CITY OF WATERLOO PARKING STANDARDS STUDY

May 1, 2023

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City of Waterloo

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Executive Summary

The purpose of the City of Waterloo Parking Standards Study (the Study) is to review, research, analyze and prepare recommendations regarding the City's parking standards, including identifying candidate locations in the City where parking rates can be re-evaluated This work will inform future updates to the City of Waterloo's Zoning By-Law 2018-050.The City of Waterloo is proceeding with efforts to consider and make plans for housing, streamlining development approvals, climate change mitigation, and encouraging multi-modal transportation throughout the community and would like to ensure that the parking requirements suit those goals. In light of this, the Parking Standards Study was completed in order to review, analyze and prepare professional recommendations in relation to the City's parking standards.

This study approaches an examination of some peer cities, exploration of existing structure and recommendation for future approaches. This included an evaluation of the City structures, major transit station areas, and existing plans and policies that guide parking rates. From this analysis, the team established a structure for determining parking rates. The process requires identifying a use category, finding the use type within each zone, and considering area overlays which contain additional implications of parking rates throughout the City.

The outcome of this study generates multiple recommendations and key opportunities. It was found that a few planning boundaries used may complicates the process of implementing parking rates, an opportunity exists to align and simplify the boundaries for parking to reduce this complexity. Regarding the City's parking rate structure, an opportunity exists to leverage an alternative structure for setting parking maximums and minimums. Parking rates have been studied through comparison to ITE studies and it was found that three opportunities exist to amend parking rates generally towards a reduction. Further recommendations include reducing parking minimums, approval flexibility, and on-going data collection to get actual demand data to understand what is happening on the ground. Non-zoning related solutions also arose through this Study including recommendations for the language in the policy direction of the Official Plan, adopt a comprehensive parking management strategy, and that the City continue to engage with the development industry through holding developer roundtables as it rolls out new Zoning By-Law regulations.

The recommendations made in this Study outline the possible next steps in progressing the approach to parking standards that can be adopted by the City of Waterloo through policies and regulations to achieve the long-term urban development goals. Through this Study, the City will be able to implement recommendations independently or part of a structured holistic program of updates, to meet their goals and objectives.

1 Purpose of the Parking Standards Study

The purpose of the City of Waterloo Parking Standards Study (the Study) is to review, research, analyze and prepare professional recommendations regarding the City's parking standards, including identifying candidate locations in the City where parking rates can be re-evaluated. The Study is undertaken in the context of the City's ongoing efforts to plan for housing, streamlining development approvals, climate change mitigation, and fostering alternative transportation modes while ensuring parking impacts are mitigated, particularly in relation to municipal roads. This work will inform future updates to the City of Waterloo's Zoning By-Law 2018-050.

2 Waterloo Context and Goals

This section is intended to provide the reader with important information and considerations used by the project team in conducting the analysis and developing recommendations.

Waterloo is not unique in terms of the significant costs required to construct and maintain parking. It is estimated that a typical surface parking space is around $16,000, while a space in a structured parking lot can vary from anywhere between $50,000 and $200,000 per space depending on the different site conditions and context.[1] A reduction in parking for a development could potentially lead to reduced prices for the consumer, and mitigate lifecycle costs for end users. A reduction in parking may result in more space available on a site for increased development, including secondary units or additions to existing sites.

Based on the most recent parking utilization Study done for Uptown Waterloo in 2021, peak parking demand in the Study area on weekdays was only 37% of the parking supply, with the average demand being 28%. It is noted that the Study was undertaken during the global COVID pandemic. A parking utilization Study conducted for Uptown Waterloo pre-pandemic in 2019 indicated that the peak parking demand was 61% of the supply, with an average of 47%. Based on these rates, parking is underutilized within the Uptown area. This may be due to the existing historic parking agreements that require certain amounts of parking to be allocated to surrounding businesses during business hours, and guarantee parking availability. The ability to influence or alter these historic agreements is beyond the scope of zoning or development parking, which leads to a continuation of the existing condition until either these agreements are altered, or the site is redeveloped.

While the above utilization rates only apply to one area of the City, it indicates that further investigation and updates to existing zoning requirements may be required to see what the City can continue doing and where improvements can be made to make parking more efficient.

[1] Email conversation with City officials, December 2022

2.1 Waterloo Overview

The City of Waterloo (the City) is a rapidly growing mid-sized city in the Region of Waterloo. As of 2021, its population was 147,520 and this includes a significant proportion of temporary students (totalling 28,390).

The City is directly adjacent to the City of Kitchener and is the northern most part of the 'tri-city' with Cambridge to the south. The employment, student and retail base is very transitory between these areas with additional population from the surrounding rural communities and nearby municipalities, such as Guelph. Major employment industries in the area include a sizable high-tech industry, headquarters for the insurance industry and post-secondary institutions.

2.1.1 City Structure and Major Transit Station Areas

The City's current urban structure has been categorized by the Official Plan and other key planning documents into a hierarchy of: Designated Nodes and Corridors, and Major Transit Station Areas (MTSAs), which are defined by the relevant planning documents.

Nodes

Defined in Section 3.6.1 of the City's Official Plan, Designated Nodes are places where employment, housing, commercial land uses and services, and other amenities are concentrated with different levels of intensity and activity. Nodes provide opportunities for residents to live close to employment, shopping and other services, and are focal points for pedestrian, bicycle and transit routes. The City's Primary Node is the Uptown Waterloo Urban Growth Centre, as shown in Figure 1. The City differentiates between Major Nodes and Minor Nodes:

- Major Nodes are planned as medium-high to high density mixed-use areas that accommodate a range of uses, with commercial uses providing for the shopping needs of several surrounding neighbourhoods.
- Minor Nodes are planned as medium to medium-high density mixed-use areas that accommodate a range of uses and generally include neighbourhood-serving commercial centres that provide for the shopping needs of the surrounding neighbourhood.

Designated Nodes provide a planning framework to increase human activity in areas with a mixture of uses. For the purposes of considering how this relates to parking, both Major and Minor Nodes are intended to provide key destination parking in areas needed to support these multiple functions and uses to facilitate the access for customers, residents and a number of other users. Notably, an oversupply of parking can create a 'car-oriented design' at these nodes, reducing both the effectiveness of scale and opportunity of access for everyone. In general, these are understood as an opportunity to provide sufficient parking to support the specific use without oversupplying and generating auto demand, this suggests parking supply should be in the lower ranges of parking demand.

Corridors

As per Section 3.6.2 of the City's Official Plan, Designated Corridors are major streets or transit routes that link Nodes and provide opportunities for intensification. Corridors are generally located on planned or existing higher frequency transit routes and are designed to support various modes of transportation, acting as key transportation linkages between destinations. The City's Corridors are shown in Figure 1. The City differentiates between Major and Minor Corridors:

- Major Corridors generally connect a series of Major Nodes and/or the Primary Node and have the greatest capacity and potential to support higher frequency transit. As such, they will be planned to accommodate medium-high to high-density uses to provide for sufficient future population and employment growth to support planned transit service levels.

- Minor Corridors connect a series of Major Nodes, Minor Nodes and/or the Primary Node. Planned land uses within Minor Corridors will be predominantly medium to medium high density residential with some limited areas having a planned function other than residential.

Designated Corridors provide a link of intensification between and adjacent to Nodes. For the purposes of considering how this relates to parking, the goal of global access for users combined with the proximity to a mixture of destinations and transportation options available through these areas, suggest non-vehicle based trips should be possible. Corridors, like Nodes, are generally understood as an opportunity to provide parking in lower ranges of demand to ensure the benefits of intensification are realized.

Major Transit Station Areas (MTSAs)

The Provincial planning document called 'A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2020' (Growth Plan) defines MTSAs as the area including and around any existing or planned higher order transit station or stop within a settlement area, or the area including and around a major bus depot in an urban core. MTSAs generally include the area within a 500-800 metre radius of a transit station, representing a 10-minute walk, as shown in Figure 1. Following the Province's definition, the City's Official Plan defines a MTSA as follows:

- The area including and around an existing or planned rapid transit station within the City of Waterloo. While the conceptual limits of station areas are generally known as the area within an approximate 600 – 800 metre radius of a rapid transit station, the boundaries of each station area will be defined through a Station Area Plan for each station area outside of the Uptown Waterloo Urban Growth Centre.

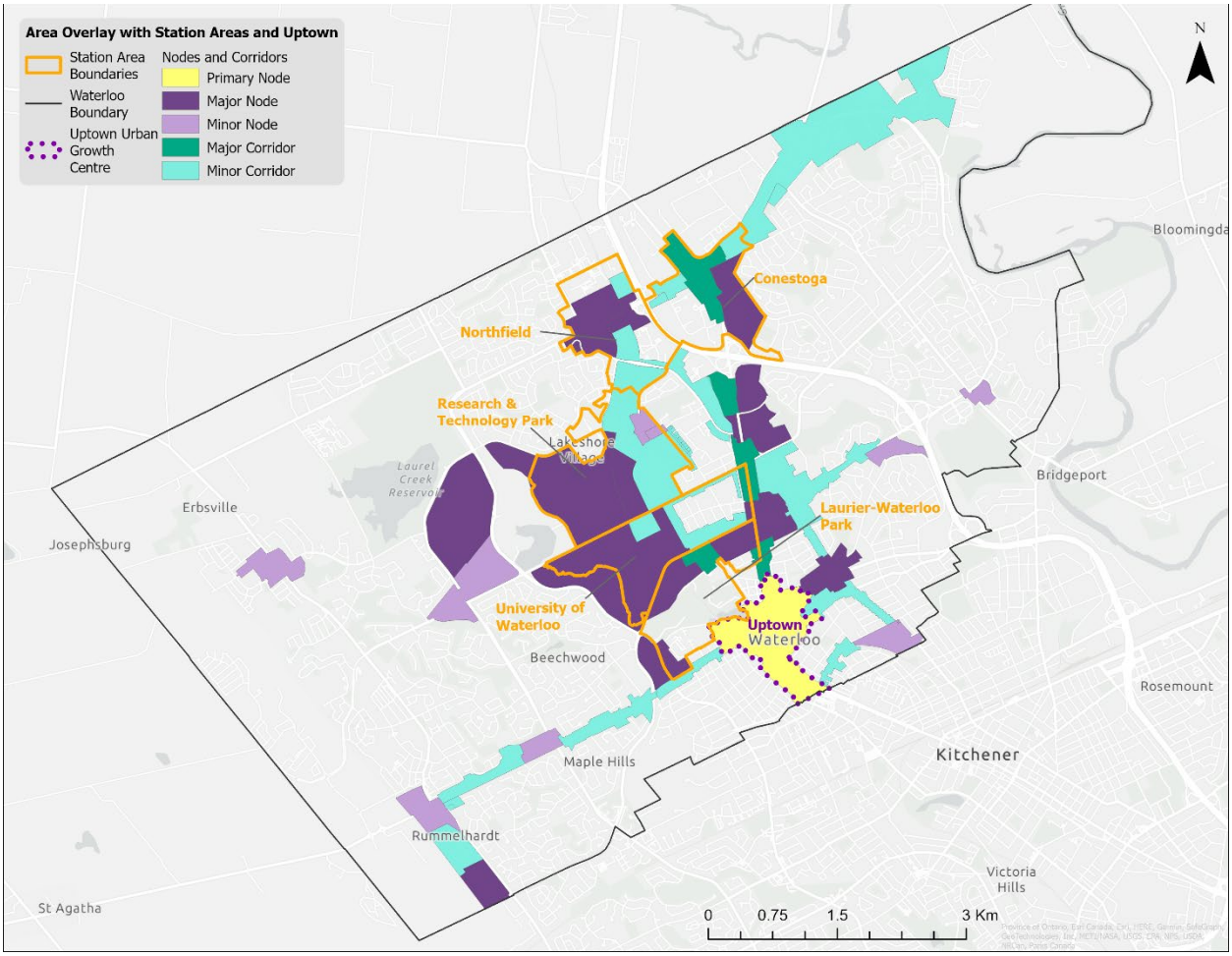


Figure 1: Waterloo's Urban Structure

While the focus for this Study includes the entire City of Waterloo, Uptown as the Primary Node, other designated Nodes and Corridors, along with MTSAs, are key defining components of the City's urban structure and heavily influences the built form, transportation options, and parking rates within it. The above mentioned components also provide an opportunity to explore more progressive parking policies due to the area's integration with public transit, mixed uses and pedestrian-friendly environments. As such, Uptown, designated Nodes and Corridors, and MTSAs will be a key focus in the subsequent discussion on recommendations for updating the City's parking requirements.

MTSA station area plans were created around the City's ION LRT stations and envision higher densities and transit focused mixed-use development. The five MTSAs (as identified in the City's Official Plan Schedule 'J') are shown on Figure 2 and include:

1. Conestoga
2. Northfield
3. Research and Technology Park

4. University of Waterloo
5. Laurier-Waterloo Park

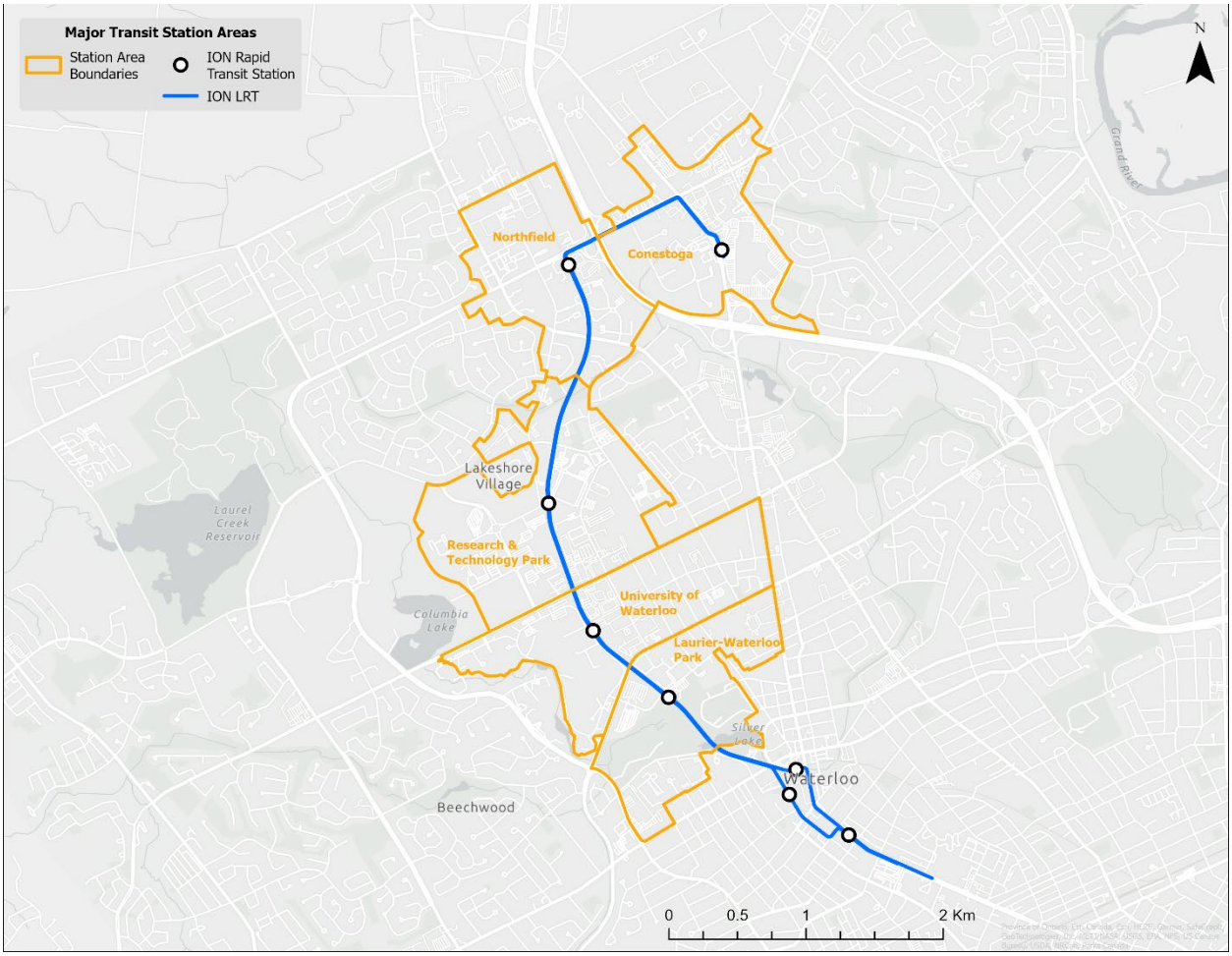


Figure 2: Major Transit Station Areas and ION Line

While not listed above, Uptown contains three ION stations:

1. Waterloo Public Square
2. Willis Way
3. Allen

MTSA station area plans were not created for these stations and as such, the MTSA boundary for each station have not been delineated in Figure 2. As the Uptown ION stations have a detailed planning framework in place as part of the Urban Growth Centre policies within the City's Official Plan, and Uptown is already a transit-supportive destination in the City context, the City chose to complete MTSA plans for the remaining five stations to provide structure and solidify the land use policies within those five station areas.

2.2 Existing Plans and Policies

This Study is informed by a number of existing plans and guidelines. The availability and presence of parking is a core policy decision which impacts the future development and character of the community, and shapes travel behaviour though the built environment. While this report is primarily focused on the implementation of these policies into the Zoning By-Law, the relationship between policy and its interpretation is integral when creating recommendations. This report aims to provide context in relation to interpretation of certain parking-related policies and identify areas where policy can be clarified to create a more streamlined planning framework for City staff and the development industry. In determining the objectives of the City and the policy intent that parking needs to reflect, this Study was informed by the:

- Official Plan
- Transportation Master Plan
- Urban Design Manual
- University of Waterloo Campus Master Plan Update
- University of Waterloo Northwest Campus Development Design Guidelines
- Station Area Planning Implementation
- Corporate Climate Change Adaptation Plan
- Northdale Land Use and Community Improvement Plan Study: Urban Design and Built Form Guidelines
- West Side Employment Lands Urban Design Guidelines

Table 1 summarizes the key goals and objectives of each of the above documents, establishing the foundation for this Study and the development of recommendations for the City. Table 2 compares the different goals and objectives in Table 1 against selected industry themes and best practices. These are identified across each of the documents, recognizing relationships and commonalities. The language and direction of these key goals and objectives establishes crucial priorities for the City which have been determined as:

- Promoting a variety of travel choices
- Encouraging sustainable development
- Fostering a sense of place
- Focusing on pedestrian-oriented infrastructure and modal choice
- Promoting new investments and economic development through more efficient use of parking areas

- Requiring the City to plan for an appropriate amount of parking (vehicular and bicycle) to accommodate the intended uses

These goals are setting a long-term policy direction for the City of Waterloo. When considering shifting transportation modes, it is important to acknowledge that the personal motor vehicle will continue to have a role in travel throughout the City. The foremost understood position in these policies is to direct and drive a trend in how people travel. The concept of “induced demand" is important as it describes how a large supply of parking creates more demand for parking by encouraging people to drive, thus failing to address car dependency and congestion. Furthermore, there is the urban design consideration that space allocated for parking often negatively impacts transportation by other modes through increasing travel distances and creating conflict points. At the same time, an adequate and appropriate amount of parking is still required to meet the needs of the development, accommodate visitors and deliveries, be in compliance with accessibility requirements, and minimize negative impacts on the transportation network. In order to foster a trend towards urban travel and support a mixture of modes, parking supply must be balanced for all user groups, meet market requirements, and not over supply to generate upstream traffic. While the policy language prioritizes alternatives to the personal vehicle, the City of Waterloo has not taken a position to eliminate parking. The balance may only be achieved when all modes are physically provided for at the appropriate scale.

Table 1: Existing Policy Review - Goals and Objectives

DOCUMENT REVIEWED	YEAR	GOALS/OBJECTIVES
Transportation Master Plan	2020 update	Promote travel choice; Create a sense of belonging; Support sustainable development; Optimize the transportation system
Urban Design Manual	2009	Promote a high standard of urban design; Respect context and promote a sense of place; Enhance connectivity and interaction; Promote creativity and innovation; Encourage sustainable design
City of Waterloo Official Plan	2020 update (2012)	Diversity and adaptability; Accessibility and equity; Connectivity; Health and vitality; Appropriate amount of parking on site
University of Waterloo Campus Master Plan Update	2009	South Campus as a focus for future growth; Create a high quality and welcoming environment; Be pedestrian-oriented, accessible, and connected; Environmental stewardship and sustainability; Improve integration with the City
University of Waterloo Northwest Campus-Development Design Guidelines	2012	Work with existing topography; Preserve existing vegetation; Establish linkages; Plan for use flexibility; Design parking to be shared and screened from the street; Encourage various modes of movement; Design for sustainability
City of Waterloo Station Area Planning	2017	Stimulate new investment and economic development; Emphasize first/last-mile connections; Ensure development near stations includes transit-supportive land uses; Encourage sensitivity to distinct character areas; Promote public art and cultural assets; Support placemaking; Establish an implementation framework to guide decision-making

DOCUMENT REVIEWED	YEAR	GOALS/OBJECTIVES
City of Waterloo Corporate Climate Change Adaptation Plan	2019	Minimize health and safety risks; Generate awareness of changing climate conditions; Coordinate response and recovery from extreme weather events; Consider climate change impacts when designing built infrastructure; Foster resiliency with the natural landscape; Reduce flooding risks; Minimize disruption to City services; Integrate climate change adaptation into policies and operations
Northdale Land Use and Community Improvement Plan Study: Urban Design and Built Form Guidelines	2012	Integrated; Diverse; Identifiable; Supported; Memorable; Interactive; Durable; Safe; Flexible; Collaborative
West Side Employment Lands Urban Design Guidelines	2021	Create a sense of place; Enhanced pedestrian safety; Investment in public/private realms; Innovative and green architectural design; High-quality design that enhances public/private realms; High-quality landscape architectural design; Active transportation-oriented site and building design; Celebrate natural and countryside views; All-encompassing environmental sustainability

Table 2: Parking Best Practice Highlights

Best Practice (General)	Transportation Master	Urban Design Manual	Waterloo Official Plan	Uni. Campus Master	Uni. NW Campus	Waterloo Station Area Planning	Waterloo Corporate CC	Northdale Urban Design	West Side Urban	Affordable Housing Strategy (*draft*)
Eliminate minimum parking requirements, or adjust them to be appropriate to the area	X		X	X		X		X	X	X
Pricing, payment option, or regulation adjustments (based on performance and/or ability to fund related needs)	X		X	X		X		X		
Allow shared parking where land uses are compatible	X	X	X		X	X				
Use of community improvement / impact fees for new parking stalls or improve the design of new parking	X	X	X	X	X	X	X		X	
Restrict/minimize the impact of new surface lots and impermeable surfaces	X	X	X	X	X	X			X	
Increase TDM measures to promote alternative modes	X	X		X		X		X	X	

Provide incentives to reduce parking requirements, or promote parking in infill or other areas	X	X	X	X		X		X		X

While lower parking rates generally lead to less costly developments, both in construction and maintenance and a better balance between transportation modes, the rates need to reflect the surrounding land uses, availability of transportation infrastructure and services, and travel patterns in the City. This parking analysis is not intended to retroactively impact parking rates and decisions for existing uses, but instead looks to influence future development and built forms, and inform how the City develops and evolves going forward.

