have been efforts to stymie projects that would have favored commuters and encouraged sprawl at the expense of local residents. Looking at the city’s history, some participants cited past decisions that had helped to prevent the type of transportation projects that have transformed other North American cities such as the opposition to the planned freeway project in the 1960’s that would have cut through much of Chinatown. Similarly today, there is controversy over new bridges crossing the Fraser River. As one participant noted, discussing both the crossings and investment in streets in general, “We have transit-oriented neighborhoods and we have car-oriented neighborhoods, and we’ve not yet won the argument that we should stop investing in road infrastructure and should instead invest in transit infrastructure; we’re investing in both which is going

to beggar both of them." As much as participants discussed keeping streets from being purely for traffic, they explained that they weren't meant to be parking lots either, saying that a goal of requiring off-street parking was "to maintain space on the street for other purposes" such as walking, cycling, and public transit. By requiring at least some parking on-site, parking could be limited in some cases on the street in order to allow for other uses of the public right-of-way such as bus lanes and bike lanes. In one case cited by a participant when bike lanes were constructed on Hornby Street, opposition to the loss of on-street parking was lessened after a count of available off-street parking revealed that planned reduction of 200 on-street spaces was overshadowed by thousands of empty off-street commercial underground spaces. In these complementary ways, by preventing roads from being solely for traffic, and by requiring off-street parking, the city can make space for other uses and meet its goals related to the role of streets.

### *Implementing parking regulation: tools, complexity, and flexibility*

The implementation of parking requirements was raised by several participants. In particular, participants discussed the ways that parking requirements can be applied with different tools, and that different roles can be played by staff and Council. Comments on the subject of the implementation of parking regulations can be considered under two themes: the role of staff and council, and Vancouver's Community Amenity Contribution and Cash in Lieu programs.

An interesting finding regarding process and politics in Vancouver related to the *roles of staff and council*. Much as participants agreed on the importance of data, they agreed that the majority of the process for determining parking requirements – both for the general zoning bylaw and for site-specific applications – rested in the hands of staff. The discussions about variances in parking requirements, negotiated reductions based on developers providing other services or alternatives, and the levying of CIL all occur through delegated authority to staff. What's more, staff handles such processes with sufficient confidence of council that staff recommendations on projects are consistently approved. Said one councilor, "No one takes the trouble of coming to Council with [a project that received a] staff rejection recommendation; it never happens." This is in stark contrast to Toronto, where individual developments become politically contentious and councilors negotiate parking requirements alongside height and density. It is useful to note that this may in part be due to the fact that Vancouver's Council is elected at-large rather than by wards, which may reduce the personal influence of an individual councilor over a given area and the developments herein, but that is speculative and not the focus of this study. In short, the role of staff in setting parking requirements is significant, and this shields much of the process from the political influence of Council.

Vancouver's *Community Amenity Contribution and Cash in Lieu* programs (CACs) were the subject of extensive comments by one participant during interviews. CACs are similar to Ontario's Section 37 agreements, and are used by the City of Vancouver as a negotiation process to capture a portion (typically 70-80%) of the increased value of a property created when it is rezoned. In this process, the developer and the city establish an existing market price for the property; estimate the increased value after the rezoning; examine probable sale prices, development costs, and profits; and provide a portion of this amount of money to the City for community amenities such as parks, heritage preservation, transportation, and housing, among others.[184] The way that CAC contributions tie into parking was

criticized by one participant with experience with the development industry, arguing that because the city acts in much the same way as a developer when CACs are negotiated – seeking to maximize the developer's profits in order to increase CACs – parking requirements can be varied or distorted in pursuit of financial gain rather than of the 'correct' amount of parking. If parking requirements are reduced and construction costs are lowered, profits may increase and the City can obtain more CAC funds. One participant offered an illustrative example of a developer seeking to build an affordable housing project with no parking (not currently permitted under zoning, but can occur given variances). Under the CAC program, the lower cost and increased margin from forgoing that parking would then be clawed back by the city in the form of CACs, effectively discouraging that development. Although this CAC system functions differently from CIL (which is permitted in limited areas in Vancouver for residential developments), this participant linked the effects of the two as unnecessarily increasing housing costs and taxing residents of developments without cars. For developments that provide low amounts of parking, typically below those required, an extra charge is levied on the development which is then passed on to buyers and renters. This participant described the problem succinctly as one that effectively discourages choosing to live without parking or a car, saying:

> You've basically added $20,000 to the price of my unit because I made the smart lifestyle decision not to live with a car. But you're telling me that that $20,000 is going into investing in other forms of transportation and infrastructure to encourage that modal split, but I've already made that decision. If you want people to stop driving and you want to encourage people to take transit, price point is the most important thing. You want affordable housing near rapid transit. So it's really counterproductive to tax these new housing projects that are near rapid transit because they are seeking reductions in parking. It contradicts what the intended goals should be.