2.3 Structure for Determining Parking Rates

The current structure for determining parking rates in the existing Zoning By-Law 2018-050 is shown in Figure 3 below.

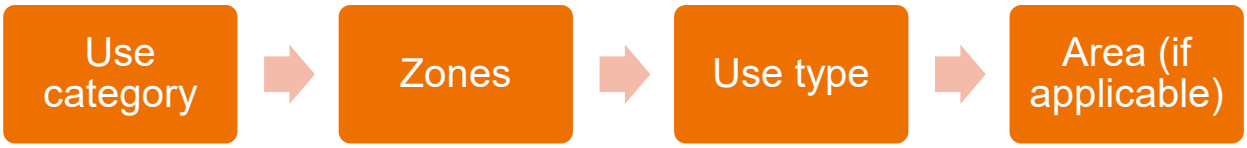


Figure 3: Determining Parking Rates in Existing Zoning By-Law 2018-050

To determine the parking rate for a particular site, a person first needs to determine what use category the site is in, then confirm the specific zone within the use category, and then identify the use type within the zone. Further to that, parts of the City are classified by an Area Overlay, adding an additional layer of complexity as each Area Overlay would have additional implications for the parking rate. The expanded structure is shown below in Figure 4.

The existing structure was reviewed and analyzed with a lens of streamlining the process and simplifying how to determine the amount of parking required for a specific use.

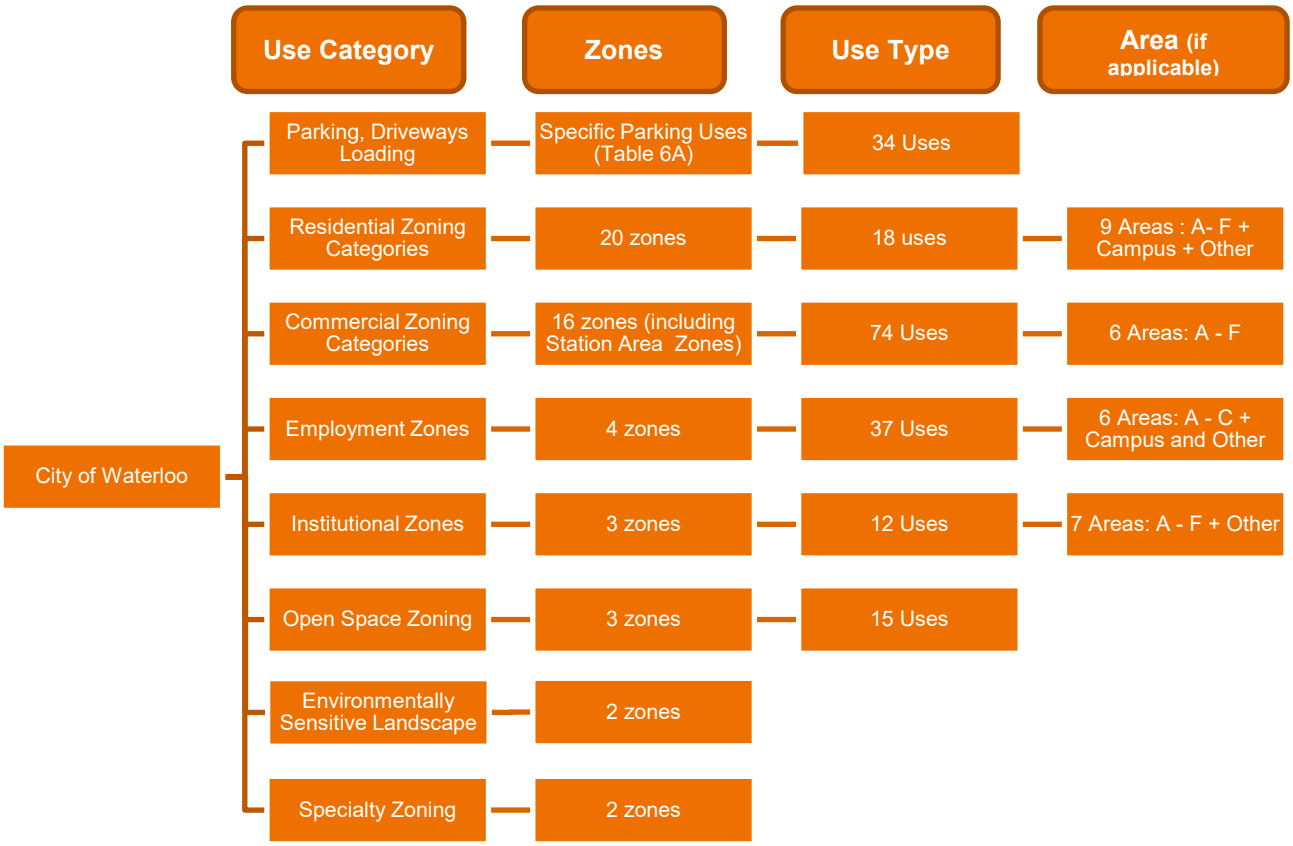


Figure 4: Structure of Determining Parking Rates within the Existing Zoning By-Law 2018-050

As presented in Figure 4, there are eight (8) use categories, each with a varying number of zones ranging from two (2) to twenty (20) zones, and a high number of use types per zone. Nine (9) Areas can also apply on top of the preceding three levels, making it a complex process to narrow down exactly which parking rate applies to a specific site, as the parking rate could be contingent on four different factors.

2.3.1 Example In Practice: Determining Parking Rates in Existing Zoning By-Law 2018-050

For the purposes of illustration in determining parking rates this example is provided. If a person was considering building a residential development at 199 The Lions Gate, N2L 6M6, the person would first determine which zone the site is in, as the same uses can have varying rates across different zones. In this case, the zone is Residential Zone 9 (R9). They would then need to check Zoning By-Law 2018-050 to ascertain the parking rates for their proposed use. In this instance, for the R9 zone there are minimum parking rates applicable in the Area Overlays. This is shown in Table 3: Example Parking Rates for Residential Zone 9.

As the site is outside of Areas E and F, the 'All Other Areas' rate would apply, being 1.25 parking spaces per dwelling unit for an apartment building, or 1.33 parking spaces per dwelling unit for a triplex, as examples. Both rates include visitor parking, which is typically given a separate rate from residential uses in the Zoning By-Law and can vary by the type of residential use.

Table 3: Example Parking Rates for Residential Zone 9

Minimum Parking Rate		Area E	Area F	All Other Areas	Unit
Apartment Building	Use	1.00	1.10	1.15	Per Dwelling Unit
	Visitor	0.10	0.10	0.10	Per Dwelling Unit
	Total	1.10	1.20	1.25	Per Dwelling Unit
Triplex	Use	1.00	1.00	1.00	Per Dwelling Unit
	Visitor	0.33	0.33	0.33	Per Dwelling Unit
	Total	1.33	1.33	1.33	Per Dwelling Unit
Non-residential uses		2.40	2.70	3.00	/100sqm

2.4 Parking Relief Requests

One of the impetuses for this Study is that the City has received a number of minor variance and zoning by-law amendment applications in recent years, typically requesting a reduction in the minimum number of required parking spaces. Figure 5 shows the number of requests received by the City from January 2020 to August 2022, which totals 35, with the majority being a residential use, and particularly the Residential Mixed Use 20 zone (RMU-20).

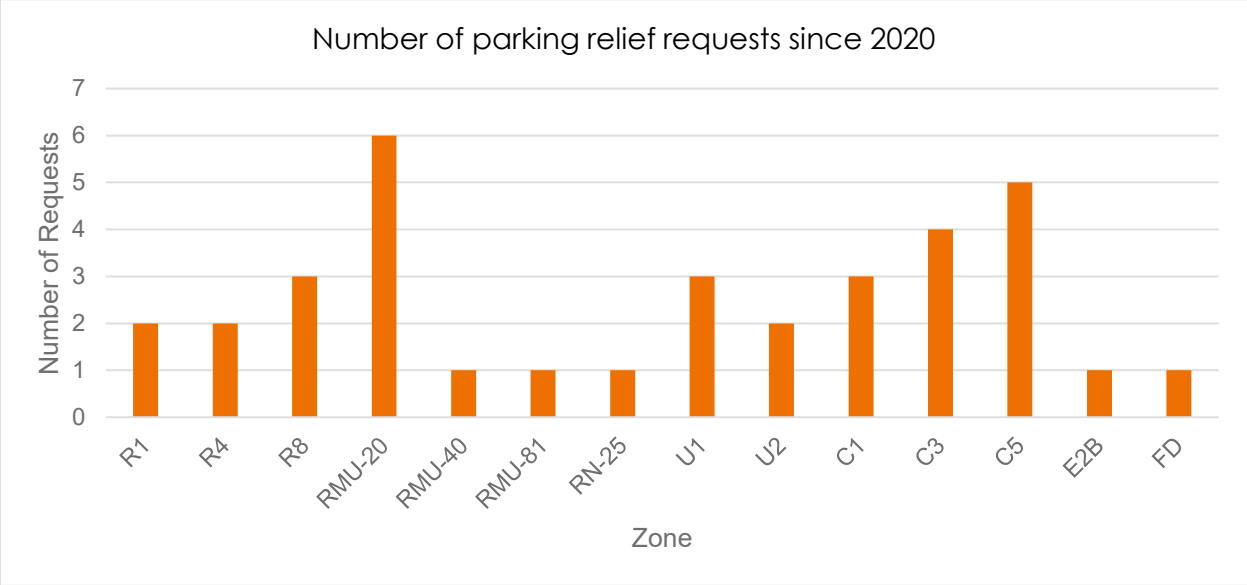


Figure 5: Total Minor Variance and Zoning By-law Amendment Requests Received January 2020 – August 2022

Of all the development applications received by the City since 2020 which sought to amend parking regulations in the Zoning By-Law, Figure 6 shows the reasoning as to why the variance or amendment was requested. For 87% of the requests, the applicant sought a reduction in the amount of parking required. For more detail, see Appendix D.

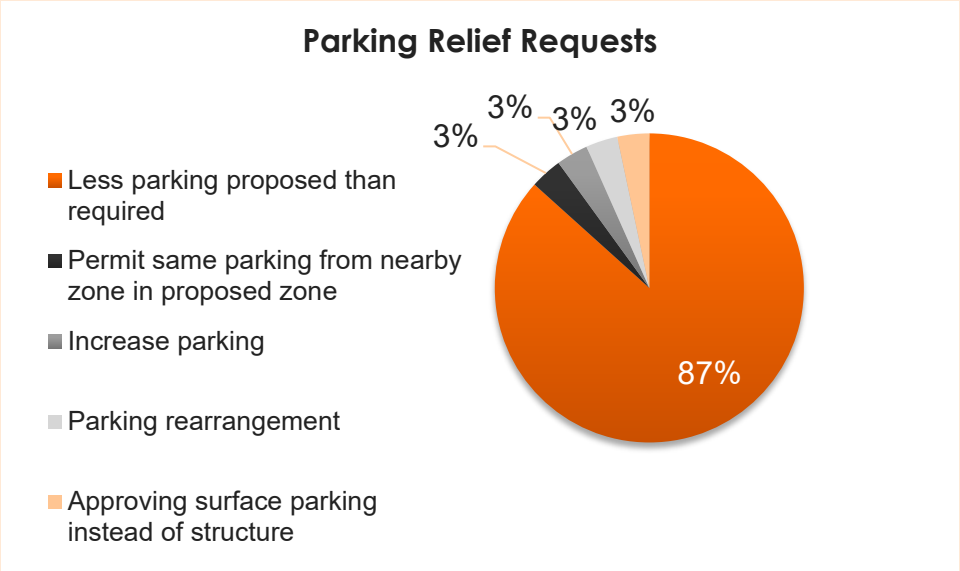


Figure 6: Parking Relief Requests Received by the City by Type (2020-2022)

This trend indicates that an examination of the current Zoning By-Law, as it relates to parking standards, is worthwhile with a goal to streamline the development approvals process, ensure staff time and City resources are used efficiently, and to create a more efficient development process for landowners.

2.5 Available Data

At this time, the City does not have access to specific data on actual parking demand by land uses. Therefore, this Study uses a national data source to understand how Waterloo rates compare to projected demand. The Institute of Transportation Engineers (ITE) is an international membership association of transportation professionals who are responsible for the national data source used. ITE has been gathering and analyzing parking demand for the past three decades and manages data on parking demand observed for hundreds of varying land use categories.

The ITE database, though comprehensive and considered an industry standard, does have a number of limitations, including:

- The majority of ITE data is available for the "general urban/suburban" land use category, which the manual itself describes as "An area associated with almost homogeneous vehicle-centered access. Nearly all person trips that enter or exit a development site are by personal passenger or commercial vehicle."[2] Therefore, many parking demand rates may overestimate demand for more mixed-use, walkable, and/or higher-order transit areas.
- Some land use categories have minimal observations, which means that the dataset is not a robust representation of demand in multiple settings.

[2] Institute of Transportation Engineers, *Parking Generation 5th Edition* (Washington, DC: January 2019).

- ITE uses square feet as the base unit for area analysis, while the City ZBL uses square meters, as a result ITE rates have been converted to square meters for the purposes of this Study.
- Despite multiple observations, the analysis of observations for key categories finds that there is very little correlation between size and parking generation. This indicates that the variation in demand associated with a unit of land use (whether it is 1,000 square feet or number of seats, etc.) is very high and local data would be the best way to understand actual demand.

Although ITE provides rates for hundreds of land use categories, many of those datasets are quite limited. Table 4 gives an overview of ITE rate categories used for analysis in this Study. These were chosen because they are applicable general rates with high numbers of studies (or observations) and, where possible, are a good measure of correlation between size and average rate (R^2). Other categories have low observation numbers and/or a low or non-existent R^2.

The team reviewed the ITE database and selected certain rates to use in the analysis for comparison with Waterloo rates. The general criteria the team used to determine if a category in ITE was robust enough to compare with Waterloo rates were:

- Categories with more than 20 observations, so that the dataset would encompass a reasonable amount of variety
- Categories with an R2 greater than 0.75, so that the correlation between size and parking demand is well-established
- Categories where the base unit could be compared to that in Waterloo zoning, for example dwelling units or square feet.

Table 4 provides an overview of the rates used for analysis. In select cases the analysis uses the data despite not meeting the criteria above so as to give Waterloo a starting point for thinking about parking needs for these uses; see footnote for details.

We highlight that the rates for Multifamily Housing (Low-Rise) and Multifamily Housing (Mid-Rise) are slightly different and perhaps not in the way that would be expected given the demonstrated impacts of density on parking demand. The average rate for Low-Rise is 1.21, while for Mid-Rise it is 1.31. The difference is not high, at about 8%. The most likely explanation relates to the discrepancy in how ITE data is collected, and the sample properties used for this approach. When considering the bracket structure to parking we determined this was a consistent result and did not adjust our approach for this specific situation.

Table 4: ITE Rates With Robust Data Used for Analysis

ITE Code	Average Rate (Original Sq.Ft)	Average Rate (per 100 sqm)	# of Studies	R2
General Light Industrial - 110 *General urban/suburban*	0.65 per 1,000 sf (GFA)	0.70 per 100 sqm (GFA)	40	0.85

Warehousing - 150 *General urban/suburban*	0.39 per 1,000 sf (GFA)	0.42 per 100 sqm (GFA)	31	0.88
Multifamily Housing (Low-Rise) – 220 *General urban/ suburban*	1.21 per dwelling unit	1.21 per dwelling unit	119	0.96
Multifamily Housing (Mid-Rise) – 221 *General urban/ suburban*	1.31 per dwelling unit	1.31 per dwelling unit	73	0.97
Hotel – 310* *General urban/suburban*	0.74 per room	0.74 per room	22	0.72
General Office Building – 710 *General urban/ suburban*	2.39 per 1,000 sf (GFA)	2.57 per 100 sqm (GFA)	148	0.86
Medical/Dental Office Building – 720 *General urban/suburban*	3.23 per 1,000 sf (GFA)	3.48 per 100 sqm (GFA)	117	0.91
Shopping Center – 820 *General urban/ suburban*	1.95 per 1,000 sf (GLA)	2.10 per 100 sqm (GLA)	46	0.97
Drive In Bank – 912	3.72 per 1,000 sf (GFA)	4.00 per 100 sqm (GFA)	39	0.77
High Turnover Sit-Down Restaurant – 932** *General urban/ suburban*	9.44 per 1,000 sf (GFA)	10.16 per 100 sqm (GFA)	51	***

** Hotel does not meet the ideal threshold for R2 as defined earlier, but as it is relatively close so the analysis includes it.*

*** ITE does not report an R^2 as no equation meeting its established 0.5 R^2 criteria for goodness-of-fit has been found. However, there are a relatively high number of observations for this particular category, so the analysis includes this category as a benchmark for Waterloo. We note that this analysis should be regarded with extra caution.*

In some cases, it is appropriate to look at these more “robust” datasets as a substitute benchmark where a specific category does not have reliable data available. Table 5 gives an overview of these substitutions used for benchmarking purposes in the analysis.

Table 5: ITE Substitutions for Comparison

ITE Code	Substitute Category

Industrial Park – 130	General Light Industrial – 110
High Rise – 222	Mid-Rise – 221
Clinic – 630	Medical/Dental Office – 720
712 – Small Office Building 714 - Corporate Headquarters Building 715 - Single Tenant Office Building 730 - Government Office Building 760 – Research and Development Center	710 – Office
814 – Variety Store 899 – Liquor Store 920 – Copy, Print, Express Ship	820 – Shopping Center
920 – Fast Casual Restaurant 933 – Fast Food Restaurant with Drive-Through 934 – Fast Food Restaurant without Drive-Through 936 – Coffee/Donut Shop with Drive-Through Window	932 – High Turnover (Sit Down) Restaurant

The parking industry rule of thumb for “efficiently utilized parking” is a facility where one in every ten spaces is available. Therefore, this Study uses the ITE average + 10% as a threshold for comparison to existing zoning rates, as zoning requirements should plan for fluctuations in demand throughout the year (for example, the holiday shopping period at a retail center).

ITE also provides a standard deviation of the data, which gives an idea of the range of observed rates of demand within the dataset. The standard deviation represents the variation in a range of values; one standard deviation from the mean in either direction represents just over two-thirds of observations in a dataset. About 95% of observations are within two standard deviations of the mean. Looking at standard deviation, therefore, provides reasonable guidelines for setting rates for parking provisions that will suffice for the ranges of demands associated with different land uses, according to general, North American data.

2.6 What This Means to Us

The City of Waterloo’s parking rates may need to evolve to better align with parking demands, long term trends, and policy goals. In the future, large amounts of underutilized parking could potentially be redeveloped for other uses, such as parkettes and other open spaces. Additionally, there are costs to building too much parking, resulting in unnecessary construction costs for developers, end costs for buyers, and more traffic generated. However, it is also important to ensure a proposed development has sufficient on site parking for the site to operate independently, without relying on municipal infrastructure or negatively impacting other lands. By examining the current parking structure and rates, gaps and opportunities can be identified, along with suggested methods to simplify the applicable zoning standards so that parking requirements are easily determined throughout the City.

Based on the policies, goals and objectives reviewed, we understand that key policy goals include variety in travel choices, encouraging more sustainable development and affordable housing, and fostering a sense of place, while also ensuring a sufficient and appropriate amount of parking on-site and ensuring that parking impacts are mitigated (in particular in relation to municipal roads). This can be achieved in part by repurposing underutilized parking, focusing on pedestrian-oriented development and spaces, and incentivizing new transit oriented transportation investment and economic development. These goals and objectives will guide and influence the parking recommendations provided later in the report.

3 State of Practice and Peer City Review

3.1 Peer Cities Comparison – Parking Standards

To contextualize how the parking rates and regulations in the City of Waterloo's Zoning By-law compare to peer municipalities, this Study provides a comparison against three local municipalities that are demographically and/or geographically similar to Waterloo. By benchmarking against peer cities, we gain insight into the tools and best practices utilized in other similar places to plan for parking needs.

Table 6: 2021 Census Data Highlight of Peer Municipalities provides a comparison of the key demographic statistics between Waterloo and the three peer municipalities reviewed. The comparison shows that Waterloo is the smallest of the cities, both in terms of permanent population and land area. It has the lowest number of single-detached and semi-detached households and a relatively high number of higher density housing types. Waterloo has the highest median household income among the peer cities compared, and a high median household income suggests a larger percentage of the population owning personal vehicles. While this relationship is non-linear, the range of household income does not invalidate the relationship.[3] On the other hand, the high proportion of residents living in higher density housing types, the presence of students and availability of rail transit are all specific characteristics to be aware of.

Table 6: 2021 Census Data Highlight of Peer Municipalities

Census 2021 statistics	Waterloo	Kitchener	Guelph	St. Catharines
Population	121,436 (147k including 28k temporary students)	240k	140k	140k
Land (sq.km)	64	137	87	96
Single detached house	23k	47k	27k	33k
Semi-detached house	2k	5k	3k	3k
Apartment in a building with 5+ storeys	10k	15k	6.5k	6.5k
Median total household income in 2020 ($)	94k	87k	93k	72k

[3] More Money, More Cars - Sightline Institute

Table 7 highlights and compares the parking requirements by select common uses within Waterloo and the peer municipalities. The uses for comparison were selected because they are more common and general land use categories found in development applications, with the goal to understand where Waterloo stacks up in terms of requirements compared to its peers. Both Waterloo and Kitchener provide a range of minimum parking requirements for the selected zones, and the minimum parking requirement can vary by use (and in Waterloo, by area and by zone). Minimum parking requirements refer to the lowest amount of parking that needs to be provided for a use.

Table 7: Peer Comparison of Common Parking Requirements by Use

Use	Waterloo	Peer City: Kitchener			Peer City: Guelph	Peer City: St. Catharines
		UGC Zones (Urban Growth Centre)	MIX (Mixed-Use Zones)	All Other Zones		
Residential (spaces per dwelling unit)	Max: 1.65* Min: 0.70[4] - 2.0	Max: 1.0 No minimum	Max: 1.3 Min: 1.0	Max: 1.4 Min: 1.1 - 1.15	No maximum Min: First 20: 1.5, then 1.25 (for R.4C zone, 1.0)	Res – 1.25 MXD – 1.0
Office (spaces per 100 sqm)	Max: 3.0* Min: 0.75 - 3.0	Max: 2.63 Min: 2.0	Max: 4.0 Min: 3.03	Max: 4.0 Min: 3.03	No maximum Min: 3.03	3.357
Retail (spaces per 100 sqm)	Max: 3.0* Min: 0.75 - 3.0	Max: 1.39 No minimum	Max: 3.70 Min: 2.5	Max: 4.17 Min: 3.03	No maximum Min: 6.06	5.00
Restaurant (spaces per 100 sqm)	Max: 3.0 Min: 0.75 - 13.0	Max: 6.67 No minimum	Max: 20 Min: 12.99	Max: 20 Min: 13.34	No maximum Min: 13.34	5.00

**Maximums generally exist in the following Zones: C1A, C2A, C2B, and C4A. See Figure 7: Station Area Zones in Waterloo with Maximum Parking Rates.*

There are several interesting takeaways from this benchmark comparison:

1. Kitchener has no set parking minimum in their Urban Growth Centre zones for residential, retail and restaurant uses.
2. Kitchener's upper limits for minimum parking requirements across residential uses are generally lower than those in Waterloo for the Urban Growth Centre, Mixed Use and All Other zones.
3. In comparison to Guelph and St. Catharines, Waterloo appears to have lower parking minimums overall.

[4] Residential Northdale has a lower minimum of 0.25 however, the unit of measurement is not comparable as it is per bedroom not per dwelling unit.

3.2 State Of Parking Practice - Parking Approaches & Tools

This Study explored contemporary approaches and tools used by other municipalities, carefully reviewing peer municipalities, to support parking reductions. Further, it explores how these approaches and tools are currently used in Waterloo and the peer municipalities. This section is meant to acknowledge the state of parking policy and state of practice at the time of development. This is provided below. The key approaches and tools explored are:

- Parking Minimums and Parking Maximums
- Shared Parking
- Multi-modal Incentives and TDM policies

3.2.1 Parking Minimums and Parking Maximums

Why is this important?

Ensuring that an adequate amount of parking is provided for the various land uses throughout the community is a key goal of this Study. Over the years, there has been an evolution in thinking around parking supply management, involving a shift away from a maximizing a permitted land use while mandating a minimum amount of parking which created a car centric planning environment. Instead, evolved considerations for parking seek to align an appropriate amount of space available for cars and more space in support of alternative modes of transportation and community needs.

When parking rates are set too high, it could result in parking facilities that are underutilized. Excess parking spaces are expensive to build and maintain, detract from the accessibility of the built environment, create heat islands and stormwater runoff, and encourage driving as a mode choice. Conversely, a shortage in available parking on a site impacts the surrounding neighbourhoods and viability of a development. The development may not have sufficient parking to attract customers to either purchase or lease the property once developed or provide parking sufficient to support the business. In addition, this can lead to negative impacts in the surrounding transportation road network, such as parking overflow on surrounding streets.

Reducing parking minimums can greatly assist in lowering the amount of excess parking built. The removal of parking minimums does rely on development projects to provide parking based on the individual's read of the market, requirements from their lenders and their site-specific context. While this may not be currently feasible for the City based on current parking demands and trends, reducing parking minimums is a step in this direction that can be considered where appropriate.

Parking minimums in high-density areas can be reassessed to ensure that they are not creating underutilized parking spaces on highly valuable land for new developments. The opposite can also occur, where new high-density developments argue for lower parking rates without anticipating the parking demand and automobile usage of future residents. This can result in parking spilling onto surrounding streets and nearby lots not intended for residents of a high-rise building, or the developer may be forced to purchase additional nearby lots just for parking purposes. Understanding the parking demand of a

proposed use and implementing an adequate minimum and maximum rate for parking can ensure that enough parking is provided without being underutilized.

It is important to note that the elimination of parking minimums does not prohibit developers from building parking. Instead, it would be up to the developer to determine how much base level parking is required for each project informed by the characteristics of the property, proposed use, intended market, and surrounding area. Municipalities can eliminate parking minimums through community-wide measures, zoning regulations, land use, or by identifying certain sensitive areas, such as historic districts. It is important to highlight that the elimination of parking minimums requires an understanding on the part of the development industry that community investment is part of the development cycle. Specifically, that developments must be built with consideration for the community, neighbourhood and site context, which relies on oversite from administration to ensure it is appropriate and actionable.

Parking maximums are a tool to limit the over construction of parking. Parking maximums place a cap on the number of parking spaces a project can construct, either as a whole number (e.g., no more than 2 spaces per unit) or as a percentage of minimum requirements (e.g., no more than 150% of the minimum). This tool prevents the over-construction of parking, and allows land which would be devoted to parking to be used for less intensive and/or more fiscally beneficial uses, such as green space, public realm, amenity space and buildings.

Peer City Approach

For the examined peer municipalities, the City of Kitchener has generally removed all minimum parking requirements from their Urban Growth Centre zones and some of their mixed-use zones. Guelph and St. Catherines have maintained parking minimums.

The Cities of Kitchener and St. Catharines have both implemented parking maximums, whereas Guelph has not. The City of Kitchener's parking maximums only apply where 20 or more parking spaces are required. Where 19 or fewer parking spaces is the minimum requirement, the maximum parking space requirement would be the minimum parking spaces required plus 5 parking spaces. St. Catharines only provides parking maximums for Places of Worship, Places of Assembly/Banquet Hall, and Shopping Centres greater than 4,645 square metres (sqm). The parking maximums are calculated as a maximum of 1 parking space per 'x' sqm of gross leasable floor area, with the 'x' provided by the City. For the first two uses, the maximum parking requirement is 1 space per 3 sqm of gross leasable floor area and is 1 space per 20 sqm for the third use.

Waterloo Approach

In terms of parking minimums, Waterloo has not identified any areas of the City that are appropriate for a zero minimum parking requirement. This concept has been historically explored through both By-Law updates and transit station area plan development. There are a few structural barriers that have been identified in previous examinations of the topic. Foremost, the high percentage of existing residents in the

City driving to work (around 76% of the population as per 2021 Census Data)[5]. Establishment of zero parking requires that either sufficient neighbourhood parking exists, or a sufficiently mature multimodal network exists to reliably divert all car trips to another mode without just displacing the parking. Often this is tied to a management of public parking, and curbside management strategies that enable curbside delivery and management of visitor parking. It has been assessed that these conditions do not yet exist in Waterloo to support this approach, City or community wide. In addition, the need for accessible parking spaces to support the accessibility goals of the City are important to maintain. The Northdale neighbourhood has the lowest parking rates in the City, which reflects the type of housing, context, and planned vision for the area, however some parking is still required. Broadly removing parking minimums in any area of the City has not been viewed as feasible at this current time.

Currently, parking maximums are only in place in Station Area Mixed-Use Zones within the City of Waterloo. In Zoning By-Law 2018-050 this corresponds to zones C1A, C2A, C2B and C4A, as shown in Figure 7. The combined residential parking maximum for both resident and visitor parking is 1.65 parking spaces per dwelling unit (PDU). For non-residential uses, the parking maximum is 3 spaces per 100 sqm for surface parking and 4 spaces per 100 sqm for structured parking. All zones currently have a minimum parking requirement.

[5] Statistics Canada 2021 Census Profile – City of Waterloo: https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=waterloo&DGUIDlist=2021A00053530016&GENDERlist=1,2,3&STATISTIClist=1&HEADERlist=0

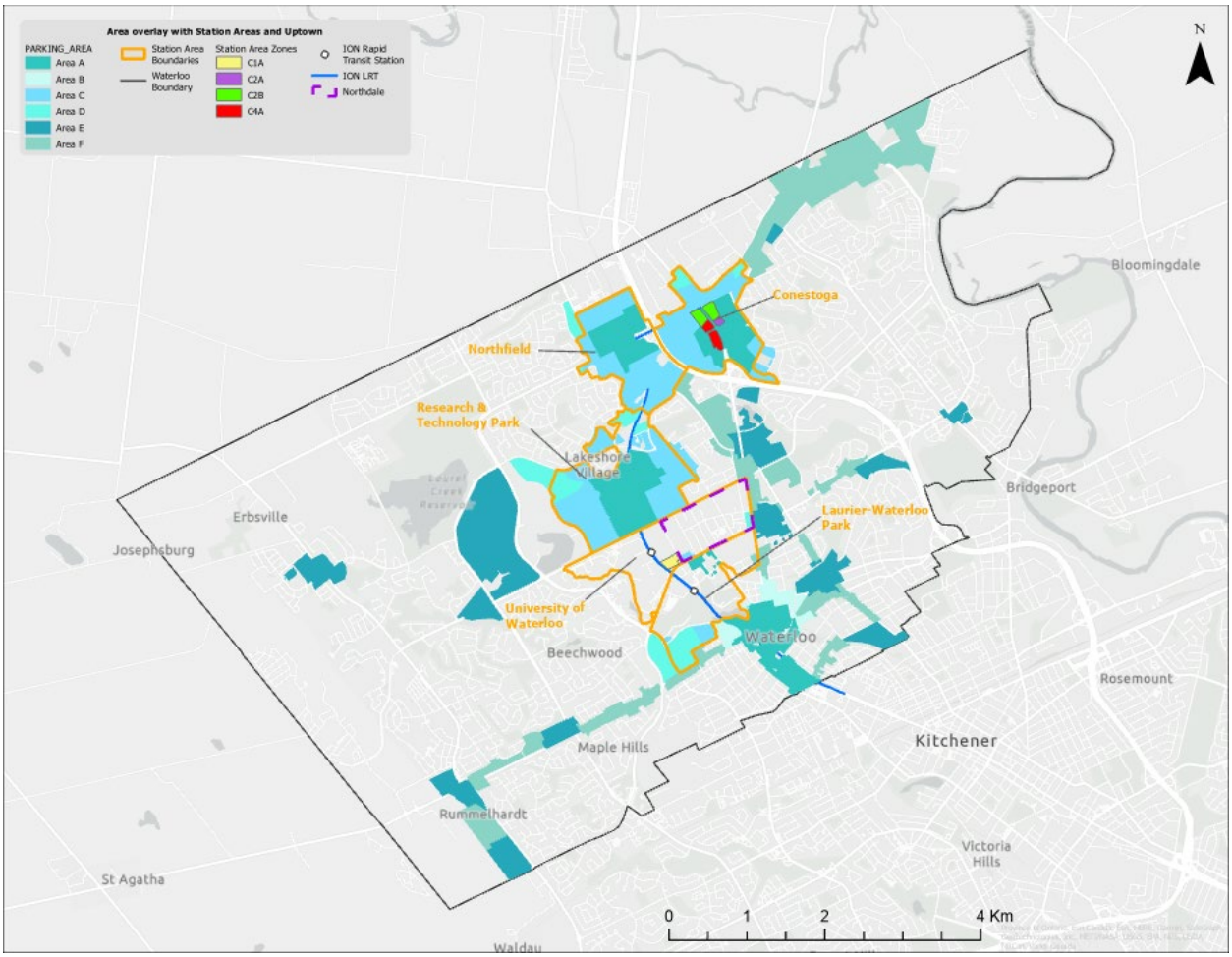


Figure 7: Station Area Zones in Waterloo with Maximum Parking Rates

While eliminating parking minimums is not the current approach for the City, the following should be considered prior to revisiting such a decision in the future:

- Areas of the City where excess parking is available and accessible (i.e., public parking), where strong active transportation infrastructure is in place, may be targeted as areas to consider the elimination or reduction of parking minimums.
- A coordination of approaches with the existing transportation infrastructure, so existing parking can serve the multimodal network as it is identified as excess.
- Comprehensive parking management (e.g., pricing, permits, etc.) can mitigate parking overflow issues. Discussed in Section 4.6.2 of this report.
- With good data, parking maximums can reflect observed demand and provide adequate parking levels for the area. Discussed in Section 4.4.4 of this report.

3.2.2 Shared Parking

Why is this important?

Parking minimums can sometimes lead to the overbuilding of parking in certain situations, such as within clustered commercial, employment or mixed-use areas or complexes. When each individual business or mixed use development builds parking in close proximity to each other, or has individual parking areas for each retailer or office within a larger complex, this can result in underutilized parking areas that may only see activity during certain peak times. While providing consistent parking minimums is easy to administer and minimize potential spillover problems, it can lead to an inefficient use of parking resources. With recent shifts to more people working from home and choosing public transit or active transportation modes, some parking lots in the City are being underutilized, such as the parking lots within Uptown Waterloo that barely reached 70% capacity during peak periods[6]. By implementing shared parking, less parking is needed overall and existing parking lots can be better used and see higher capacity.

As per Section 6 of the City's Zoning By-Law, parking requirements for a site must be satisfied on the same site. As such, only on-site shared parking could be implemented as-of-right. Other parking arrangements, such as off-site parking arrangements, could be considered in accordance with Section 40 of the Planning Act.

On-site shared parking refers to the sharing of parking spaces between differing and/or adjacent land uses withing the same development, reducing the number of parking spaces that each use or owner would provide for their individual component. An example of this would be a parking space being used for office use during the day and residential use overnight. "Off-site" shared parking is done between a parking provider and an off-site developer, typically under a lease agreement or unique shared parking agreement, to meet parking requirements of the development. In both cases a minor variance would likely be required which could demonstrate compatibility for the land uses. On-site shared parking applies demand by timeframe for individual land uses and applies parking regulations to alleviate peak demand. Table 8: Sample Shared Parking Calculations presents a sample of shared parking utilization.

Table 8: Sample Shared Parking Calculations[7]

[6] Uptown Waterloo Parking Utilization Study Update, Retrieved from: https://www.waterloo.ca/en/government/resources/Documents/Cityadministration/Uptown-Waterloo-parking-Study.pdf

[7] Source: *https://www.mapc.org/resource-library/local-examples-shared-parking/*

	Weekday	Weekday	Weekday	Weekend	Weekend
	Night – Midnight to 7am (%)	Day – 7am to 5pm (%)	Evening – 5pm to Midnight (%)	Day – 6am to 6pm (%)	Evening – 6pm to Midnight (%)
Residential	100	60	90	80	90
Office/Industrial	5	100	10	10	5
Commercial/Retail	5	80	90	100	70
Hotel	70	70	100	70	100
Restaurant	10	50	100	50	100
Restaurant associated with hotel	10	50	60	50	60
Entertainment/recreation	10	40	100	80	100
Day-care facilities	5	100	10	20	5
All other	100	100	100	100	100

There are multiple benefits to shared parking, stemming from it being a more efficient and cost-effective approach to providing parking. This approach acknowledges that peak demand for different uses occurs at different times of day, so one parking space can serve multiple uses. It also reflects the fact that some people may park once at a mixed-use development and visit multiple destinations. Overall, this allows developers to build less parking and better reflect how people use parking spaces. The benefits of this have been discussed earlier, and include a reduction in impermeable surfaces, development cost savings that are passed on to the customer, and less space in the built environment devoted to the static use of parking.

Peer City Approach

The City of Kitchener's Zoning By-Law permits parking spaces to be shared between uses and unassigned for certain mixed-use buildings and developments (Section 5.7). In St. Catharine's Zoning By-Law, Section 5.4 states that parking requirements may be minimized and sharing parking and access is encouraged. However, no specific shared parking requirements are provided. While the City of Guelph does not currently have shared parking accommodations in their existing Zoning By-Law, in a parking standards review report done for Guelph in 2019, policy recommendations were made to include shared parking accommodations.

Waterloo Approach

Waterloo currently does not have any explicit by-law provisions that allow/provide direction for the use of shared parking. The City has accepted reductions in parking on a site specific basis for multiple developments where adjacent land uses were reviewed, based on a comprehensive shared parking approach. The City's prior Zoning By-law contained provisions for shared parking in select zones, however they proved difficult to implement due to the inability to control the sale of parking units once sold through a condominium, and shifting parking demands if the uses on the site changed. While the

sharing of parking tends to occur naturally on mixed-use sites, due to the above challenges, shared parking provisions are not explicitly provided for in Zoning By-Law 2018-050, however parking rate reductions in the By-law were based, in part, on shared parking opportunities.

Key areas that need to be addressed prior to re-initiating discussions about shared parking have been identified as:

- The rate of parking reduction applied where shared parking is feasible.
- Property managers willing to maintain and/or manage the sharing of parking with conditions, subject to mitigation if the pilot fails (e.g., mitigation should the parking provider and off-site developer come into dispute relating to parking usage which may be agreed upon within their initial agreement, or through future phases of development).
- A robust parking management system to manage external spillover, as needed.
- The Zoning By-Law can require maximum distances from building entrances, with consideration for non-ZBL elements like signage to direct motorists to the available parking resource.
- Back end system management where sample agreements between parking providers and off-site developers can to be kept on file at the City. Provisions to focus on as part of an agreement can include term and extension, maintenance obligations, signage, enforcement/security, insurance, and indemnification.

3.2.3 Multi-modal Incentives & TDM Policies

Why is this important?

While Zoning By-laws typically contain regulations relating to parking, they less frequently require investments into other modes of transportation such as walking, biking, and taking transit. This may result in more money and land area being invested into planning for private vehicle access compared to other modes, even if these alternative modes of transportation are less costly financially, socially and environmentally.

Investing into multi-modal supportive infrastructure is necessary to provide a variety of travel options while encouraging people to choose those alternative travel options over driving. Investing in improvements to public transit or active transportation routes that make these options more appealing, safe, and well-connected while ensuring that parking is not oversupplied can assist with reducing automobile-dependence. New developments may produce additional walkers, bikers, and transit riders, which will trigger the need for multi-modal supportive infrastructure. For example, if more people at a development use a local bus service, a larger shelter with better amenities may be warranted. If more people bike, they will need somewhere to store their bikes.

As a baseline requirement, multi-modal designs and considerations can be incorporated into site planning and design for all new developments. As an incentive, funding for multimodal infrastructure could be secured by offering cash-in-lieu of providing parking below or above requirements.

Another way to encourage developers to incorporate multi-modal initiatives into the development approvals process is through Transportation Demand Management (TDM) policies. TDM policies can apply performance-based targets to projects to encourage travel by alternative modes. These targets can be based on a project's land use characteristics, size, and contextual factors related to location, such as proximity to transit or grocery stores. TDM policies can also provide support for programmatic measures, such as promotional events for multi-modal travel and staff assistance for using transportation resources.

Peer City Approach

For the peer municipalities, Kitchener has identified cash-in-lieu of parking as a tool to accommodate additional development and promote a compact urban form within Section 17.E.18 of their Official Plan (OP). Section 17.E.18.1 of the Kitchener OP states that cash-in-lieu of parking is strongly encouraged to be used in the Urban Growth Centre (Downtown) and Major Transit Station Areas in Kitchener and may also be considered in City Nodes, Community Nodes, Urban Corridors and on properties along transit corridors where appropriate. Section 17.E.18.3 notes that funds collected from any cash-in-lieu agreements will be used for the provision of off-street parking.

The City of St. Catharines contains provisions in Section 5.4.4 of their Official Plan that states that the City may consider a cash-in-lieu by-law to exempt or partially exempt a development from vehicle parking requirements where it is determined that public parking facilities can accommodate the demand, or where it is not possible to meet the zoning requirements. Currently, St. Catharines does not have a cash-in-lieu of parking by-law in place.

The City of Guelph notes in Section 5.11 of their Official Plan that cash-in-lieu of required parking may be considered in accordance with the Planning Act and that the City may encourage managing the supply of parking as a TDM measure. Currently, the City of Guelph does not have a cash-in-lieu of parking by-law in place.