The city is trying to recoup the value created through rezoning in order to fund community programs through CACs. It is also raising funds through CIL that help fund sustainable transportation while avoiding insufficient supply of parking by developers seeking reductions. These goals can cause friction with goals of affordable housing and transit use, as they may in some cases raise the cost of development that would meet these goals. The CAC program has positive aspects such as providing funds for public services that meet critical needs, but it is clear that they require careful application in light of overlapping and potentially conflicting objectives. These are the concerns regarding the CAC and CIL programs as shared by one participant based on his experiences in the development industry.

Interview participants also noted that planning for *parking requirements for destination land uses* is an important part of managing the overall parking system, although largely beyond the scope of this paper. Destination land uses means land uses such as commercial, office, retail, and industrial locations where drivers frequently drive to, rather than residential locations that are often trip origins. The different market forces that are at work, and the different controls that cities can enact, were underlined as being simultaneously important. Limited downtown parking and ample suburban free, both in Vancouver and in cities across North America, has contributed to a flight of retail to peripheral areas. Interviewees expressed concern with the slowness of retail markets to support reduced parking requirements. The

participants indicated that it would be useful to manage office and retail parking in a manner that coordinates regional transportation goals rather than drawing shoppers into cars and away from the city. Certainly parking requirements for destination land uses could be the scope of another entire research paper.

# 4. *Last available space* - Conclusion

This paper has been an examination of multi-unit residential off-street parking standards in Canada's largest cities. The paper began with a literature review on how requirements are set, programs to influence parking supply such as cash-in-lieu of parking, TDM, car-sharing, shared parking spaces, and pricing parking. The literature review found that there is a great deal of stock placed in parking requirements despite a lack of robust scientific backing. Authors noted that parking requirements have significant impacts on housing cost, urban form, and mode choice. The literature also indicated that there are a broad range of tools to shape parking supply and demand, and that they are not all taken advantage of by many cities.

From this exploration of the current state of research into parking, an initial parking policy scan was prepared to summarize the parking requirements of Canada's largest 30 cities. This scan demonstrated the wide range of requirements that exist for similar buildings, and the lack of nuance that exists in most cities' parking policies. Smaller cities with less population were particularly likely to have less complex and context-specific parking requirements. This can be explained by the increased workload that more nuanced, site-specific requirements would impose on city staff, as smaller cities tend to have commensurately smaller municipal budgets for planning and zoning approvals. Smaller cities are also often more automobile-dependent, and have less public transit, and therefore can ill-afford to constrain parking supply. However, smaller cities have more to gain from getting parking requirements right. Mid-size and major urban centres are now confronting challenges of congestion and sprawl from low-density development and high parking requirements. Smaller cities do not yet have as much built-out real estate with high parking supply, and have the ability to tailor new development and its parking requirements to the urban form they wish to see. In short, cities that have not yet grown can learn from the mistakes and experiments of those that already have.

The scan of parking policies also echoed earlier findings of the disparity in parking requirements. Requirements for similar units ranged from no requirements at all to two spaces per dwelling unit. Similarly, the methods used to calculate the requirements varied significantly between cities. Some used the number of bedrooms, while some used the floor area of a unit, while yet others made no distinction between dwelling units. These disparate tools and requirements used to calculate zoning recall Shoup and others' work demonstrating the vast differences in parking cities require for essentially commensurate dwelling types. Such disparities raise questions of the process of calculating parking requirements, and beg the question of whether the process involved is as scientific as many practitioners believe. Such doubt may be important for planners to consider when reviewing parking requirements and considering how specific and how rigid to fashion their requirements.

Four cities were then profiled in a policy analysis, discussing the policies of four major cities – Toronto, Vancouver, Ottawa, and Winnipeg. These cities were profiled for their policy contexts, their current policy as it related to stated objectives, and the various perspectives on the role of parking that were reflected in each one: supply, choice, pricing, efficiency, demand, spillover, and external impacts. These

four analyses showed the range of tools that cities use to shape parking and the innovations that exist in reducing parking requirements based on context-specific criteria.

This analysis showed a range of perspective on parking is evident in each set of requirements, reflecting different – and sometimes conflicting – ideas of what purposes parking should serve. For instance, Winnipeg's official plans rest on the four pillars of "A sustainable Winnipeg, sustainable transportation, sustainable water and waste, and complete communities." Complete communities are described as providing housing options for a range of incomes, having daily necessities readily accessible, and enabling a range of transportation options. However, one-size fits all parking requirements outside of the small historic downtown belie these goals and instead reflect a predominant concern with ensuring an ample parking supply over other concerns of affordability, urban form, transportation choice, or managing demand.