Waterloo Approach

Currently, the City of Waterloo does not have a formal cash-in-lieu of parking by-law. However, policy 6.6.1 (6) (b) in the City's Official Plan states that the City may, at its discretion and on a site-specific basis, enter into a cash-in-lieu agreement with a landowner to provide for an exemption from the required parking, or a reduction in the parking requirement specified in the Zoning By-Law. Section 6.6.2 identifies the goals for the provision of cash-in-lieu of parking along with considerations to be made on the site and surrounding area prior to entering into an agreement. Landowners can also seek to eliminate or reduce parking requirements on their properties through self-initiated Zoning By-Law Amendments or Minor Variances. Previously Section 37 Agreements were able to secure alternative modes on site, however provincial changes to the Planning Act mean Section 37 is no longer available.

In terms of multimodal and site design standards, the City of Waterloo's Zoning By-Law does include bicycle parking minimums for both residential and non-residential uses in Section 6.6, although this Study did not evaluate their effectiveness specifically. Section 6.3 of the Zoning By-Law contains electric vehicle (EV) parking requirements, where structured parking spaces for an apartment, multi-unit, mixed-use and non-residential buildings constructed on or after January 1, 2021, are to be Designed Electric Vehicle

Parking Spaces, which is reviewed in Section 4.5.4 of this report. These EV parking spaces are to be designed and constructed to be EV-ready, allowing for the future installation of EV supply equipment. The City's OP (Section 6.5) contains policies promoting transit-oriented development, as well as buildings, sites and streetscapes designed to be pedestrian, and cyclist oriented.

The City currently does not have a TDM guideline or checklist in place tied to the development approvals process. However, the Region of Waterloo does have a TDM checklist in place that the City relies on for guidance, but is not formally adopted by the City due to challenges in implementation. The Region's TDM checklist looks at aspects such as site access, public transportation access, parking, and trip reduction incentives. Section 6.4 of the City's Official Plan contains policies on Transportation Impact Studies (TIS), where the purpose of the TIS is to introduce appropriate TDM measures, and to identify and implement mitigation measures or transportation improvements to accommodate travel generated by the development. Goals for parking in the Official Plan include supporting transit, and measures relating to TDM through restrictions on parking supply, where appropriate. A TDM Policy is noted in the Official Plan as a potential document to support the existing transportation policies in the Official Plan.

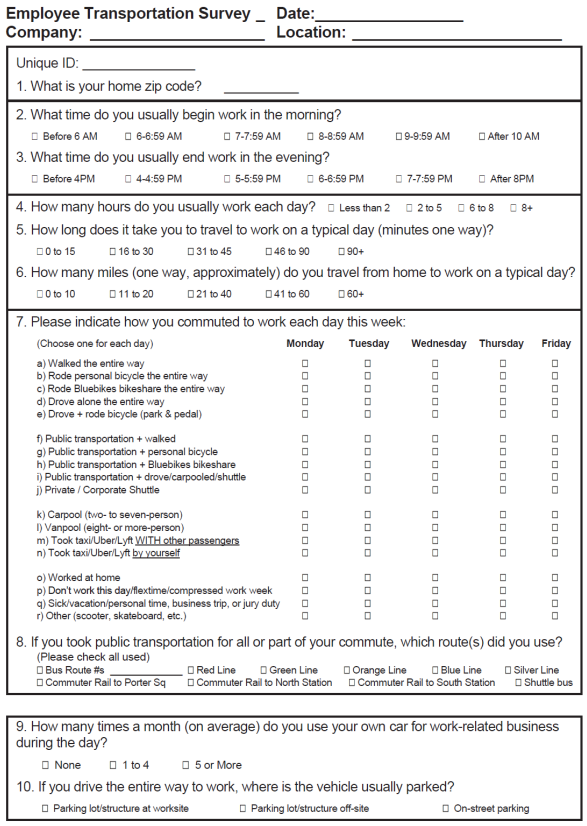
Considerations

In terms of considerations, it is important that the City is able to monitor and confirm whether projects are compliant with standards, and that off-site infrastructure improvements have been implemented. This may be done through the implementation of mode share monitoring requirements. Penalties for non-compliance may be applied if the development does not align with the agreed upon site plan, or does not conform to the applicable zoning requirements. Depending on the state of planning practice, other jurisdictions have tools to withholding building permits, certificates of occupancy, or a financial penalty, until the developer has demonstrated they have implemented the required improvements (see Figure 8).

Parking and Transportation Demand Management (PTDM) Monitoring Program: Cambridge, MA

Cambridge's PTDM monitoring program reflects the fact that parking is one of the most powerful levels for adjusting driving demand. Keyed to parking provision, the program requires owners of non-residential properties who build parking above certain thresholds to commit to a single-occupancy vehicle mode share goal together with TDM program/infrastructure. In Cambridge, the goal is a 10% reduction from the 1990 mode share in the relevant census tract. Property owners must conduct and submit a PTDM monitoring report on a regular basis, and face fines if their properties are not in compliance.

For more information see: *https://www.cambridgema.gov/CDD/Transportation/fordevelopers/ptdm*



Employee Transportation Survey _ Date:_____
Company: _____ Location: _____

Unique ID: _____

1. What is your home zip code? _____

2. What time do you usually begin work in the morning?
☐ Before 6 AM ☐ 6-6:59 AM ☐ 7-7:59 AM ☐ 8-8:59 AM ☐ 9-9:59 AM ☐ After 10 AM

3. What time do you usually end work in the evening?
☐ Before 4PM ☐ 4-4:59 PM ☐ 5-5:59 PM ☐ 6-6:59 PM ☐ 7-7:59 PM ☐ After 8PM

4. How many hours do you usually work each day? ☐ Less than 2 ☐ 2 to 5 ☐ 6 to 8 ☐ 8+

5. How long does it take you to travel to work on a typical day (minutes one way)?
☐ 0 to 15 ☐ 16 to 30 ☐ 31 to 45 ☐ 46 to 90 ☐ 90+

6. How many miles (one way, approximately) do you travel from home to work on a typical day?
☐ 0 to 10 ☐ 11 to 20 ☐ 21 to 40 ☐ 41 to 60 ☐ 60+

7. Please indicate how you commuted to work each day this week:

(Choose one for each day)	Monday	Tuesday	Wednesday	Thursday	Friday
a) Walked the entire way	☐	☐	☐	☐	☐
b) Rode personal bicycle the entire way	☐	☐	☐	☐	☐
c) Rode Bluebikes bikeshare the entire way	☐	☐	☐	☐	☐
d) Drove alone the entire way	☐	☐	☐	☐	☐
e) Drove + rode bicycle (park & pedal)	☐	☐	☐	☐	☐
f) Public transportation + walked	☐	☐	☐	☐	☐
g) Public transportation + personal bicycle	☐	☐	☐	☐	☐
h) Public transportation + Bluebikes bikeshare	☐	☐	☐	☐	☐
i) Public transportation + drove/carpooled/shuttle	☐	☐	☐	☐	☐
j) Private / Corporate Shuttle	☐	☐	☐	☐	☐
k) Carpool (two- to seven-person)	☐	☐	☐	☐	☐
l) Vanpool (eight- or more-person)	☐	☐	☐	☐	☐
m) Took taxi/Uber/Lyft WITH other passengers	☐	☐	☐	☐	☐
n) Took taxi/Uber/Lyft by yourself	☐	☐	☐	☐	☐
o) Worked at home	☐	☐	☐	☐	☐
p) Don't work this day/flextime/compressed work week	☐	☐	☐	☐	☐
q) Sick/vacation/personal time, business trip, or jury duty	☐	☐	☐	☐	☐
r) Other (scooter, skateboard, etc.)	☐	☐	☐	☐	☐

8. If you took public transportation for all or part of your commute, which route(s) did you use? (Please check all used)
☐ Bus Route #s _____ ☐ Red Line ☐ Green Line ☐ Orange Line ☐ Blue Line ☐ Silver Line
☐ Commuter Rail to Porter Sq ☐ Commuter Rail to North Station ☐ Commuter Rail to South Station ☐ Shuttle bus

9. How many times a month (on average) do you use your own car for work-related business during the day?
☐ None ☐ 1 to 4 ☐ 5 or More

10. If you drive the entire way to work, where is the vehicle usually parked?
☐ Parking lot/structure at worksite ☐ Parking lot/structure off-site ☐ On-street parking

Figure 8: Sample Monitoring Report Process: Cambridge, Massachusetts

It is important that TDM measures are thoughtful, impactful and evaluated to ensure anything that is incorporated into the development will have a real benefit to the community. Until a clear tool for implementation exists, the TDM measures can only be acknowledged without tying it directly to a Minor Variance or zoning amendment process. To this end, TDM measures used by other municipalities can be reviewed periodically to ensure they are current and in keeping with the latest trends and understanding.

4 Recommendations for Parking Provision

4.1 Introduction

The recommendations that have emerged from this Study are described in the following sections. It is important to outline at the beginning, the order in which these recommendations are sequenced is the recommended order of implementation. However, these recommendations could be implemented in a different order at the discretion of the City.

In addition, the recommendations are developed in such a way that the majority could be implemented independently. However, as would be expected, if the larger recommendations are to be implemented this would require other associated recommendations to be implemented. In such instances, this has been outlined in the report.

4.2 Planning Boundaries

4.2.1 Key Findings

The first finding emerging from the Study evolves around the existing Official Plan intensification boundaries and their alignment with each other as well as with Schedule A1 - Parking Overlay. As shown in Figure 9 and Figure 10, there are a number of planning boundaries used in the City's Official Plan as well as the Zoning By-Law that overlap.

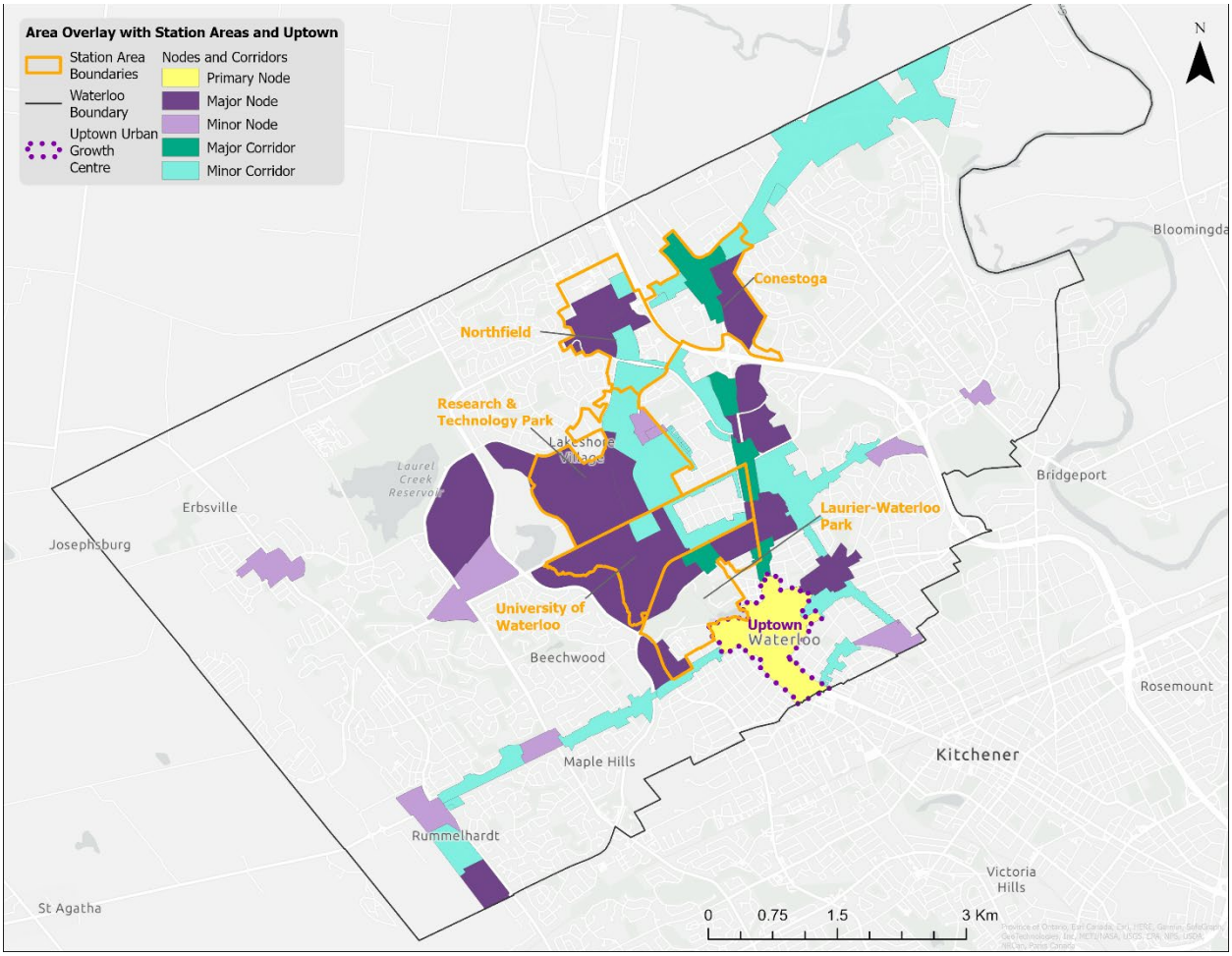


Figure 9: Nodes and Corridors with Station Area Boundaries

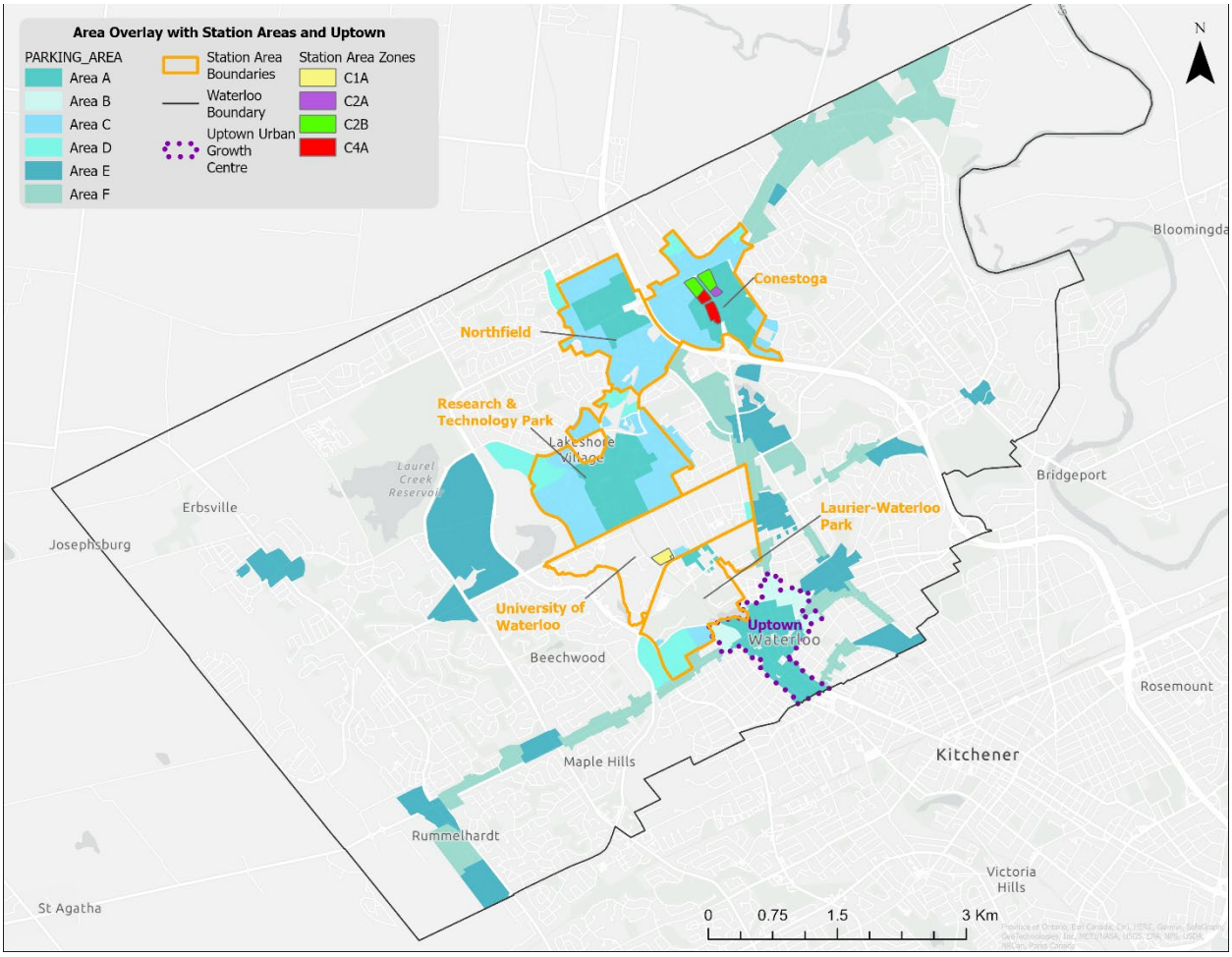


Figure 10: Station Area Boundaries and Parking Overlay

These overlapping areas add complexity when implementing parking rates for a specific area. Furthermore, through implementations parking rates can more closely support some of the underlying transit infrastructure. In particular, multiple parking overlays (Areas A – F) can be found in the station areas and Uptown Urban Growth Centre (UGC).

4.2.2 Opportunity: Align and Simplify the Boundaries for Parking

When the Zoning By-law was created, each of the interlocking plans directly informed the existing boundaries and locations of the Overlay Areas, which created a high level approach to parking requirements. The recommended Overlay Areas proposed through this report is intended to simplify and expand these boundaries, which is a recommendation based on approach rather than to reflect inaccuracy or error in the existing approach. Specifically, this Study recommends simplifying the parking overlay to 3 distinct areas, which are listed below and shown in Figure 11.

1. **Uptown Urban Growth Centre (UGC)** – the City's Primary Node was identified to remain separate as it serves as a major focal point and destination for investment in institutional and

Region-wide public services, as well as residential, commercial, employment, social, cultural, entertainment, recreational, accommodation and public open space uses. It includes three LRT stations. Higher density mixed-use redevelopment is envisioned for this area and therefore the parking rates should reflect this planned vision.

2. **Major Transit Station Areas** – The MTSA boundaries remain as existing in the Official Plan , however it is recommended that a cohesive approach be taken with regard to parking rates to ensure that within the MTSA boundary, the rates are consistent with the mobility and development patterns expected. As the station areas represent locations where the City and Region have significantly invested in mobility, the parking rates should reflect this investment. As the transit line is still relatively recent, these station areas are still developing with the new transit infrastructure and therefore the relationship to parking can be re-shaped.

3. **Nodes and Corridors** – Refers to the remaining nodes and corridors identified in the Official Plan that are not covered by the Uptown UGC or Major Transit Station Areas. These nodes and corridors have been identified in the Official Plan as a hierarchy of designated areas that are anticipated to accommodate a significant proportion of the City's population and employment growth, where employment, housing, commercial land uses and services and amenities are concentrated with different levels of activity and intensity. Some of these areas are traditionally car-oriented in their design with surface parking available for non-residential uses such as shopping centres. However, residential properties do not have large quantities of surface parking. As they are of vital importance to the community in terms of growth management, it was decided the parking rates in these areas also should be approached relative to their planned function.

As shown in the Figure 11: Parking Area Recommendation, the recommended updated parking area overlay has been simplified to include three categories of parking areas. These have been created by combining the existing nodes and corridors layer as well as the station area boundaries and the Uptown UGC. The ION LRT line and stops have also been included. The outcome of this is a larger development impact area, with a simplified approach.

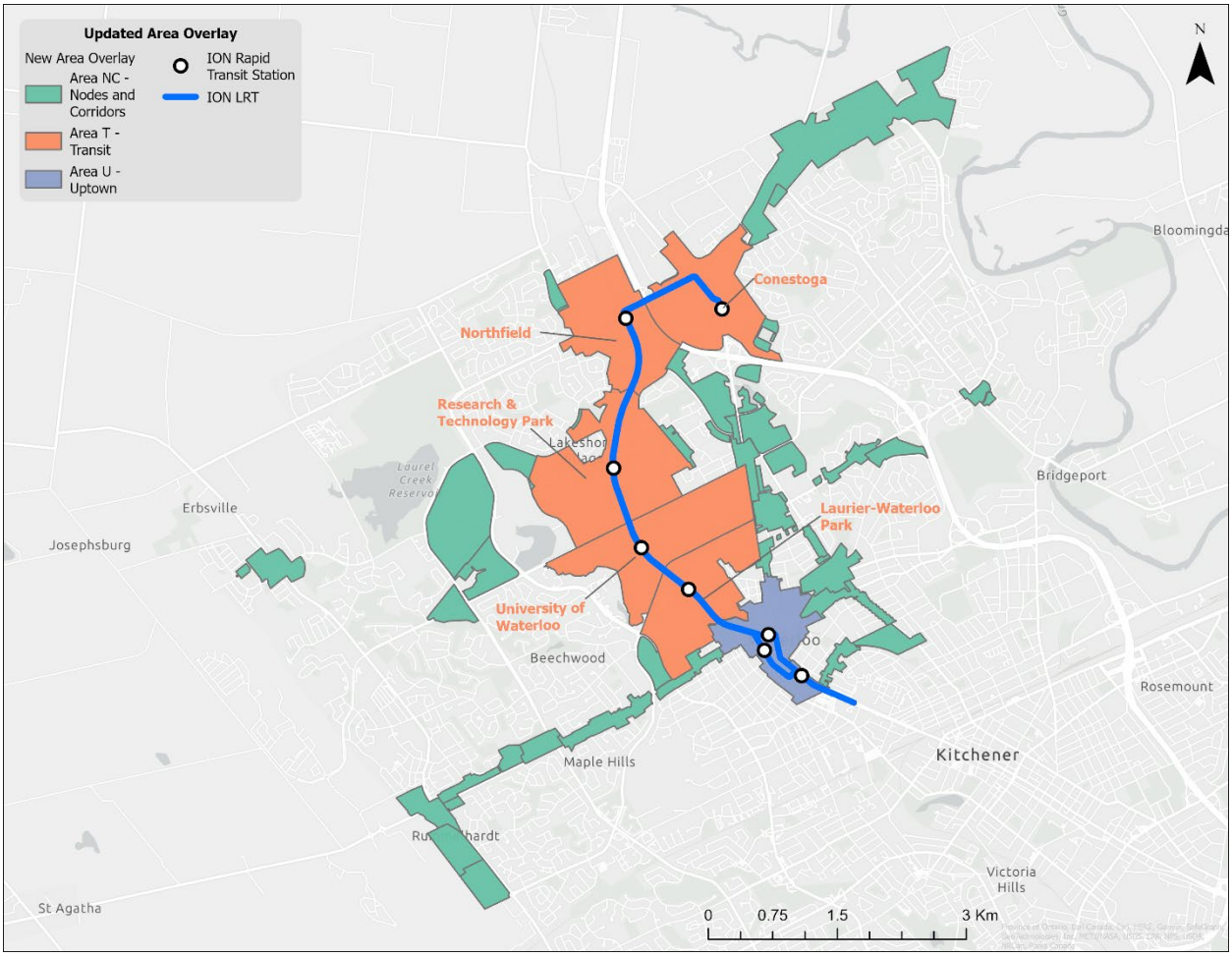


Figure 11: Parking Area Recommendation

When considering the Uptown Urban Growth Centre (Area U) it is recommended that low parking rates be applied to the whole area in an effort to align with actual parking demand in the Uptown. During the Study, the Uptown Major Transit Station Area boundary as defined in the Regional Official Plan Amendment 6 (ROPA 6) was considered to be used instead of applying the UGC. Through further analysis it was decided that using one Regional planning boundary, while relying otherwise on the City boundaries should be avoided for simplicity and legibility concerns. As the boundaries are revisited through any future updates to the planning framework, the Uptown boundary should be examined from a parking perspective to consider the role of existing density, mixture of uses, existing ION and GRT bus transit.