This analysis also showed that cities are experimenting with more flexible tools through both as-of-right zoning and discretionary tools that allow developers to change their parking requirements by providing certain programs and physical changes. These have included car-share spaces, bike-share docks, secured bicycle lockers and shower facilities, transit passes for new buyers, placing all parking underground, guaranteeing that a building will remain rental-only, and others. Through tools like these, cities have begun to move away from viewing parking requirements as an indispensable and independent requirement of all housing and towards a more multifaceted view that treats parking requirements as one element of a negotiation between cities and developers to obtain mutually beneficial developments. Not all practitioners agree with this approach; many regard parking requirements as fundamentally technical exercises and efforts to extract community contributions from developers in exchange for lowered parking requirements as political interference in pursuit of discretionary money to pander to constituents. As buildings whose requirements have been modified in these ways mature and come to be inhabited by a stable demographic mix, cities and researchers will be better able to see the consequences of these experiments and whether programs like car-sharing, bike-sharing, and increased diversity of land uses do facilitate lower levels of need for parking.

Finally, interviews were conducted with professionals in Toronto and Vancouver, two major cities selected for their size, robust development industry, and wealth of parking research and experimentation. These interviews revealed interesting findings about the nature of parking as a technical and political exercise.

Different approaches were seen in Toronto and Vancouver. In the former city, Councilors play a prominent role in the negotiation with developers for proposed projects in their wards. Councilors act as mediators between residents, staff, and developers and either champion and shepherd projects through the approvals process or oppose them to prevent their construction. Conversely, in Vancouver staff play a larger role and local politicians are typically not involved until the project comes to Council for any necessary approvals. These different approaches may be explained in part by the ward-based election system of Toronto's municipal government, but its consequences are more interesting than its causes. Projects experience more discretionary and personality-based support in Toronto due to the role of Councilors, and their approval lacks some of the predictability of staff treatment of applications. A

number of factors can influence the process due to the role of the local politician: the level of community support, the relationship between a developer and a Councilor, the timing of a proposal vis-à-vis the next municipal election among others. Thus, the parking requirements as one element of a negotiation for the approval of a project can vary more widely, and Councilors who bow to political pressure from constituents to provide additional parking may continue to have projects in their ward with higher parking rates than would otherwise be the case.

The interviews showed that parking demand was very much shaped by the real-estate market. The market shapes what buyers will demand from developers. Areas with higher property values tend to have more dense development with structured parking, along with higher prices for parking spaces. As the cost to build and supply parking spaces increases, the demand for such spaces goes down. Equally important is how the market shapes what developers will seek to build. Interview participants discussed the willingness of developers to build in one municipality rather than another if they believe they can find more favorable development conditions there. While parking requirements are only one consideration in a pro forma analysis of a potential development, planners do need to temper any ambitions for drastic changes beyond the status quo with the recognition that developers and financers are risk-averse and will build only what projects they are confident will sell.

The interviews and research findings also echo concern about the way that bonus or incentive zoning have been used historically. Where cities once rewarded developers with increased FAR for providing open space, atriums, and plazas while preserving sunlight in the street, in this research cities are seen to reward developers with more flexible parking requirements for providing car-share, bike-share, and other 'community benefits' through CACs and Section 37 agreements. William Whyte and other authors have criticized these processes for encouraging developers to provide low-quality plans that meet the bare minimum of requirements in order to negotiate for more bonus spot-zoning. [185] Equally so, they have argued that if some design elements are truly desirable, then they should be mandated and be applied equally to all developers rather than dealt with through individual site negotiations. There are valid concerns that the lessons of Whyte and others on past uses of incentive zoning. Whyte writes of the Fountain Square in Cincinnati that was privately provided as a part of a public space for increased FAR bonus that amounted to an empty dead zone without seating since the agreement did not specify that benches or seating would be provided. Wrote Whyte: "in matter of zoning incentives and bonuses, what you do not specify, you do not get." [186] Similar problems could well arise in the future in cases where parking reductions were permitted for providing impermanent services. The collapse of a bike-share program or the car-share market, or the refusal of a new building owner to continue to provide transit passes to residents, would leave a permanent physical design choice that benefited the developer without the corresponding public benefit in exchange. Planners must be cautious in awarding the windfalls of incentive zoning to developers and trying to "harness their avarice", as the consequences are longstanding and the record of success with is mixed.[187]

From the interviews we saw that parking requirements are a highly political and highly emotional issue. Many participants discussed how residents were highly protective of their established parking rights and highly resistant to developments that might inconvenience their ability to park quickly, freely, and in close proximity to their homes. Some participants noted that residents would often oppose

developments based on other more nebulous grounds such as 'fit' or 'appropriateness' when they were ultimately concerned with parking. Similar findings about resident opposition to developments have been noted in other sensitive cases such as "Asian malls" in Ontario[188] and mosques across North America[189]. A lesson for planners is to tread carefully in issues that confront such closely-held expectations and perceptions of rights to certain public goods as the ability to leave one's vehicle in the public right-of-way. Nonetheless, it is an issue that is unavoidable in growing cities and will take continued innovation, community engagement, and political will in order to enact change.