4.3 Update Parking Rate Structure

4.3.1 Key Findings

As identified in Section 2, the structure of the zoning regulations related to parking for Waterloo can be seen as complex. To begin with, there are a significant number of zones overall that contribute to

determining the parking rate for a specific use. Examining this on a map showcases just how many zones there are as seen in Figure 12.

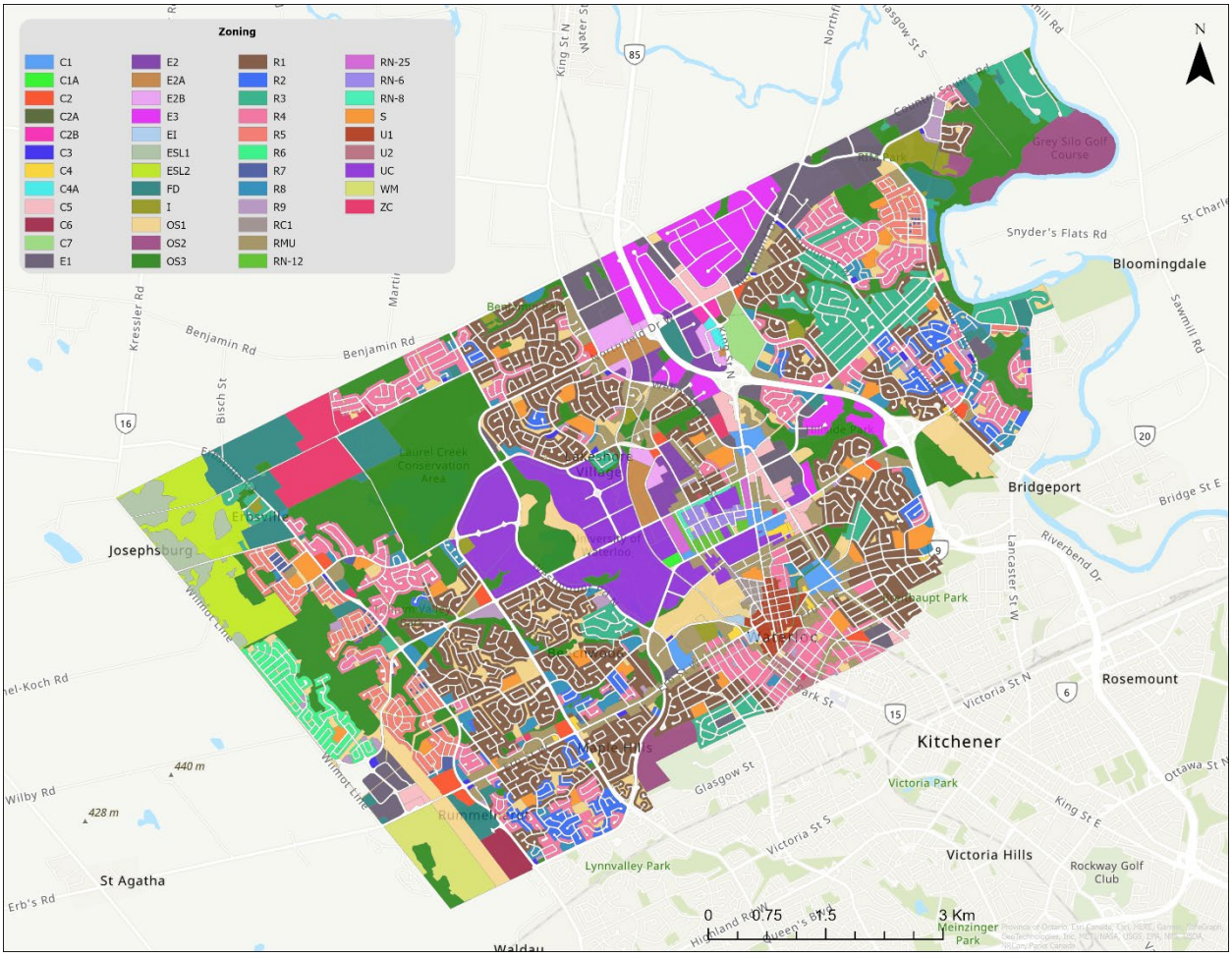


Figure 12: Existing Zoning By-Law 2018-050 Categories

In addition to the various zoning categories that contain parking rates, Section 6 of the Zoning By-Law includes use-specific rates for select uses, such as:

1. Assisted Living
2. Hotel
3. Auditorium
4. Schools
5. Spiritual Use
6. Restaurant

When the City conducted its Zoning By-Law Review, which was approved by Council in 2018, a number of overlay areas were identified and implemented to recognize areas that warranted a lesser parking rate by acknowledging its proximity to Station Areas, along bus routes, nodes and corridors, in proximity to the Universities and the primary node (Uptown UGC). The existing area overlays are shown in Figure 13 below.

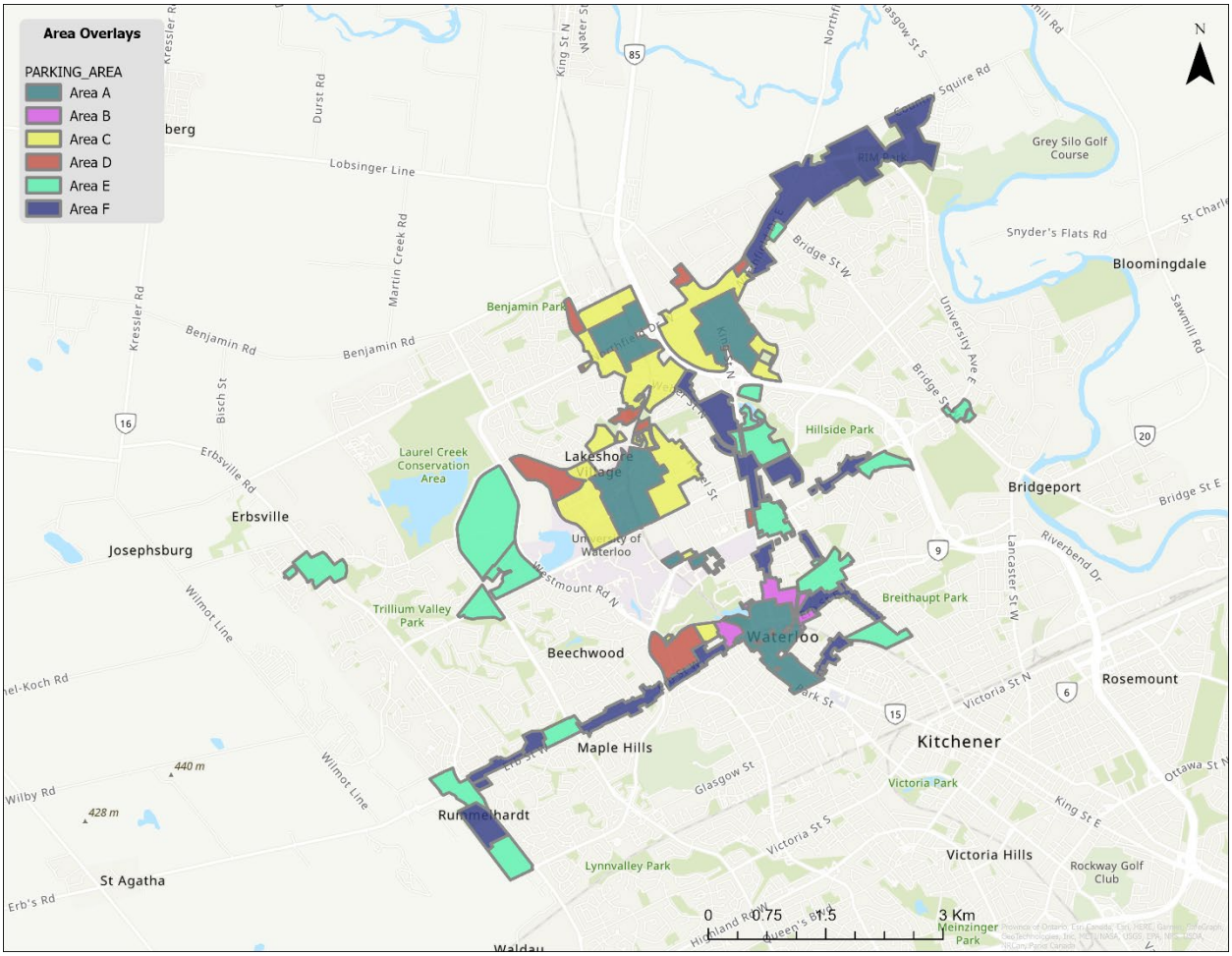


Figure 13: Existing Parking Area Overlays in Zoning By-Law 2018-050

Based on the review of the current application of Schedule A1 - parking overlay, there may be an opportunity to improve the existing overlay framework to make it easier to understand and apply. In its current form, this combination and structure could be seen as difficult to understand when determining which rates apply in which area and may vary from parking rate requirements on adjacent or nearby lands. For example, a restaurant use can have the following rates applicable:

- Use specific rate: 1 space per 4 seats
- Zone rate: 4 spaces per 100 sqm
- Parking Overlay Areas: Area C – 2.80 spaces per 100 sqm

Additionally, in some instances the differences between parking rates across the parking Overlay Areas can be very minor or negligible. To illustrate this, Figure 14 below demonstrates there is only a difference of 0.05 between the multi-unit residential building types in Area F and all other areas. This condition is relatively consistent in the application of parking requirements, Table 9 lists other examples of residential uses where there is a difference of less than 0.1 between areas.

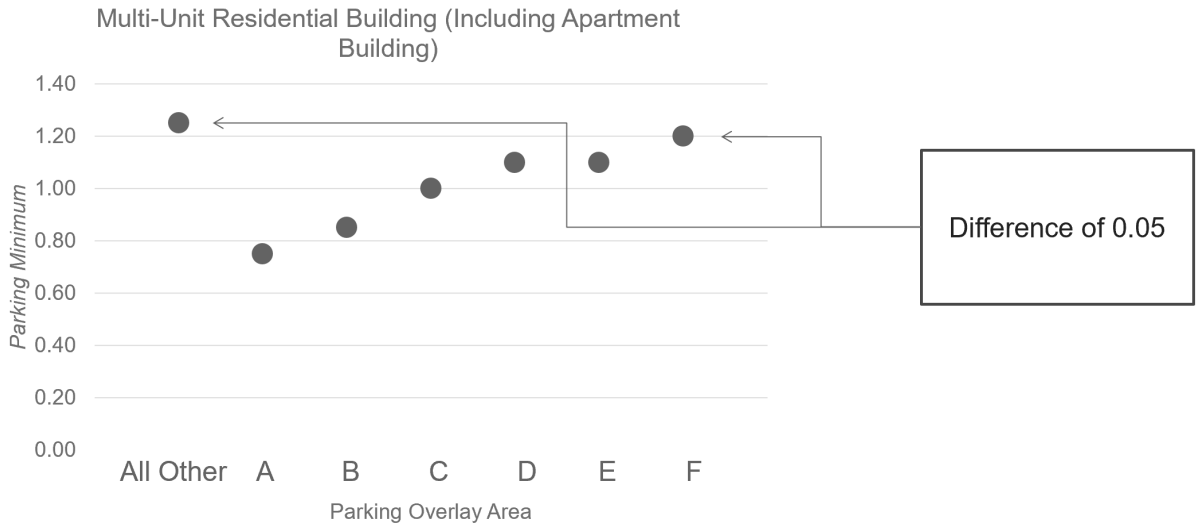


Figure 14: Existing Rates for Multi-Unit Residential Building (Including Apartment Building)

Table 9: Residential Rates with Minimal Differentiation Across Areas

Use	Zone/Area
Dwelling Units above the First Storey	Convenience Commercial (C3) Zone Mixed Use Community Commercial Zone Mixed-Use Neighbourhood Commercial (C2) Zone Station Area Mixed-Use Community Commercial (C1A) Zone Station Area Mixed-Use Neighbourhood Commercial A (C2A) Zone Station Area Mixed-Use Neighbourhood Commercial B (C2B) Uptown Commercial Core Uptown Mixed-Use
Freehold Townhouse	Residential Mixed Use Zone - building height max 20m Residential Mixed Use Zone - building height max 30m Residential Mixed Use Zone - building height max 40m Residential Mixed Use Zone - building height max 60m
Townhouse Building	Residential Mixed Use Zone - building height max 20m Residential Mixed Use Zone - building height max 30m Residential Mixed Use Zone - building height max 40m

	Residential Mixed Use Zone - building height max 60m
Mixed Use Building with Dwelling Units above the First Storey	Residential Mixed Use Zone - building height max 20m Residential Mixed Use Zone - building height max 30m Residential Mixed Use Zone - building height max 40m Residential Mixed Use Zone - building height max 60m
Multi-Unit Residential Building (Including Apartment Building)	Residential Mixed Use Zone - building height max 20m Residential Mixed Use Zone - building height max 30m Residential Mixed Use Zone - building height max 40m Residential Mixed Use Zone - building height max 60m Uptown Mixed-Use
Stacked Townhouse Building	Residential Mixed Use Zone - building height max 20m Residential Mixed Use Zone - building height max 30m Residential Mixed Use Zone - building height max 40m Residential Mixed Use Zone - building height max 60m

4.3.2 Opportunity: Simplified Structure

Through this Study, alternative structures for setting parking maximums and minimums are identified. The objective would be to ensure there is a clear structure in how parking rates are managed by the City and presented to applicants, which could in turn result in fewer variance requests. In developing the structure, three options were explored with input from City staff. The three options are presented below with benefits and drawbacks outlined for each. Option C has been identified as the recommended approach and therefore is described with the most detail.

All three of the structures presented assume that the Planning boundaries provided in Section 4.2 are adopted.

Option A - New Rates With Maximums

Option A involves the smallest change from the existing structure and essentially updates the current approach by providing maximums for developments in addition to minimums. These minimums and maximums would vary by location as covered in the recommended overlay areas discussed above, with the lowest rates being for the Uptown, incrementally progressing upwards as the areas become less urban and less dense and access to transit decreases as shown in Figure 15.

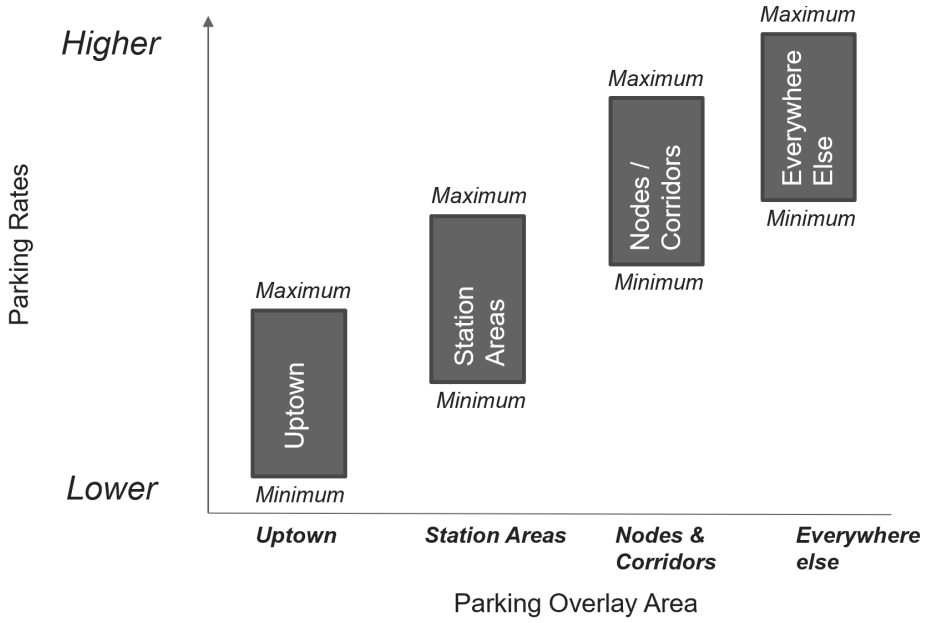


Figure 15: Rate Structure Option A - Updated Minimums and Maximums by Area

Benefits

This simplified approach reflects Waterloo's planning goals by limiting parking construction in areas of focus in the City by introducing maximums, while still requiring minimum amounts of parking. The parking minimums can be lower (including consideration of eliminating parking minimums, discussed in Section 4.4.3) in areas where the City's Official Plan contemplates increased density, and can be higher in more auto-oriented locations.

Limitations

Although this approach will likely reduce the amount of variance requests received by the City, it will not remove them entirely. Developers still must submit Minor Variance or Zoning By-Law Amendment requests if they feel the context warrants a higher or lower amount of parking provision. This relies on updated rates without a change to how the practice of application will occur.

Option B – Global Maximum

The second option considered would be a significant change from the current approach. Through this potential approach, the parking rates would provide a set, global, maximum parking rate for each land

use. It would then be the parking area overlay which would establish the minimum allowed for that use and area. In this case, the minimum required parking for Uptown would be the lowest with the minimum gradually increasing as density and transit accessibility decreased, see Figure 16.

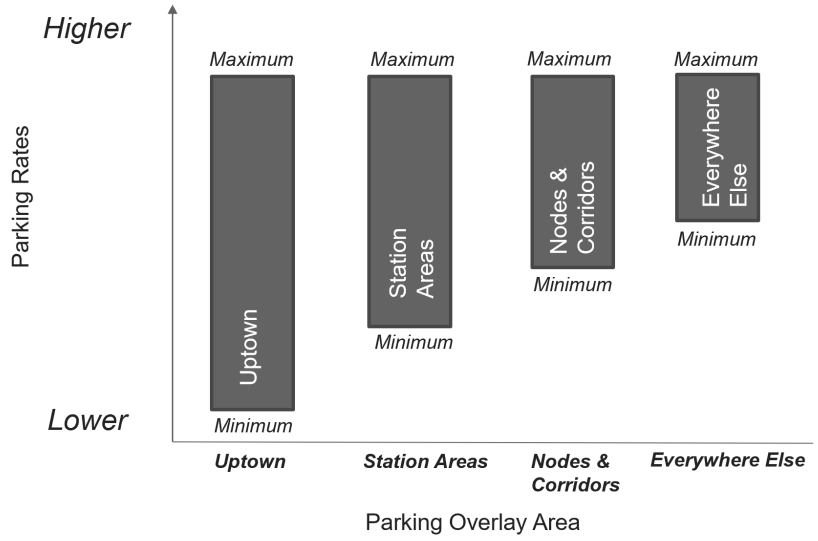


Figure 16: Rate Structure Option B - Global Parking Maximums Applied

Benefits

The key benefit of this approach is that there is more flexibility than Option A, but the maximums still force rates to be within the acceptable range of the City, both in terms of minimums and maximums. The maximums can be set at what level is deemed appropriate setting a consistent parking expectation throughout the City. The rate would need to effectively balance the needs of the community and wider public health and climate change goals.

Limitations

The key limitation of this approach is that there is less control by area for the top end of the parking provision. Thus, there is still the potential for parking to be overbuilt in places where it may be appropriate for a lower maximum rate to be established. To be effective, it is likely that this maximum rate is likely going to lead to surplus parking in some areas.

Option C – New Rates Using Maximums With Formalized Variance

The third option considered, which is the option recommended by this Study, is to build on the parking rates similar to Option A, and to also allow projects to exceed the maximum or provide less than the minimum through the provision of additional resources. A formalized process for parking within the

'whiskers', shown in Figure 17, would ensure that if an applicant can appropriately justify the need to deviate beyond the established minimum and maximum for a particular development proposal, the process for requesting parking rates above the maximum or below the minimum would be predictable and consistent. This approach could also consider a narrower minimum and maximum range than Option A.