From the interviews we saw that cities can still improve the integration of parking requirements and other city goals. In Vancouver for instance, if the City is committed to its transportation and affordability goals, it may be well served in selecting an area in which to remove minimum parking requirements entirely while maintaining maximums. In areas well-served by transit, low-parking or parking-free residential developments have been approved in Portland and Toronto. Such a policy change could help to grow Vancouver's housing supply while allowing developers to provide less parking if they believe the market will provide the demand for parking-free dwelling units. Likewise in Toronto, despite its use of four policy areas to tailor its parking requirements, much of the city within walking distance of transit retains higher parking requirements. The neighbourhoods surrounding the downtown policy area are also well served by transit and have comparably high active transportation mode shares, but developments there are not eligible by right for reductions based on providing bike-share or car-share infrastructure. If Toronto wishes to make alternatives to the private automobile viable for more residents, the incentives for developers to embrace bike-share, car-share, and other programs will need to continue to expand to new areas.

Looking to the future of cities is a longstanding pastime of urban planners. Whether a garden city, a world of soaring towers over parks, or a dense and walkable mixed-use neighbourhood, a vision for how cities should change and evolve has been developed by each generation of planners. Looking to the future of parking requirements, cities should consider themselves in constant organic evolution and avoid the hubris of believing they ever have a 'correct' parking standard for the foreseeable future. Instead, cities may be well served developing a certain tolerance for chaos and accepting the tensions caused by experimenting with new parking tools, including the fact that too high a parking requirement will affect mode share and the cost of housing, and too low a requirement will cause conflict and competition for scarce spaces. However, each approach and related impact can be managed given sufficient political will. A building that has insufficient parking may cause spillover for a time, but cities cannot provide adequate and available parking for all residents if their goals are to promote active and public transportation. If cities are willing to manage complex systems and challenge established expectations, the parking system can be part of a holistic plan that deals with on- and off-street parking, transit, urban design, land use, public health, and accessibility. Recognizing that parking is a scarce, excludable, competitive good and not a public entitlement will take time and struggle. But if planners and politicians can accept certain truths, it may be possible to innovate and change approaches to parking and allow them to evolve alongside the rest of the city. Change in a city is a chaotic process and that there will always be competition and conflict. There will be residents that benefit and suffer from every change, and not all will be happy. Planning for parking and regulating parking is important,

difficult, and inherently imperfect. Experimenting with parking may involve surrendering some control to market forces. There will be mistakes, changes, and new lessons. There will be concrete consequences from parking regulation and experiments in parking regulation. However, avoiding change and maintaining established approaches, rather than innovating with new tools, will not make the changes to parking demand, mode choice, and urban form that will benefit residents of cities.

This paper has only covered one part of parking regulation, focusing only on multi-unit residential developments. Commercial parking, low-density residential development, on-street parking, park-and-ride lots, and other broad areas of concern merit further research. There are important research questions that remain unanswered. How can on-street parking be managed in the face of growing population density: do existing residents take precedence, what are the equity considerations in balancing new and existing resident rights, and how do cities manage the transition from free residential on-street parking to paid parking? In built-out areas with excessive parking supply, how can the space be repurposed to a productive use and how can we plan future parking spaces for more adaptable redevelopment? How can planning and economics be linked to explore the elasticity of demand for parking spaces in different types of development, urban areas, and housing tenure types?

Similarly, specific aspects of the issue touched on in this paper could benefit from more focused attention. Studying car-share parking reductions and how they impact parking demand in different types of urban areas could help to more finely tailor associated permitted parking reductions and expand the feasibility of car-share programs to new areas. Despite its growth in dense urban centres, most Canadians do not have access to car-share services. How can car-share programs be adapted to suit smaller cities and less-dense areas? Can cities plan for developments that target car-free lifestyles, and will such buildings see different lengths of tenure or demographic changes than others? Similarly, continuing research on the determinants of car ownership could allow cities to work with developers to design new projects for demographics with lower car ownership in areas unable to support additional parking supply.

While there are many unanswered questions, it is hoped that this paper provides some new insight into this field and spurs others to continue to engage with the issue of parking. Given the amount of space, time, money, and resources that are expended with where we leave our unoccupied vehicles, we would be well served in spending a little more time understanding parking and its impact on our cities and our lives.

# Appendices

## Appendix 1 – Approved Research Ethics Board Application

McGill

Applicable Research Ethics Board

_X_REB-I ___REB-II ___REB-III

**Application for Ethics Approval for Research Involving Human Participants**

(please refer to the Application Guidelines [www.mcgill.ca/research/researchers/compliance/human/] before completing this form)

**Project Title:** Parking break: Minimum parking standards in Canadian cities

**Principal Investigator:** Ted Horton **Dept:** School of Urban Planning

**Phone #:** 514-619-2030 **Email**: ted.horton@mail.mcgill.ca
(a McGill email MUST be provided)

**Status**: Faculty ___ Postdoctoral Fellow ___ Other (specify) _____
Ph.D. Student ___ Master's Student _X_ Undergraduate ___

**Type of Research:** Faculty Research ___ Thesis ___
Honours Thesis ___ Independent Study Project _X__
Course Assignment (specify course name and #)_____
Other (specify) _____

**Faculty Supervisor (if PI is a student):** Raphaël Fischler **Email**: raphael.fischler@mcgill.ca

**Co- Investigators/Other Researchers (list name/status/affiliation):**

List all funding sources for this project and project titles (if different from the above). Indicate the Principal Investigator of the award if not yourself.

**Awarded:** SSHRC

Principal Investigator Statement: I will ensure that this project is conducted in accordance with the policies and procedures governing the ethical conduct of research involving human participants at McGill University. I allow release of my nominative information as required by these policies and procedures.

**Principal Investigator Signature: _____ Date: _____**

Faculty Supervisor Statement: I have read and approved this project and affirm that it has received the appropriate academic approval. I will ensure that the student investigator is aware of the applicable policies and procedures governing the ethical conduct of research involving human participants at McGill University and I agree to provide all necessary supervision to the student. I allow release of my nominative information as required by these policies and procedures.

Faculty Supervisor Signature: _____ Date: _____

Respond directly on this form to each section (1-8). Do not re-order or omit any section or any of the questions under each section heading. Answer every part of each section. Forms with incomplete sections will be returned.

**1. Purpose of the Research**

***a) Describe the proposed project and its objectives, including the research questions to be investigated (one-two page maximum).***

The proposed research project will examine the state of urban parking regulation, the tools that are used to enact it, the best practices and innovations in its use, and the lessons that can be learned from different cities by evaluating their policies.

The ways in which cities influence parking supply and demand can directly influence the development of their built form and resident transportation habits; parking is an urban issue with significant consequences. There is a growing awareness of the negative social and environmental impacts of planning cities with single-occupant automobiles as the primary mode of transportation. Communities suffer negative impacts from being designed in such a way as to privilege driving and discourage active transportation though low-density city layout, low walkability, single-use zoning, and various transportation planning choices. Less walkable areas have been shown to correlate with higher rates of obesity and diabetes, increased greenhouse gas emissions, higher rates of traffic fatalities, among other effects. Parking requirements act as an encouragement to use a car by externalizing costs . Requiring real estate developers to provide parking distorts the market for parking and increases the supply of parking spaces while reducing the price – but not the cost – of parking, making the cost of car use more competitive relative to other modes. Parking lots reduce density by dedicating otherwise productive space to the storage of automobiles. While there is a role for a balanced provision of parking, many studies have shown that parking is oversupplied for the vast majority of time.
There are a range of tools that cities use to regulate and influence their parking supply. The most common type of parking regulation is a requirement to provide a minimum number of off-street parking spaces depending on the type of land use and the floor area of the project Parking maximums are a relatively recent strategy. Rather than setting minimums, or in coordination with parking minimums, some cities have amended their zoning codes to set out the maximum number of parking spaces that real estate developers may provide. There are also more flexible tools that some jurisdictions have used to influence parking, generally in combination with minimum or maximum requirements, including programs to promote car-sharing, requirements for bicycle parking, regulations allowing building owners to pay cash to the city instead of providing parking in order that the city may construct shared parking facilities, transportation demand management programs, and other initiatives.

There has not been a review of parking policies in Canada, nor a comparison of how parking standards are being enacted in different jurisdictions. Most studies focus on one element of parking in a few comparably-sized cities -- such as whether the minimum requirements are higher or lower for a range of land uses, for instance – without treating all elements of a city's parking strategy together. This paper will begin with a general scan of parking regulations for private development among Canadian cities. It will continue with a more in-depth examination of the particular elements of parking policies for a more limited number of cities. It will conclude with a select set of case studies of a small number of cities whose policies are of special interest and contain potential lessons for other cities. These case studies will include interviews with planners, politicians, and other actors in the selected cities, Their aim will be to highlight innovative practices, to understand what benefits they may bring to other cities and to

identify challenges to their implementation. A formal evaluation of the impact of parking policies on urban patterns, development trends and transportation choices is beyond the scope of this study.