The implementation mechanism for this approach would be best implemented using the provisions of Section 40 of the Planning Act, and Section 12.3.3 of the City's Official Plan. This may require a Minor Variance or Zoning By Law Amendment depending on scope scale and implementation approach determined. Specifically, a parking exemption agreement to facilitate parking rates over the maximum or parking rates under the minimum zoning requirements. Historically, the cash-in-lieu price of the Section 40 contributions have been tied to constructing parking off-site. Additionally, Section 12.3.3 of the City's Official Plan already contains implementation policies for cash-in-lieu of parking. Within this recommendation, the value of these contributions and investments are identified, which could include investments in multimodal transportation measures or other infrastructure that brings active transportation benefits to the community.

This approach can transparently create capital investments necessary to reduce the demand for parking within the surrounding areas or community which reflects both the policy context and variability in the Zoning By-Law. With a narrow minimum and maximum for the preferred parking rates, it enables the City to implement a strong foundation for the required range and subsequent practice for the larger framework that meets their goals. It is then up to the developer to determine whether they want to abide by the simple route, or use the rate outside of this range with a cash-in-lieu payment approach.

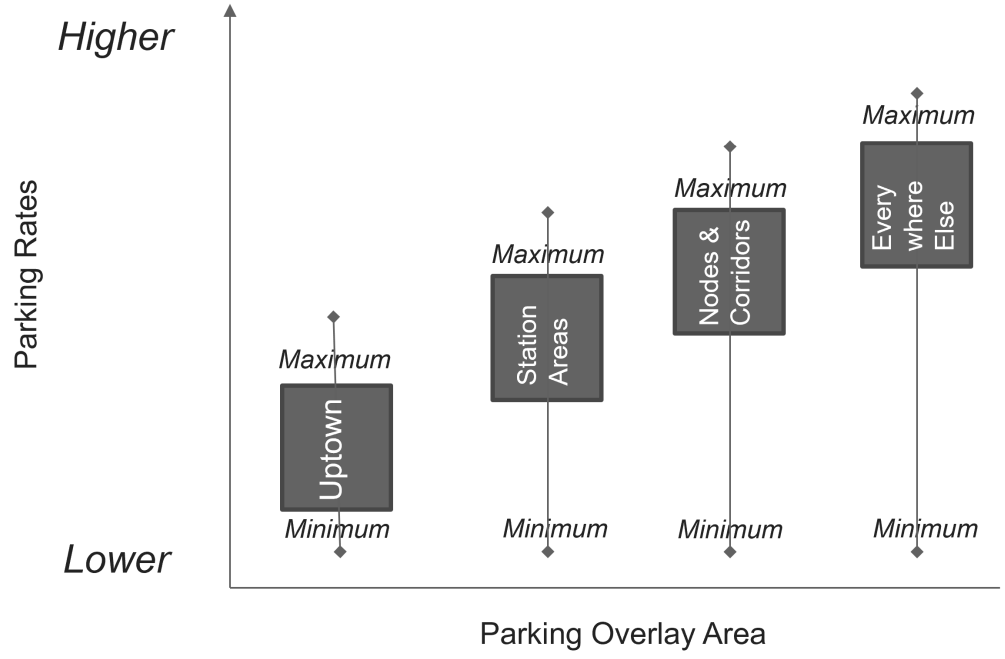


Figure 17: Rate Structure Option C - New Parking Rates With Formalized Variance

Implementation of this approach can be achieved through one of three ways, listed from simple to complex:

1) *Expansion of current practice*: this approach leverages the existing Minor Variance approach, which allows for conditions to be applied in relation to cash-in-lieu agreements and ensures the planning department retains control for administration, enabling a professional lens for context in developments. Currently there is a practice when evaluating parking variance applications whereby a general understanding of 'minor in nature' is evaluated -- this approach would see a broader understanding of that definition. Furthermore, there is opportunity to develop a public facing policy document, cash-in-lieu of parking by-law, or development guidelines to make these absolute limits public.

2) *Use the Official Plan to set absolute maximums and minimums*: this approach could establish minimums and maximums in policy, which has the benefit of setting tone and direction for the implementation of the Zoning By-Law. In this case, a maximum and minimum would be established in the Zoning By-Law and broader minimum parking and maximum parking ranges would be set by land use designation in the Official Plan. An applicant submitting for a Minor Variance could then set their expectation against what exists in the Official Plan. However, the City is currently striving to simplify its Official Plan, in particular reducing specifics and numbers, therefore, this approach would conflict with that direction.

3) *Update the Zoning By-Law to include "high parking" and "low parking"*: This approach would establish additional zones in the Zoning By-Law, which the applicant could request an amendment to apply an additional zone to their lands. An example of this would use the following framework:

    a. Residential General Parking: Parking in this zone would reflect the standard maximum and minimum rates.

    b. Residential High Parking: Parking in this zone would be between the absolute maximum and general zone maximum. Within this zone, developments would have to demonstrate increased green infrastructure such as water capture, green space, and structured parking for example. This could require increased landscaping and could enable increased GFA.

    c. Residential Low Parking: Parking in this zone would be between the absolute minimum and general zone minimum. Within this zone, additional bike parking, transit or multimodal infrastructure could all be required.

    This approach increases the complexity of development and does not provide a cash-in-lieu tool to support investment in the surrounding transportation network. As such it is not recommended at this time, although this provides a potential framework that could be considered in the future.

Benefits

The key benefit of this approach is that it provides a mechanism for the City to have an aspirational set of rates. If an applicant requests a deviation from those rates through an amendment to the Zoning By-Law or by way of a Minor Variance, absolute minimum and maximum rates would apply that cannot be adjusted. An applicant, therefore, would have an ability to request to build more or less parking than the preferred amount, with the understanding that additional measures would need to be constructed, or contributed, relative to the scale of deviation.

The cash-in-lieu contributions by way of a Section 40 agreement and in alignment with the policies of the Official Plan would provide a way of capturing land value and benefits for the community for investment in multimodal infrastructure to better enable sustainable mobility. It is also recommended that, as a first priority, any value generated by cash-in-lieu of parking be invested directly in the community and neighbourhood where the development occurs to clearly demonstrate the benefits, as opposed to the funds being added to a general fund to be used elsewhere within the City.

Furthermore, this provides the City with the opportunity to provide a consistent price (if Section 40 Cash-in-lieu is used) to invest in the transportation and parking network.

Limitations

The main limitation of this approach is that it creates an additional step and process in the parking control practice for the City. It would require an assessment of what additional measures would be requested of the applicant to apply to their development should they choose to use a rate outside of the upper and lower limits.

4.4 Amend Parking Rates

4.4.1 Key Findings

This analysis speaks to the efficient use of land by achieving the appropriate amount of parking in the given context. Overbuilt parking facilities can be detrimental to the built environment and if those parking spaces are underutilized, then negative parking impacts become more acute as the land sits empty and could be repurposed for other things.

Figure 18: Space Requirements for Parking vs. Active Use per Waterloo Zoning By-law requirements show the amount of parking spaces required for every 500 sqm of development for comparison purposes. Parking spaces are assumed to be 28 sqm per space, which accounts for not only space for the parking space itself, but the needed drive aisles and driveways that surface parking must have for access. The required rate for Restaurants as specified in 6.1.3 -Table 6A of the Zoning By-Law is very high relative to the amount of active use. For a Take Out Restaurant with a floor area of less than 1000 sqm, the minimum parking space requirement is 15 per 100 sqm devoted to the Take-Out restaurant. For others, this comparison is more moderate, for example retail and office where the higher requirements in the by-law would require the construction of slightly more space for parking than for active use. Specifically, for retail stores in ‘C1, C2, C3 – All Other Areas’ the minimum parking requirement of 4 parking spaces per 100 sqm leads to slightly more space dedicated to parking than the active use. The same is true for office

space, with office space in 'C1, C2, C3, C5 – All Other Areas' and C7 requiring a minimum of 4 spaces per 100 sqm. Finally, for some uses the balance tips more toward active land uses, including residential and industrial. In all categories, the low end of Waterloo zoning requirements also encourages the construction of active land uses.

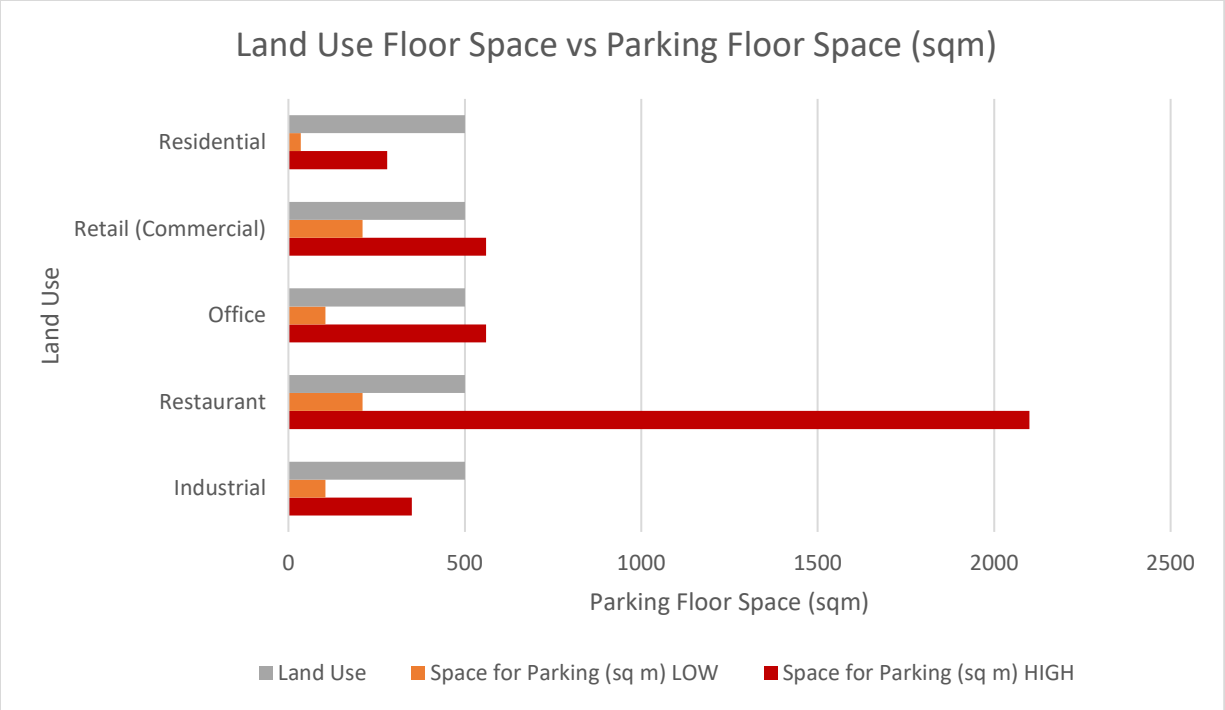


Figure 18: Space Requirements for Parking vs. Active Use per Waterloo Zoning[8]

**Parking rates used in the chart:*

Land Use	Low Rate	High Rate
Residential	0.25 per dwelling unit (Various Residential uses in RN6,8,12,25)	2 per dwelling unit (R6 Single Detached)
Retail	1.5 per 100 sqm (Various Retail use areas in U1, C1A, C2A, C2B)	4 per 100 sqm (Various Retail use areas in C1,C2,C3,C7)
Office	0.75 per 100 sqm (Various Offices use areas in E1,E2,E3,E2A,E3B)	4 per 100 sqm (Various Offices use areas in C1,C2,C3,C5,C7)
Restaurant	1.5 per 100 sqm (Restaurant uses in U1,C1A,C2A,C2B	15 per 100 sqm (Take-Out restaurant, Table 6A)
Industrial	0.75 per 100 sqm (Various Industrial Uses in E1,E2,E3,E2A,E2B)	2.5 per 100 sqm (Various Industrial Uses in E1,E2,E3,E2A,E2B)

[8] Note: Analysis assumes an apartment is approximately 100 sqm.

Excess Parking – Local Data

When assessing parking provision requirements, local parking utilization data is valuable in understand the actual magnitude of demand compared to supply, with supply representing what the zoning process requires and demand representing actual patterns. At this time, there is limited Waterloo-specific data available on a City-wide scale for this analysis; it is recommended that the City collect this data to validate proposed parking amendments to the Zoning By-Law. A parking utilization study was completed for Uptown Waterloo in October 2019. Notably, this study was completed prior to the COVID19 pandemic and school was in session, so this context should be taken into consideration when considering findings. In addition, it should be noted that as the City updated their By-law in September 2018, however the development in existence in the study area would have been subject to the previous parking rates of Zoning By-Law 1108. The parking rates of By-law 1108 were generally higher than the rates established in Zoning By-Law 2018-050.

The 2019 Study found that existing parking in Uptown is underutilized with a peak demand averaging approximately 61% across on-street, city-owned and private spaces as shown in Table 10. Importantly, looking only at private parking in Uptown (Table 11) reveals that utilization of parking during peak periods is 58% in the study area, meaning that for every space that is built an extra, unused space is also built. This suggests that the parking rates from the previous Zoning By-Law 1108 and historic development patterns requiring excess parking well above the current demand.

Table 10: Uptown Parking Utilization October 2019 (on-street, city-owned & private)

Location	Peak Time	Peak Utilization	Surplus (spaces)	Supply (spaces)	Peak Demand %
Study Area	12:00 PM	3,035	1,959	4,994	61%
North	1:30 PM	164	281	445	37%
East	11:00 PM & 1:30 PM	893-896	508-511	1,401-1,407	64%
West	12:00 PM	888	456	1,344	66%
South	12:30 PM	1,146	655	1,801	64%

Table 11: Uptown Parking Utilization October 2019 (privately owned parking only)

Location	Peak Time	Peak Utilization	Surplus (spaces)	Supply (spaces)	Peak Demand %
Study Area	1:30 PM	1,434	1,139	2,573	56%
North	12:00 PM	140	212	352	40%
East	1:30 PM	411	240	651	63%
West	6:30 PM	343	232	575	60%
South	12:30 PM	575	420	995	58%

Excess Parking – Requesting Relief from Parking Regulations of the Zoning By-Law

As mentioned earlier, 87% of parking Minor Variance and Zoning By-Law Amendment requests in the City of Waterloo between January 2020 to August 2022 were in relation to parking rates, primarily to address applicant requested reductions. Table 12: Sample Requests provides some examples of requests to lower rates, particularly related to housing, and a full table of Minor Variance and Zoning By-Law Amendment requests can also be found in Appendix D. These are shown geographically in Figure 19. Of note is that many of these requests are for rates that are less than 1.0 parking space per unit. This might indicate that developers may not expect every person living in their developments to own or need regular access to a private vehicle, and/or that the developer is trying to achieve a maximized development on the site and would therefore have no room for additional parking.

Table 12: Sample Requests

Zone Category	Required rate	Example Requested rate
U1-81	1.5 / 100 sqm	0.6 / 100 sqm
C1-40	1.2 / unit	0.9 / unit
C5-81	1.0 / unit 3.25 / 100 sqm	0.9 / unit 2.7 / 100 sqm
RMU-20	1.2 / unit	0.85 / unit
RMU-40	1.0 / unit	0.9 / unit
RN-25	0.2 / bedroom	0.175 / bedroom

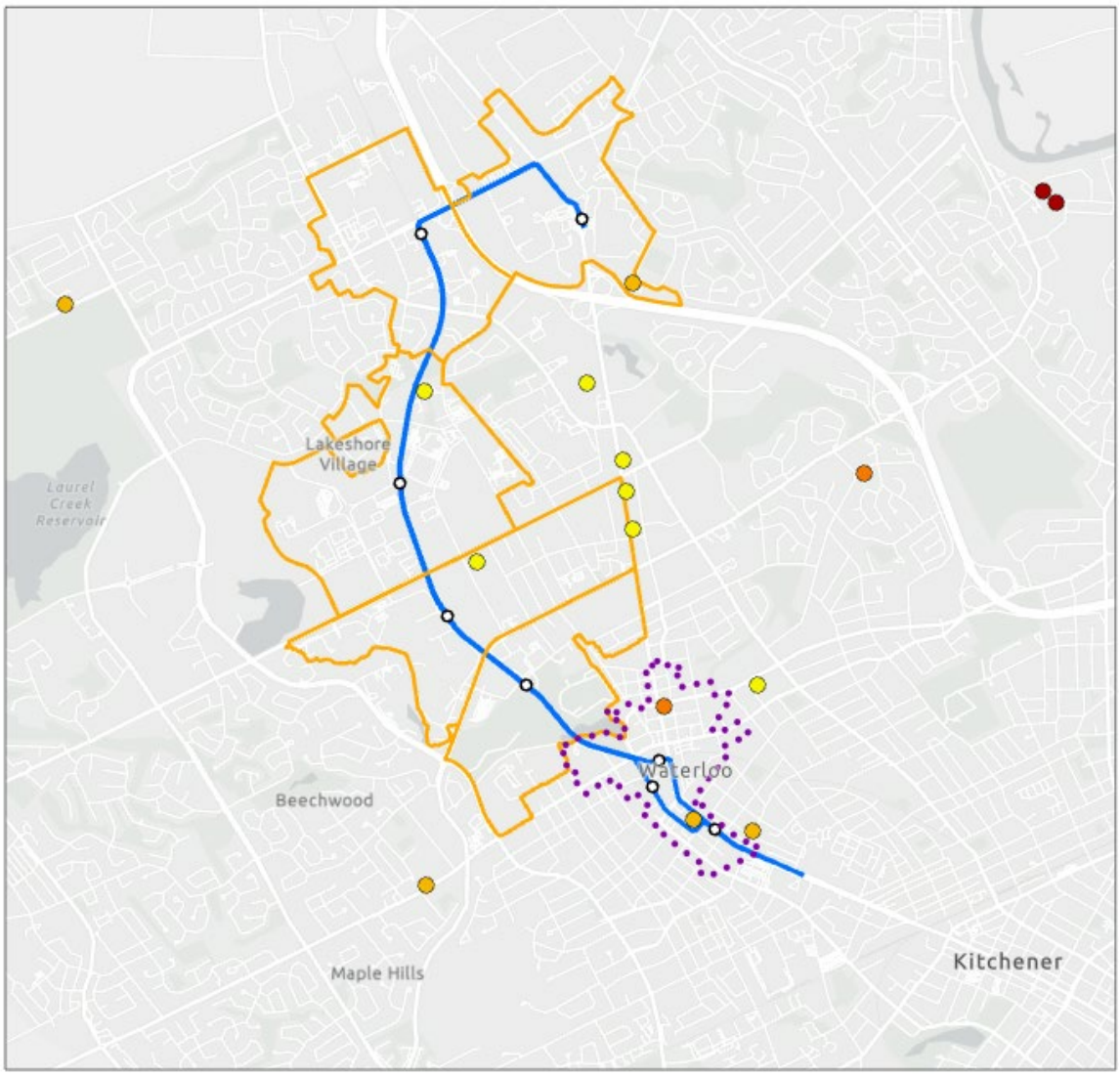


Figure 19: Parking variance and amendment requests by location

Excess Parking – ITE Comparison

Due to a lack of local data available on parking utilization, this Study uses ITE, a North America-wide data source, to understand how Waterloo rates compare to ITE documented demand, as described in Section 2.5. ITE average demand is a good indicator, and the parking industry rule of thumb for “efficiently utilized parking” is a facility where one in every ten spaces is available. Therefore, this Study uses the ITE average + 10% as a threshold for comparison to existing zoning rates, as zoning requirements should plan for fluctuations in demand throughout the year.

It is worth noting that ITE does not differentiate between visitor and other types of parking, instead providing an overall rate of demand for all types. This approach is simple, as observed demand would account for any visitors present at the time of data collection.

Industrial Uses

The industrial rates in Waterloo that are reasonable to compare to ITE are located exclusively in the Flexible Industrial Zone (E3). These Waterloo rates vary by size of building. As Table 13 shows, the rate for larger buildings (i.e. greater than 5,000 sqm) is below ITE rates for Manufacturing. However, using the Waterloo rates and applying them to a worked example, it emerges that the Waterloo rates are higher than ITE per 100sqm for building sizes below 5000 sqm. This can be seen as the required number of spaces for a 5,000 sqm building would at a minimum be 65. This is calculated as follows:

- 2.5 spaces for the first 1000sqm = 25 spaces
- 1 space for the remaining 4000sqm = 40 spaces

This is a total of 65 spaces for a 5000 sqm building which equates to 1.3 spaces per 100 sqm, making buildings below 5,000 sqm above what ITE would require which is 1.09 per 100sqm. The rates for all warehousing-type buildings (see bottom half of table) are all above what ITE would say average demand is per sqm.