***b) What is the expected value or benefits of the research?***

Parking is a perennially controversial issue in cities, and will continue to be so for so long as cars are a major mode of transportation. Studying parking policy in Canada and identifying best practices will have a number of benefits. It will help citizens to understand the influences and effects of parking policies and thereby inform discussions with due regard to their implications for transportation and real estate development. It will enable planners to see the innovations in parking regulation that are taking place and help them evaluate their application under local circumstances. It will help municipal politicians understand how policies as innocuous as parking can shape the way we live and move for decades to come help them balance competing interests in setting parking policies for the future.

***c) How do you anticipate disseminating the results (e.g. thesis, presentations, internet, film, publications)?***

I intend to make my SRP publicly available through the McGill Library, online dissemination, and sharing with such municipalities, community groups, and planners as may have interest in it. In addition, I am considering writing a summary of my research report for publication in a professional or scholarly journal.

**2. Recruitment of Participants/Location of Research**

***a) Describe the participant population and the approximate number of participants needed.***

The participant population is comprised of those individuals having direct experience of the analysis, design, adoption and implementation of parking policy. These may include municipal politicians for their role in the development and approval of policies, planners for their role in the research and development of policies, real estate developers for their role in implementing the policies in private projects. The number of participants will vary based on the final number of case studies selected, but will include several respondents in each city. Approximately 10-12 participants will be required.

***b) Describe how and from where they will be recruited. Attach a copy of any advertisement, letter, flier, brochure or oral script to be used to solicit potential participants (including information to be sent to third parties).***

Potential participants will be contacted by email. They will be informed about the project and I will request permission for an interview. A copy of the recruitment script is attached (see appendix A). Participants will be provided with an explanation of the research in advance to make sure they have a good understanding of the topics that will be investigated during the interview.

***c) Describe the setting in which the research will take place.***

The interviews will take place primarily by phone, depending on participant availability. Questions may also be provided by email as a follow-up for further information.

***d) Describe any compensation subjects may receive for participating*.**

Subjects will not receive any compensation for their participation.

**3. Other Approvals**

***When doing research with various distinct groups of participants (e.g. school children, cultural groups, institutionalized people, other countries), organizational/community/governmental permission is sometimes needed. If applicable, how will this be obtained? Include copies of any documentation to be sent.***

No other approvals are foreseen to be required.

**4. Methodology/Procedures**

***Provide a sequential description of the methods and procedures to be followed to obtain data. Describe all methods that will be used (e.g. fieldwork, surveys, interviews, focus groups, standardized testing, video/audio taping). Attach copies of questionnaires or draft interview guides, as appropriate*.**

First, this study will begin with a literature review of parking regulations – their history, typology, and effects. It will also discuss the findings of research on the impact of parking policies on mode choice, development costs, urban form, and other aspects of urban development.
Second, the researcher will perform a scan of parking policies of municipalities across Canada to create a typology of parking policies and identify patterns among municipalities.
Third, from this look at policies across Canada a subset of four to about six cities with particularly interesting policies will be selected for more in-depth analysis. These cities' policies will be described and evaluated on the basis of prjmary sources (e.g., municipal reports and websites) and secondary sources (e.g., published research reports).
Fourth, two or three cities will be selected for in-depth case studies on a particular policy. Professionals and stakeholders in these cities will be contacted to participate in interviews to better understand their perspectives on the cities' minimum and maximum parking standards for private developments. For example, interviews with planners to discuss their experience balancing the input of various groups in the development of these standards, or interviews with members of the planning committee to discuss how requests for variances or exemptions are treated. The interview guide is included in appendix C.

**5. Potential Harms and Risk**

***a) Describe any known or foreseeable harms, if any, that the participants or others might be subject to during or as a result of the research. Harms may be psychological, physical, emotional, social, legal, economic, or political.***

Parking policy can be a controversial issue. It is a major determinant of mode choice, and is responsible for significant expenses in construction and maintenance of buildings. Many people identify strongly with their mode of transportation and hold strong opinions on policies that are not in line with that viewpoint. Participants may face political criticism for their viewpoints on this subject if their stated responses are in disagreement with the viewpoints of those who read them. In addition, professional planners, whether in the public or private sector, may not wish to express their opinions on a matter of public policy if that opinion tends to diverge from that of their employers or clients. Therefore, respondents will be offered the option of remaining anonymous in any research report or paper.

***b) In light of the above assessment of potential harms, indicate whether you view the risks as acceptable given the value or benefits of the research.***

Urban planning is not a field where answers are self-evident and easily determined, and practitioners will vary in their opinions even when they share a single stated goal. The potential harm of criticism is healthy and valuable in order to encourage citizens, planners and elected officials to refine and shape their opinions and practices. I view the risks as acceptable.

***c) Outline the steps that may be taken to reduce or eliminate these risks****.*

Participants will be offered the ability to not have their name associated with their comments, but rather be referred to by a term related to their position or level of experience. For example, using "A planner with the City of Vancouver" rather than the professional's name may allow this person to speak without fear of criticism.

***d) If deception is used, justify the use of the deception and indicate how participants will be debriefed or justify why they will not be debriefed.***
Deception will not be used in this research.

**6. Privacy and Confidentiality**
***a) Describe the degree to which the anonymity of participants and the confidentiality of data will be assured and the specific methods to be used for this, both during the research and in the release of findings.***

Participants will be offered the option to respond to the interview confidentially. To ensure notes and recordings are not identifying the participants wishing to have their identities held in confidence, they will be labelled with a unique identifying number rather than with the respondent's name.

***b) Describe the use of data coding systems and how and where data will be stored. Describe any potential use of the data by others.***

I will request permission from participants to record their interviews. All audio recordings and other electronic files will be stored on the researcher's computer in password-protected folders. Recordings and electronic files containing responses from participants wishing to remain anonymous will be marked as confidential and be securely stored with their own password protection. No one other than the researcher and the supervisor, Raphaël Fischler, will have access to identifiable data.

***c) Who will have access to identifiable data?***
No one other than the researcher and the supervisor, Raphaël Fischler, will have access to identifiable data.

***d) What will happen to the identifiable data after the study is finished?***

When the research is completed, data will be kept for seven years following publication, as per McGill's policy on the ethical conduct of research involving human participants. It will be destroyed after this time.

***e) Indicate if there are any conditions under which privacy or confidentiality cannot be guaranteed (e.g. focus groups), or, if confidentiality is not an issue in this research, explain why.***

No focus groups or interviews that would not permit confidentiality are planned. All interviews will be conducted individually.

**7. Informed Consent Process**

***a ) Describe the oral and/or written procedures that will be followed to obtain informed consent from the participants. Attach all consent documents, including information sheets and scripts for oral consents.***

All participants will be provided with a informed consent form in advance of the interview (see appendix B). This will typically take place by email for interviews by phone and in writing for in-person interviews. Participants will be asked before the start of the interview if they understand the form or have any questions. They will be asked if they wish their specific contribution or their very participation to remain anonymous. They will then be asked if they consent to take part in the interview.

***b) If written consent will not be obtained, justification must be provided.***

Not applicable.

**8. Other Concerns**

***a) Indicate if participants are a captive population (e.g. prisoners, residents in a center) or are in any kind of conflict of interest relationship with the researcher such as being students, clients, patients or family members. If so, explain how you will ensure that participants do not feel pressure to participate or perceive that they may be penalized for choosing not to participate.***

Not applicable.

***b) Comment on any other potential ethical concerns that may arise during the course of the research*.**

Not applicable.

# Appendix A
**Lessons in Parking Regulation Practices**

## Recruitment Script

You are invited to participate in a research study being undertaken at McGill University on the state of urban parking regulation, the tools that are used to enact it, the best practices and innovations in its use, and the lessons that can be learned from different cities. Parking, despite being an often-contentious subject in communities, has received little academic attention. Lessons about how different cities approach the issue may be beneficial to planners and citizens to improve their own neighbourhoods.

The lead researcher is a student in the Master of Urban Planning program at McGill University, working under the supervision of Professor Raphaël Fischler, Director of the School. The study is being conducted as part of the Supervised Research Project which is the requirement of the MUP program.

Your contribution to the research would be to agree to be interviewed about your experience with the design, adoption and/or implementation of parking policies and standards. Answering questions on this topic should take between 30 and 45 minutes of your time and could take place during a phone conversation to be scheduled at your convenience.

Your participation in this study would be greatly appreciated.

Regards,
Ted Horton

**If you have questions about the study, contact:**

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McGill **Appendix B**
**Lessons in Parking Regulation Practices**

## Informed Consent Agreement

**Name and title: _____**

**Email:_____**

**Please read this consent agreement carefully before you decide to participate in the study.**

You are invited to participate in a research study being undertaken at McGill University on the state of urban parking regulation, the tools that are used to enact it, the best practices and innovations in its use, and the lessons that can be learned from different cities. Parking, despite being an often-contentious subject in communities, has received little academic attention. Lessons about how cities approach the issue may be beneficial to planners and citizens to improve their own neighbourhoods.