Table 13: Industrial Use Rates v. ITE

Waterloo Use	ITE	ITE Rate + 10% (per 100 sqm)	Waterloo Specification	Waterloo Rate (per 100 sqm)
Food and Beverage Manufacturing	**140 - Manufacturing**	**1.09**	Single Occupancy Building - 1,000sqm - 5,000sqm	1
	140 - Manufacturing	**1.09**	Single Occupancy Building - for the first 1,000sqm	2.5
	140 - Manufacturing	**1.09**	Single Occupancy Building - More than 5000sqm	0.75
Industrial Assembly	**140 - Manufacturing**	**1.09**	Single Occupancy Building - 1,000sqm - 5,000sqm	1
	140 - Manufacturing	**1.09**	Single Occupancy Building - for the first 1,000sqm	2.5
	140 - Manufacturing	**1.09**	Single Occupancy Building - More than 5000sqm	0.75
Industrial Manufacturing	**140 - Manufacturing**	**1.09**	Single Occupancy Building - 1,000sqm - 5,000sqm	1
	140 - Manufacturing	**1.09**	Single Occupancy Building - for the first 1,000sqm	2.5
	140 - Manufacturing	**1.09**	Single Occupancy Building - More than 5000sqm	0.75
Industrial or Construction Equipment Supplier (Sales or Rental)	**140 - Manufacturing**	**1.09**	Single Occupancy Building - 1,000sqm - 5,000sqm	1
	140 - Manufacturing	**1.09**	Single Occupancy Building - for the first 1,000sqm	2.5
	140 - Manufacturing	**1.09**	Single Occupancy Building - More than 5000sqm	0.75
Industrial Processing	**140 - Manufacturing**	**1.09**	Single Occupancy Building - 1,000sqm - 5,000sqm	1

	140 - Manufacturing	**1.09**	Single Occupancy Building - for the first 1,000sqm	2.5
	140 - Manufacturing	**1.09**	Single Occupancy Building - More than 5000sqm	0.75
Pharmaceutical Industry	**140 - Manufacturing**	**1.09**	Single Occupancy Building - 1,000sqm - 5,000sqm	1
	140 - Manufacturing	**1.09**	Single Occupancy Building - for the first 1,000sqm	2.5
	140 - Manufacturing	**1.09**	Single Occupancy Building - More than 5000sqm	0.75
Truck Depot	**150 - Warehouse**	**0.46**	Single Occupancy Building - 1,000sqm - 5,000sqm	1
	150 - Warehouse	**0.46**	Single Occupancy Building - for the first 1,000sqm	2.5
	150 - Warehouse	**0.46**	Single Occupancy Building - More than 5000sqm	0.75
Warehouse	**150 - Warehouse**	**0.46**	Single Occupancy Building - 1,000sqm - 5,000sqm	1
	150 - Warehouse	**0.46**	Single Occupancy Building - for the first 1,000sqm	2.5
	150 - Warehouse	**0.46**	Single Occupancy Building - More than 5000sqm	0.75

Hotel Rates

Hotel rates in Waterloo are close to ITE, although the base rate is higher than ITE. Parking spaces for Hotel use in Waterloo, are shown in Table 6A of Section 6 of the Zoning By-law, as well as in the Uptown Commercial Core. In Section 6.0 of the By-law, the rate for hotel is one space per room, and in Uptown it is less than that (0.7 per room) in recognition that some visitors to this area my not come by car. This also assumes for hotels outside of the Uptown Commercial Core that most visitors will drive, although a few of those spaces would be used by employees.

Residential Rates

In residential zones Waterloo's minimum rates are generally below ITE, although there are a few specific uses in which Waterloo's parking requirements are high when compared to the ITE +10% threshold used for this Study, as shown below in Table 14. This indicates that the City allows flexibility in its zoning by-law for residential development, in that although there is a minimum, it may be below standard demand, allowing developers to construct context-sensitive developments.

Table 14: Residential Rates Higher than ITE Benchmark[9]

Waterloo Use	ITE Comparable Category	ITE Average Rate +10% (ITE Sqm)	Waterloo Zones/Areas with Minimums Above ITE + 10%	Waterloo Minimum Requirement Ranges (note: inclusive of visitor parking)
Townhouse	Low-Rise (220)	1.33	Residential Zone 6 Residential Zone 7	1.4
Single Detached	Low-Rise (220)	1.33	Residential Zone 6	2

However, in considering applications that the City has received for requests to reduce parking rates, as discussed in Section 2.4 and presented in Table 12, many minimum rates are above the requested variance rate for residential. Most residential variance requests are for 0.9 spaces per unit. About 2/3, or 66%, of Waterloo residential rates are over this threshold. Figure 20 and Figure 21 show sample Waterloo residential rates by use, zone, and area. As Figure 20 and Figure 21 demonstrate, this includes residential developments in mixed use areas that may have lower overall parking rates due to density and the ability to share spaces. However, areas like Uptown and Areas A and B (which tend to be close to transit stations) have lower minimums, reflecting the dense nature of these locations.

[9] Northdale parking rates (0.25 spaces per bedroom, inclusive of visitor parking) were not included in the analysis as they are not comparable to a per unit parking ratio. This analysis also excludes single-detached dwellings as ITE does not provide a rate for that land use category.

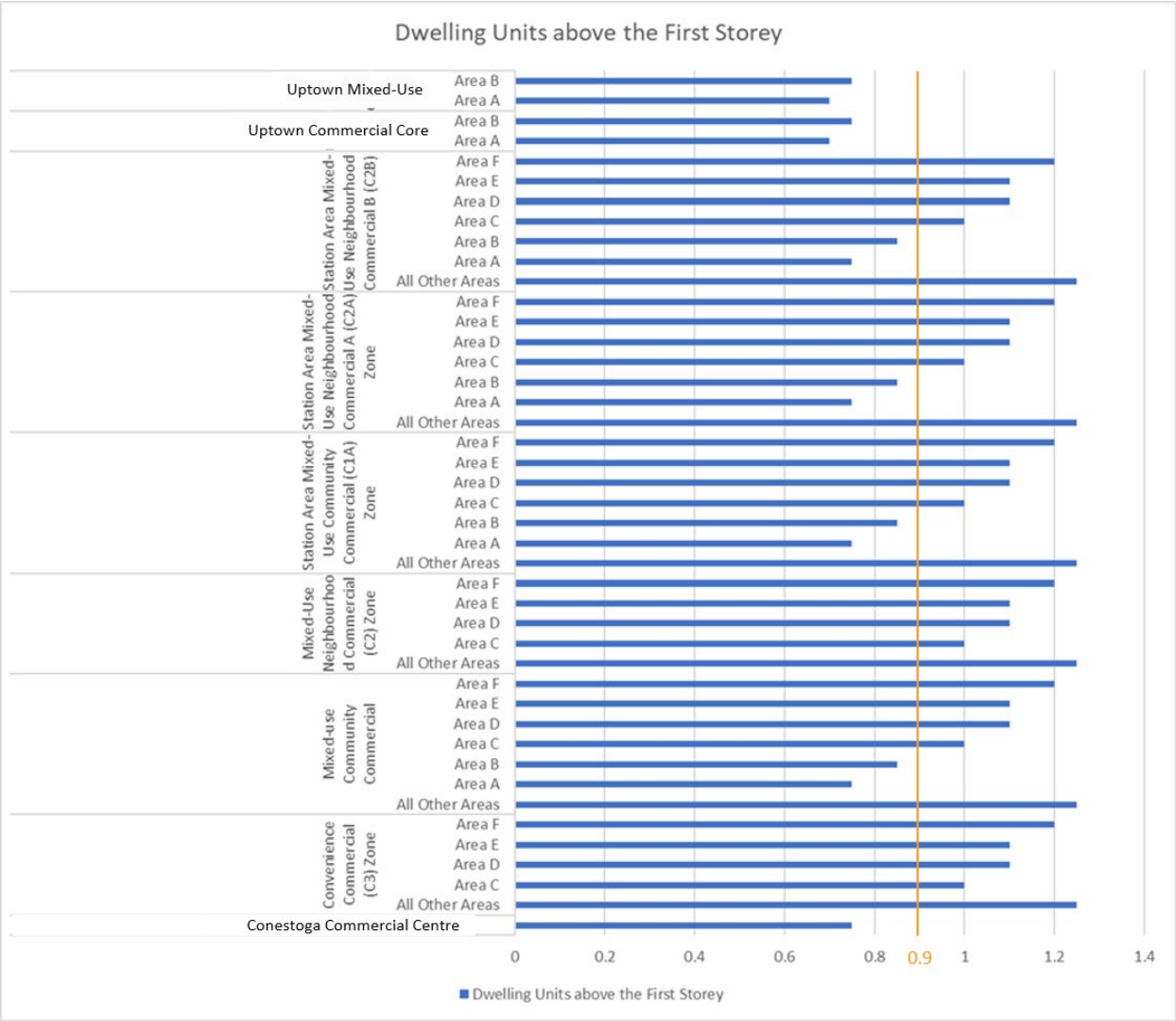


Figure 20: Sample Comparison of Rates to Requested Reductions: Dwelling Units Above the First Storey

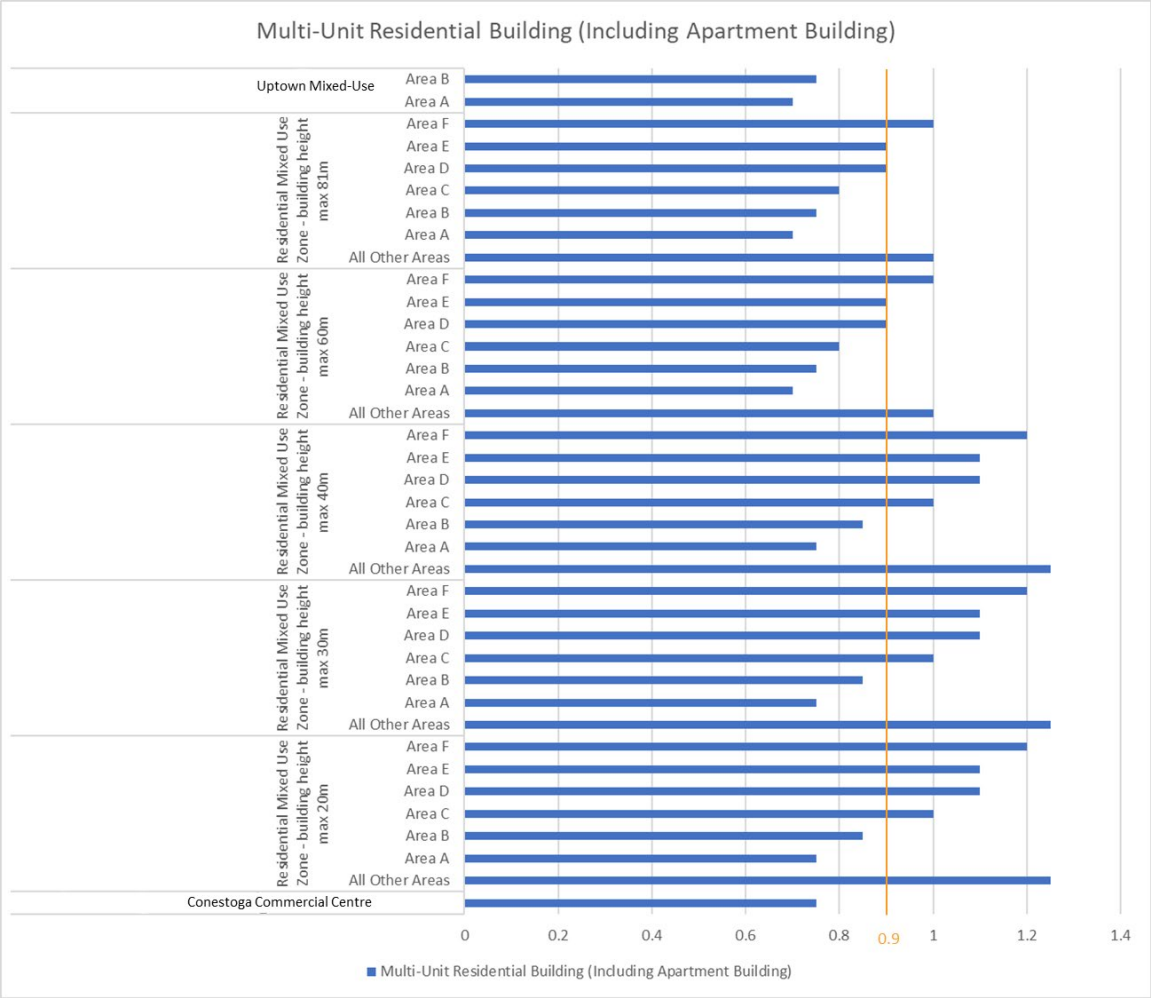


Figure 21: Sample Comparison of Rates to Requested Reductions: Multi-Unit Residential Building (Including Apartment Building)

Comparing Waterloo rates to ITE and to the variances requested shows that residential rates may still trend high in certain locations in comparison to what the market is requiring according to the development industry. Waterloo may choose to require more parking based on local experiences/data and/or municipal strategic objectives, to prevent parking undersupply.

Office Rates

A similar trend is evident in office uses, with different zones in Waterloo requiring more parking for land uses that have the primary use as office space. Table 15 shows areas and zones in the Zoning By-Law where office uses exceed the ITE Average Rate +10% threshold for office rates.

The ITE minimum parking rate for General Office Building is 2.57 spaces per 100 sqm of commercial floor area. With an additional 10% this equates to 2.83 spaces per 100 sqm.

Table 15: Office Rate Comparison[10]

ITE Comparable Category	ITE Average Rate (per 100 sqm)	ITE Average Rate +10% (per 100 sqm)	Waterloo Zones/Areas with Minimums Above ITE + 10%	Waterloo Minimum Requirement Ranges (per 100 sqm)
General Office Building	2.57	2.83	C1-(20,30,40,60,81) Area D – F, All Other Areas	3.2 – 4
General Office Building	2.57	2.83	C2-(20,30,40,60,81) Area D – F, All Other Areas	3.2 - 4
General Office Building	2.57	2.83	C3-(10,20,30,40,60,81) Area D – F, All Other Areas	3.2 - 4
General Office Building	2.57	2.83	C4-(20,30,40,60,81) All Other Areas	3
General Office Building	2.57	2.83	C5-(20,27,40,81) Area C – F, All Other Areas	3 - 4
General Office Building	2.57	2.83	C6	3
General Office Building	2.39	2.63	C7	4
General Office Building	2.57	2.83	C1A-(20,30,40,60,81) All Other Areas	3
General Office Building	2.57	2.83	C2A-(20,30,40,60,81) All Other Areas	3
General Office Building	2.57	2.83	C2B-(20,30,40,60,81) All Other Areas	3
General Office Building	2.57	2.83	C4A-(20,30,40,60,81) All Other Areas	3
General Office Building	2.57	2.83	Educational Institution*	3
General Office Building	2.57	2.83	Institutional *	3
General Office Building	2.57	2.83	Parks and Recreation (OS1)*	3

* *Identified best uses for comparison*

[10] *As mentioned in Section 2.5 this analysis includes some uses for which there is not a perfect ITE comparison. In this case, Government use/institution has been analyzed here in relation to office use.*

Medical Office

In general, Waterloo's zoning rates for Medical Offices are lower than what ITE rates would indicate is necessary, allowing for flexibility and context-sensitive development, but there are a few exceptions. There are a few specific uses in the Waterloo Zoning By-law that can be compared to the "Medical/Dental Office" category in ITE: Medical Clinic and Optometrist. Table 16: Waterloo Zone and Area Combinations with Medical Office rates Higher than ITE Benchmark (3.82 vehicles per 100 sqm.) shows areas and zones in the Zoning By-Law where office uses exceed the ITE Average Rate +10% threshold for medical office rates, by 0.18 spaces per 100 sqm. The majority of these are for the "Medical Clinic" use, although Optometrist is allowed in the Corridor Commercial zone.

Table 16: Waterloo Zone and Area Combinations with Medical Office rates Higher than ITE Benchmark (3.82 vehicles per 100 sqm.)

Waterloo Zone/Area Above ITE+10%	Waterloo Minimum Requirement/range (sqm)
Conestoga Commercial Centre (C7) Zone	4
Convenience Commercial (C3) Zone (All Other Areas)	4
Corridor Commercial* (All Other Areas)	4
Mixed-Use Community Commercial (All Other Areas)	4
Mixed-Use Neighborhood Commercial (All Other Areas)	4

* *Includes Optometrist use*

Retail Uses

Many of Waterloo's zone/area combinations require more parking than ITE's "Shopping Center" (Use code 820) benchmark would indicate is needed per 100 sqm. ITE's rate plus 10% threshold is approximately 2.31 vehicles per 100 sqm. This rate does represent more of a "strip mall" than stand alone uses, so some degree of sharing is likely built into it. However, as discussed earlier, most ITE assessments are done in suburban, driving-oriented locations. Table 17 gives an overview of zones and areas where Waterloo's Zoning By-law requires parking at a rate greater than ITE's estimated demand.

Table 17: Waterloo Zone and Area Combinations with Retail Rates Higher than ITE Benchmark (2.31 vehicles per 100 sqm.)

Waterloo Zone/Area Above ITE+10%		Waterloo Minimum Requirement/range (per 100 sqm)
Business Employment One (E1) zone (Low end of range for first 1,000 sqm, high end for 5,000 sqm+)		0.75-2.5

Business Employment Two (E2) zone **(Low end of range for first 1,000 sqm, high end for 5,000 sqm+)**		0.75-2.5
Conestoga Commercial Centre (C7) Zone		4
Convenience Commercial (C3) Zone	All Other Areas	4
	Area C	2.8
	Area D	3.2
	Area E	3.2
	Area F	3.6
Corridor Commercial	All Other Areas	4
	Area C	3
	Area D	3.25
	Area E	3.25
	Area F	3.75
Flexible Industrial Zone (E3) **(Low end of range for first 1,000 sqm, high end for 5,000 sqm+)**		0.75-2.5
Mixed use office	All Other Areas	3
	Area D	2.5
	Area E	2.5
	Area F	2.75
Mixed-use Community Commercial	All Other Areas	4
	Area B	2.4
	Area C	2.8
	Area D	3.2
	Area E	3.2
	Area F	3.6
Mixed-Use Neighbourhood Commercial (C2) Zone	All Other Areas	4
	Area C	2.8
	Area D	3.2
	Area E	3.2
	Area F	3.6
Station Area Business Employment 2 A **(Low end of range for first 1,000 sqm, high end for 5,000 sqm+)**		0.75-2.5
Station Area Business Employment 2B **(Low end of range for first 1,000 sqm, high end for 5,000 sqm+)**		0.75-2.5
Station Area Mixed-Use Community Commercial (C1A) Zone	All Other Areas	3
	Area D	2.5
	Area E	2.5

	Area F	2.75
Station Area Mixed-Use Neighbourhood Commercial A (C2A) Zone	All Other Areas	3
	Area D	2.5
	Area E	2.5
	Area F	2.75
Station Area Mixed-Use Neighbourhood Commercial B (C2B)	All Other Areas	3
	Area D	2.5
	Area E	2.5
	Area F	2.75
Station Area Mixed-Use Office (C4A)	All Other Areas	3
	Area D	2.5
	Area E	2.5
	Area F	2.75

As the ITE category "Drive-In Bank" (use code 912) has 39 observations and an R^2 of 0.77, this analysis did compare Waterloo rates for "Financial Services" use to this as a benchmark. ITE's rate plus 10% is 4.04 parking spaces per 100 sqm, and all Waterloo rates are below this, although some are quite close. This indicates that the City allows flexibility in its zoning by-law for retail development, in that although there is a minimum, it may be below standard demand, allowing developers to construct context-sensitive developments.

Restaurants

As mentioned in Section 2.5, the ITE data available for restaurants is limited, and the category with the most observations, High-Turnover (Sit Down) Restaurant (use code 932) has no R^2 , indicating that there is not a strong correlation between size of establishment and parking generation rate.

Almost all Waterloo requirements are below what ITE would indicate is required for a restaurant, which is 11.18 / 100 sqm (ITE plus 10%). This indicates that the City allows flexibility in its zoning by-law for restaurants, in that although there is a minimum it may be below standard demand, allowing for context-sensitive developments. The exception to this is that the rate is 15 spaces per 100 sqm in Section 6.0 of the Zoning By-law, with the exception of zones U1, U2, C1A, C2A, C2B, C4A, E2A and E2B where the parking regulations in the zone category shall apply.

Although the majority of Waterloo is under the ITE rate, many of the considerations above indicate that this observation should be considered limited, and more data is needed to determine how much parking demand a given facility will generate, including area context and planning goals.

Places of Worship

As mentioned in Section 2.5, the ITE data available for places of worship is quite limited. However, as this is of particular interest to Waterloo, this report includes the following considerations for this use:

- Places of worship are a challenge to regulate in terms of parking requirements, as different places of worship will have differing parking demands due to varying activity patterns and peak times for worship and activity.
- A wider variety of faith groups and increasing facility sizes also impact the demand for parking, with many places of worship incorporating schools, daycare, long-term care homes and banquet halls into one large regional facility.
- Recent trends show more places of worship located in employment lands and industrial areas, which provides the opportunity for shared parking, particularly on weekends.

Calculating parking requirements for places of worship can be done per seat, per gross floor area, per floor area of the worship space or per person capacity of the worship space. All of these methods have their advantages and disadvantages. A separate analysis of parking standards for places of worship may be required to overcome the challenges of measuring and regulating parking for those uses.

Currently, the City's Zoning By-Law requires a minimum of 8 parking spaces per 100 sqm of building floor area, which is lower than the rate that ITE provides. The ITE rate with the most robust dataset is Church (56), with 13 studies and no R^2. This indicates that the data does not show a strong correlation between size of facility and parking rate, likely due to many of the reasons noted above. The ITE average Church parking rate per 100 sqm plus 10% is 11.18.

Although Waterloo is under the ITE rate, many of the considerations above indicate that this observation should be considered limited, and more data is needed to determine how much parking demand a given facility will generate, including area context and planning goals.

Choosing Parking Rates

Although the analysis above gives the illusion of detail, with rates out to one one-hundredth of a percent, it is important to note that ultimate parking provisions need to reflect future demand and policy directions rather than historical trend data. There is no exact way to determine the number of parked vehicles a given development will generate, as factors such as transit access, walkability, gas prices, weather, parking management choices, business success, and more all influence parking generation on a weekly, monthly, even daily basis.

Therefore, the analysis above is meant to be a guideline only. Ultimately, the City of Waterloo will select parking rates that reflect the policy goals and specific built conditions within the City.

4.4.2 Opportunity: Consider Adjusting Minimum and Maximum Rates

For each land use, Table 18: Waterloo and ITE Land Use Matching outlines the comparable ITE land use categories chosen for Waterloo and how Waterloo stacks up against those, as well as local data where available.