The lead researcher is a student in the Master of Urban Planning program at McGill University, working under the supervision of Professor Raphaël Fischler, Director of the School. The study is conducted as part of the Supervised Research Project which is a requirement of the MUP program.

**Purpose of the research study:** The purpose of the study is to examine the state of urban parking regulation, the tools that are used to enact it, the best practices and innovations in its use, and the lessons that can be learned from different cities by evaluating their policies. The study will consists of interviews with city officials, urban planners, politicians, developers, and others who have worked on municipal parking regulations.

**What you will do in the study:** The interviews will be held at your convenience, whether in person, by Skype, phone, or email. The question raised in the interview will relate to your experiences, perceptions, and concerns related to parking policies in your city. The interview should take about 30 minutes of your time. You are free to refuse to answer any question and to stop the interview at any time.

**Confidentiality**

**Interview data linked with identifying information:**

If you so wish, your responses will be treated confidentially, and no information will be given in any research report or paper than may identify you. Please select the level of confidentiality that you would like to be observed by choosing one of the following options:

☐ I consent to the release of the information that I will provide in this interview. My name and job title may be linked to specific responses in reports or presentations arising from this research.

☐ All responses I give are to be kept confidential. My name is not to be identified in any research reports, presentations, or publication. I will be identified only by a general title indicating my level of knowledge of the subject.

If you choose to maintain confidentiality, your responses will be coded, stored and presented in a manner that protects your identity. In all cases, the information gathered will be securely stored and may be accessed only by the researcher and supervisor. A minor risk exists that data transmitted via the internet could be intercepted. Data will be stored for seven years before destruction, as required by McGill's Policy on the Ethical Conduct of Research Involving Human Participants.

**Recording:** Please note that audio recording does not alter your level of confidentiality; in any case, your name will only be used with your permission. Recordings will be used for transcription purposes only. Please indicate if you agree to be recorded by choosing one of the following options:

☐ I agree to have an audio recording taken for the purpose of this study.

☐ I do not agree to have an audio recording taken for the purpose of this study.

**Right to withdraw from the study:** Your participation is voluntary. You have the right to withdraw from the study at any time.

**Payment:** You will receive no payment for participating in the study.

**Dissemination**: The research report prepared at the end of this study will be accessible at the library of McGill University. It may also be shared with planners, municipalities, and community organizations. The research may also be published in articles for professional or scholarly journals or be presented at professional or academic conferences.

**If you have questions about the study, contact:**

Student Researcher: Ted Horton
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If you have any questions or concerns regarding your rights as a participant in this research study, please contact the McGill Ethics Officer at 514-398-6831 or lynda.mcneil@mcgill.ca

**Agreement:**

I have read and understand the information provided to me and I agree to participate in the research study described above. If I am being interviewed by phone or Skype, I agree to provide my consent orally to the researcher.

**Signature: _____ Date: _____**

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## Appendix C
**Lessons in Parking Regulation Practices**

# Interview Guide

**Introduction**

1) What is your position and how long have you held it?
2) How have you been involved in the development or application of parking standards?

**Your City's Regulations**

3) How are parking standards set in your city?
    a. What is the process you have experienced in developing parking standards?
        i. Who is involved?
        ii. How is input weighed?
        iii. How is the purpose of parking standards determined?
4) Minimum parking requirements
    a. What is the role of parking requirements for your city?
        i. e.g. growth controls, preventing congestion, preventing overspill
    b. What factors are considered in setting requirements?
        i. What parking generation numbers are used? If so, which?
        ii. Are comparable cities surveyed? If so, which?
        iii. Are demographics considered?
        iv. How are transportation goals included?
5) Maximum parking standards
        i. How does your city employ maximum parking controls?
        ii. How are these controls set?
        iii. What was the process for implementing them?
            1. How were/are they perceived?
6) How have parking standards in your city evolved? Why have they changed?
    a. Changes in requirements (*city action*)
    b. Changes in supply (*developer action*)
    c. Changes in demand (*public/market action*)
7) How do you see parking as a political issue in your city?
    a. What is the process like for making decisions regarding parking?
    b. Who are the actors/stakeholders in parking decisions?
    c. How are competing interests in parking balanced?
8) Do you think the minimum parking requirements are correct?
9) Do you think the maximum parking requirements are correct/needed?

**Effects and Changes**

10) What effects do you think your city's parking standards have had?
11) How are requests for variance/exemption/changes treated?
12) Does the city engage in post-occupancy surveys of parking to assess the impact of parking standards?

**Wrap Up**

13) Is there any other information that you feel would be beneficial to an understanding of parking in your city?

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