Table 18: Waterloo and ITE Land Use Matching

ITE Land Use	Waterloo Use	General Findings

110 - General Light Industrial	Light Industrial Assembly (related to advanced tech)	Waterloo mostly above ITE
	Light Industrial Manufacturing (related to advanced tech)	
	Light Industrial Processing (related to advanced tech)	
150 - Warehouse	Truck Depot	Waterloo mostly above ITE
	Warehouse	
220 - Multifamily Housing (Low-rise)	Freehold Semi Detached	Waterloo generally below ITE. Waterloo rates generally above those requested in variances*.
	Freehold Townhouse	
	Semi detached	
	Townhouse	
	Freehold Townhouse Building, For Lands Zoned RMU-20 And RMU-30 Only	
	Second Residential Unit	
	Townhouse Building, For Lands Zoned RMU-20 And RMU-30 Only	
	Triplex	
	Triplex Building	
221 - Multifamily Housing (Mid-rise)	Apartment building	Waterloo generally below ITE. Waterloo rates generally above those requested in variances*.
	Dwelling Units above the First Storey	
	Mixed Use Building With Dwelling Units Above The First Storey	
	Mixed-Use Building	
	Multi-Unit Residential Building (Including Apartment Building)	
	Stacked Townhouse	
	Stacked Townhouse Building, For Lands Zoned RMU-20 And RMU-30 Only	
310 - Hotel	Hotel	Waterloo close to ITE, requirement is 1 space per room for Hotel use with variations below this in Uptown.
	Lodging House	
710 - General Office Building	Advanced Tech	Waterloo above ITE in certain area/zone combinations
	Business Incubator	
	Commercial Service	
	Communication Production	
	Data Centre	
	Government Institution	
	Government Uses	
	Laboratory	

	Major Office	
	Makerspace (Class A)	
	Office	
	Tech office	
	Training Facility	
720 - Medical-Dental Office Building	Medical Clinic	Waterloo above ITE in few area/zone combinations
	Optician / Optometrist	
820 - Shopping Center	Dry Cleaning and Laundry Facility	Waterloo above ITE in many area/zone combinations.
	Large Merchandise Store	
	Old Gold Shop	
	Payday Loan Store	
	Personal Service Shop	
	Printing establishment	
	Retail Store (includes drug, food, variety and speciality food)	
912 - Drive in bank	Financial Services	Waterloo rates are all below the ITE rate.
932 - High- Turnover (Sit Down) Restaurant	Bake Shop	Data is very limited, making comparison challenging.
	Bake Shop (including Outdoor Bake Shop patio)	
	Banquet Hall	
	Café	
	Café including Outdoor Cafe patio	
	Catering Establishment	
	Microbrewery	
	Nanobrewery	
	Personal Brewing Establishment	
	Restaurant	
	Restaurant - Take Out <1000sqm	
	Restaurant (Take Out) including outdoor restaurant patio	
	Restaurant < 1000sqm	
	Restaurant including Outdoor restaurant patio	
	Take Out Restaurant	

* Includes privately initiated applications to reduce parking rates through a Minor Variance or Zoning By-law amendment.

Table 19 provides the respective average ITE parking rate, as well as the standard deviation of the data, which gives an idea of the range of observed rates of demand within the dataset. The higher a standard deviation, the more variance there is in the data, and the lower the R^2 measurement will be. The standard

deviation represents the variation in a range of values within the ITE database; one standard deviation from the mean in either direction means that just over two-thirds of observations within that dataset are within the range indicated by the standard deviation. As discussed in Section 2.5, ITE's data does not always show a standard relationship between the size of a facility and its parking demand, so in some cases the range of standard deviation may go below zero. However, in the absence of better data, looking at standard deviation provides some reasonable guidelines for setting rates for parking provision that will suffice for the ranges of demands associated with different land uses according to general North American data. Finally, we note that all ranges have been rounded to one tenth only; parking provisions are not an exact science and providing a more specific rate than that is not recommended.

Table 19: ITE Rates and Standard Deviations

ITE Code	Average Rate (per 100 sqm)	Std. Deviation	# of Studies	R^2
General Light Industrial - 110 *General urban/suburban*	0.70 per 100 sqm (GFA)	0.44	40	0.85
Warehousing - 150 *General urban/suburban*	0.42 per 100 sqm (GFA)	0.24	31	0.88
Multifamily Housing (Low-Rise) – 220	1.21 per dwelling unit	0.29	119	0.96
Multifamily Housing (Mid-Rise) – 221 *General urban/ suburban*	1.31 per dwelling unit	0.24	73	0.97
Hotel – 310* *General urban/suburban*	0.74 per room	0.24	22	0.72
General Office Building – 710 *General urban/ suburban*	2.57 per 100 sqm (GFA)	0.74	148	0.86
Medical/Dental Office Building – 720 *General urban/suburban*	3.48 per 100 sqm (GFA)	1.13	117	0.91
Shopping Center – 820 *General urban/ suburban*	2.10 per 100 sqm (GLA)	0.81	46	0.97
Drive In Bank – 912	4.00 per 100 sqm (GFA)	1.53	39	0.77
High Turnover Sit-Down Restaurant – 932** *General urban/ suburban*	10.16 per 100 sqm (GFA)	5.79	51	*

** Hotel does not meet the ideal threshold for R2 as defined earlier, but as it is relatively close, so the analysis includes it.*

*** ITE does not report an R^2 as no equation meeting its established 0.5 R^2 criteria for goodness-of-fit has been found. However, there are a relatively high number of observations for this category, so the analysis includes this category as a benchmark for Waterloo. We note that this analysis should be regarded with extra caution.*

The ITE average rate and the standard deviation were then used to create guidelines for how rates could apply to each of the newly recommended Parking Overlay areas. Table 20 below shows the recommended minimum and maximum parking rates for each area. For the Uptown Growth Centre, it is recommended that the maximum should be the ITE average, and due to the high level of transit accessibility and density the minimum should be allowed to be 2 standard deviations below the mean. For station areas a similar approach was taken, however more flexibility was given in the maximum parking rate to enable developments to have a rate above the ITE average for areas that are slightly less accessible.

Table 20: Applying ITE Rates to Waterloo Area

Area	Minimum	Maximum
Everywhere else	ITE Average minus 1 Standard Deviation	ITE Average plus 2 Standard Deviation
Nodes/Corridors	ITE Average minus 1 Standard Deviation	ITE Average plus 1 Standard Deviation
Station Areas	ITE Average minus 2 Standard Deviation	ITE Average plus 1 Standard Deviation
Uptown Growth Centre	ITE Average minus 2 Standard Deviation	ITE Average

Table 21: Recommended Parking Rates Per Use below shows guidelines for recommended rates for typical uses in Waterloo should a new structure be implemented. Note that the table only includes uses for which comparable ITE categories were available. When examining restaurant use, it was found that the rates are already well below ITE rates. In this table a recommended rate has been identified for the City should they choose to restructure their parking regulations within the Zoning By-Law, in accordance with the recommended structure as set out in Option C of Section 4.3.2. The absolute minimums (A-min) have been set as low as appropriate to align with policy objectives while still ensuring a base level of parking will be provided, to account for visitor and accessible parking space requirements.

The recommended minimum and maximum parking rates have been calculated using the approach outlined above and shown in Table 20. Should a development wish to apply a rate that falls outside of the minimum – maximum, additional fees and investments into multi-modal or transport demand initiatives should be required in lieu of parking.

The absolute maximum (A-max) is provided as the recommended maximum +10%. This is to ensure parking is not overbuilt and to assist with Waterloo's overarching goals for sustainability and reducing car dominance. It is considered unlikely that a development will exceed these maximums due to the potential cost of additional transportation demand initiatives in addition to the cost of constructing the additional parking spaces, making parking rates above the maximum unfeasible.

It is important to state that the suggested rates contained in this report are provided as guidelines only; final rates implemented by the City of Waterloo within these ranges should be supported by data. Before final rates are implemented, it is strongly recommended that additional data be collected to ensure that Waterloo's specific context, which may create differences with ITE rates, is accounted for. Another way of approaching it could be to provide no fixed rate for the absolute minimums and maximums, and still encourage multi-modal, TDM measures, Section 40 agreements, and cash-in-lieu or parking, as part of development.

Table 21: Recommended Parking Rates Per Use

Land Use Category	ITE Weekday Rate per 100 sqm	Waterloo Rate		Standard Deviation	Uptown				Station Areas				Nodes and Corridors				Everywhere else			
		Lowest Minimum	Highest Minimum		A-min	Min	Max	A-Max	A-Min	Min	Max	A-Max	A-Min	Min	Max	A-Max	A-Min	Min	Max	A-Max
General Light Industrial	0.70	0.75	2.50	0.44	0.1	0.1*	0.7	0.8	0.1	0.1*	1.1	1.3	0.1	0.3	1.1	1.3	0.1	0.3	1.6	1.7
Warehouse	0.42	0.75	2.50	0.24	0.1	0.1*	0.4	0.5	0.1	0.1*	0.7	0.7	0.1	0.2	0.7	0.7	0.1	0.2	0.9	1.0
Multi-unit Housing (Low-rise)	1.21	3.00	3.00	0.29	0.1	0.6	1.2	1.3	0.1	0.6	1.5	1.7	0.1	0.9	1.5	1.7	0.1	0.9	1.8	2.0
Multi-unit Housing (Mid-rise)	1.31	0.75	3.00	0.24	0.1	0.8	1.3	1.4	0.1	0.8	1.6	1.7	0.1	1.1	1.6	1.7	0.1	1.1	1.8	2.0
Hotel	0.74	0.5	1.00	0.24	0.1	0.3	0.7	0.8	0.1	0.3	1.0	1.1	0.1	0.5	1.0	1.1	0.1	0.5	1.2	1.3
General Office Building	2.57	0.75	3.00	0.74	0.1	1.1	2.6	2.8	0.1	1.1	3.3	3.7	0.1	1.8	3.3	3.7	0.1	1.8	4.1	4.5
Medical-Office Building	3.48	0.75	3.00	1.13	0.1	1.2	3.5	3.8	0.1	1.2	4.6	5.1	0.1	2.4	4.6	5.1	0.1	2.4	5.7	6.3
Retail	2.10	0.75	3.00	0.81	0.1	0.5	2.1	2.3	0.1	0.5	2.9	3.2	0.1	1.3	2.9	3.2	0.1	1.3	3.7	4.1
Bank	4.00	1.50	3.00	1.53	0.1	1.0	4.0	4.4	0.1	1.0	5.5	6.1	0.1	2.5	5.5	6.1	0.1	2.5	7.1	7.8

4.4.3 Opportunity: Consider Reducing Parking Minimums

Cities and towns across North America are beginning to eliminate and/or reduce parking minimums in recognition that: context and corresponding demand vary widely by site; transportation options continue to evolve as time goes on; and trying to determine a standard at a regulatory level may be challenging.

Eliminating or reducing parking minimums can provide flexibility. The range in parking requirements could provide an opportunity for a market-sensitive development without the need for additional studies. The approach of eliminating minimums in particular relies on the market to build parking based on what is needed and/or the space available for parking for the proposed use and development. In addition, it would allow potential reuse of existing underutilized parking spaces (whether in public or privately held parking), should an agreement be in place and/or relief to the zoning regulations granted to allow this to occur. Note that off-site parking is not a tool that can be securely implemented or regulated through a Zoning By-Law. Finally, this approach limits the overhead and staff time spent on Minor Variance or Zoning By-law Amendment requests. The approach of eliminating minimums is discussed in detail in Section 3.2.

In some cities across North America is has been seen to be best practice to eliminate or reduce parking minimums city wide. In Waterloo however, it is recommended that this approach (if supported) is first implemented in dense locations where multiple mobility options exist, such as the Uptown Growth Centre or in transit stations areas. A key component of this approach for Waterloo will be to pair it with comprehensive parking management strategies, such as implementing a fare system for valuable on-street spaces that are currently oversubscribed. Parking management strategies will be vital in managing any potential concerns about spillover parking and reducing the dependence on the car with the goal of increased ridership in public transit and investment into the active transit network.

4.4.4 Opportunity: On-going Data Collection

Understanding parking demand in Waterloo is one part of the zoning puzzle. It is important to note even when evaluating use and demand that to some extent, parking provision is a regulatory choice – parking availability is one of the main variables in why people decide to drive, so reducing parking availability is a key tool in reducing driving overall. Induced demand, where people choose to drive simply because the parking infrastructure is available to support that choice, is a documented phenomenon.[11]

However, data on actual demand can be informative to show how parking rates in zoning compare to what is happening on the ground. Collecting this data is a key component to many parking utilization studies, which frequently is the best way to find that parking is underutilized. While the Zoning By-Law update conducted in 2018 took local parking demand and ITE rates into account, rising property values and other site-specific variations have impacted local parking demands, which are understandably not all accounted for within the Zoning By-Law.

[11] Cahill, Christopher, Norman Garrick, and Adam Polinski, “Effects of Parking Provision on Automobile Use in Cities: Inferring Causality,”, Transportation Research Record: Journal of the Transportation Research Board 2543 no. 1 (2016), *https://journals.sagepub.com/doi/abs/10.3141/2543-19*

Waterloo is encouraged to conduct, or review through development applications, parking counts at key locations, then compared to assessment (or other data on building floor area) to understand actual ratios of demand city-wide. Appendix C provides direction from other sources on how to collect this information. General data points to consider when collecting and analyzing include:

- Peak parking demand data at comparable uses in different locations in Waterloo (such as Uptown, Station Areas, etc.);
- Peak parking demand at mixed-use locations; and
- Peak parking demand compared to built parking (compared to zoning) at key locations throughout the City.

We note that other approaches and tools can provide this information. This is especially effective when considering automatic sources, such as gate arms on garages or parking meter purchases. Additionally, location-based data providers, such as Streetlight or Replica, can provide data on parking location and utilization tied with origin and destination which can inform understanding of travel behaviour.

4.5 Flexibility

Flexibility is challenging to include in a document as specific as a Zoning By-Law. The current lack of flexibility in the parking standards, in some instances, may direct excess parking to be built that is underutilized. An example of this can be seen in the City's Boardwalk development, which extends into Kitchener, that has a significant amount of parking that was built which is qualitatively viewed as underutilized. As shown in Figure 22, the hours of operation and the peaks at which each building occupier is busiest are different, which means that parking does not need to be built at a rate to allow for all uses to have their peak usage at the same time. Instead, a form of shared parking could be in place. Similarly, due to the nature of the development, it is likely that visitors to the site will visit more than one facility during a visit and therefore one space should be sufficient for more than one use; in reality, shared parking is likely already in operation informally. This could also be further encouraged if there were better pedestrian connections between retailers as well as to the bus terminal.

Figure 22: Boardwalk Hours of Operation

4.5.1 Opportunity: Shared Parking

There is an opportunity to implement shared parking for new developments. This allows parking between different land uses to be shared, under a single ownership and credited as one space. While it is currently not an optimal approach due to the City having no control over any agreements between private entities, shared parking can be managed by contractual agreements between adjacent uses. To operate effectively, strong agreements need to be in place between land users, as well as a strong parking management system to manage external spillover if there is any.

Shared parking between a private provider can also be harnessed to further help to reduce parking oversupply across the City, while allowing the developer to meet parking requirements and/or demand. This tool can be particularly useful if Waterloo implements parking maximums, as property managers that find themselves in a scenario of having to manage spillover can coordinate with nearby properties to utilize any excess parking. Both these options add further complexity to the shared parking approach, however both can be useful tools to help the City meet land development goals.

In Waterloo, it may make sense to prioritize sharing between non-residential uses, such as banks and restaurants. The City has noted that there are concerns regarding shared parking associated with condominiums, as the City cannot control to what use the parking stall is dedicated when the owner sells the parking space as a condominium unit. Another approach some municipalities have taken has been to require that any parking above a certain threshold associated with residential units is shared.

Benefits

Allowing shared parking across multiple uses on one site, or with an off-site developer, brings about several benefits. It allows for compact development and for the actual land use of the site to be bigger, creating more opportunities than having a development fit the required parking. It also creates more space for pedestrian enhancements which can bring a sense of place to an area to help it thrive. Shared parking works best when there are dissimilar land uses, ones that have significantly different peaks such as a movie theatre and a supermarket, or if the uses are likely to share the same visitors, such as retail stores, or a supermarket and a butcher.

Limitations

The main limitation is the management of the parking supply and operation of the model after zoning is approved. With changes in occupancy this can lead to a change in parking demand that cannot be managed off site, or a change in business relationships can result with businesses no longer suitable for shared parking. This is a risk in the approach that would need to be accepted in order to approach shared parking as a solution. In addition, current zoning regulations require that parking be provided on the same lot as the use that generates the parking need.

An additional limitation of shared parking is that some commercial occupants of buildings have signed the lease on the basis that a set number of parking spaces are provided. The approach of having parking shared between uses may therefore require a shift away from the traditional parking setup of each use having its own dedicated parking in a mixed-use space. It is worth noting the setup is similar to a traditional shopping center where parking is shared amongst different uses, and the benefits of a better built environment may help attract more occupants who want to be in a given location.

4.5.2 Opportunity: Formalize In-lieu Fees

Cash-in-lieu of parking can be a way for developers to build less parking and instead provide a cash sum to the City that equates to the change in parking they are requesting. Currently, the City does accept this, however, it is done on a case-by-case basis. There is an opportunity to develop a formal cash-in-lieu policy, such as is suggested through the change in structure proposed in this report. This can be applied to specific areas as decided by the City, but it is recommended that the first step be to implement such a policy in high-density, transit-serviced areas such as Uptown. In addition to cash-in-lieu of parking rates, an option to delegate minor Zoning By-Law Amendments to the Director of Planning if the reduction does not exceed a certain percentage can be considered.

With the introduction of Bill 23 (Ontario's More Homes Built Faster Act) there have been considerable changes to land use policy and development in Ontario. However, it is not anticipated that this would impact Section 40 of the Planning Act in terms of cash-in-lieu of parking rates.

Benefits

The monetary contributions collected as part of this policy can be used to support multi-modal infrastructure, upgrade existing parking to make it more efficient, or used for initiatives to promote alternative modes. By creating a formalized cash-in-lieu of parking policy, applicants can have a clearer understanding of what would need to be contributed to build less parking than the current rate. Additionally, it removes the need for developers and City staff to negotiate the terms of cash-in-lieu on Minor Variance requests or Zoning By-law Amendments.

Limitations

An important consideration of the cash-in-lieu of parking policy is making sure there is a clear connection between the fees received and where the money has been spent. If this connection is not clear it can weaken the policy. An unavoidable limitation of the policy is the lag time between fees being received and the delivery of what the fees are being used for. Therefore, a clear streamlined process must be established for the spending of the fees collected through this policy. This also applies to ensuring that the developer builds the additional measures onsite as part of the development if that option is taken, instead of providing cash to the City so that the development is not approved unless the agreed upon elements are incorporated onto the site.

Another limitation can arise from the ongoing maintenance of a newly implemented policy or infrastructure. If cash-in-lieu fees were used to install or begin a publicly-owned program, it would then be up to the City to fund any ongoing maintenance or operational fees.

4.5.3 Opportunity: Design and Multimodal Incentives

The addition of baseline requirements or incentives for developments to prioritize multimodal access or parking reductions can encourage developers to fulfill such investments that support the City's multi-modal plans either onsite or off site improvements. This can be done through the implementation of a TDM checklist for developers where they are presented with the baseline level of requirements for multimodal investments with the optional incentives for doing more than required.

Benefits

The benefits of this policy would be the increase in multimodal infrastructure and support to help move the community away from vehicle dependence and help the City to meet its broader longer-term goals.

Limitations

Currently, with the recent passing of Ontario's Bill 23, while there will be no direct impacts to design and multimodal incentives, the City will no longer have site plan control for pure residential developments 10 dwelling units or less. This means developments of this size will not be subject to Site Plan review and

approval from the City. One potential solution to this is to implement the TDM checklist as mentioned before in the Official Plan. By doing so, the TDM checklist would be able to guide all developments in the City (including those not subject to site plan control). However, as the Official Plan is not assessed when issuing building permits, there is currently no way easy way of enforcing the TDM measures unless they are incorporated into the Zoning By-Law. At this point the mechanisms available to secure TDM would provide for only information, without a consequential tool to hold the developer to account.

4.5.4 Opportunity: Accounting for Electric Vehicle Adoption

Market adoption of electric vehicles (EVs) has increased significantly in recent years, driven by technology improvements, decreasing prices, shifting consumer preferences, and government policy and incentives. The Government of Canada has established regulations that will require 20% of new vehicles to be zero emissions by 2026, 60% by 2030, and 100% by 2035. EVs will likely constitute the vast majority of zero emissions vehicles that contribute to these goals. Other zero emissions fuels, such as hydrogen, will likely be limited to large fleet vehicles due to the distribution infrastructure required. If hydrogen adoption occurs within the personal vehicle fleet, the assumptions in this section will need to be reconsidered.

Building charging infrastructure for these vehicles will be a significant undertaking borne by consumers, private companies, electric utilities, and government entities. While there will be many regulatory agencies responsible for funding, permitting, and regulating the construction of electric vehicle supply equipment (EVSE), municipalities will also influence where and how much charging infrastructure is installed through local zoning regulations and building codes. This section provides a brief overview of the anticipated adoption of EVs trajectory within the vehicle fleet; an overview of enabling infrastructure; and a methodology for determining and updating EV parking requirements for varying land uses.

Adoption Trajectory

An adoption trajectory for EVs has been established based on the regulations created by the Government of Canada for the sale of new zero emissions vehicles. Adoption within the overall fleet will lag behind these numbers due to a light-duty vehicle turnover rate of about 8% per year as old vehicles are replaced. Based on these assumptions we have projected overall fleet adoption of EVs through 2050 at which point around 85% adoption is expected, this is presented in Figure 23: Estimated Overall Fleet Adoption. Barring a government mandate, EV adoption will slowly level off with 100% EV adoption likely occurring many decades beyond 2050. These projections are heavily influenced by consumer preference, purchase incentives, or future regulations restricting the operation of internal combustion engine vehicles.

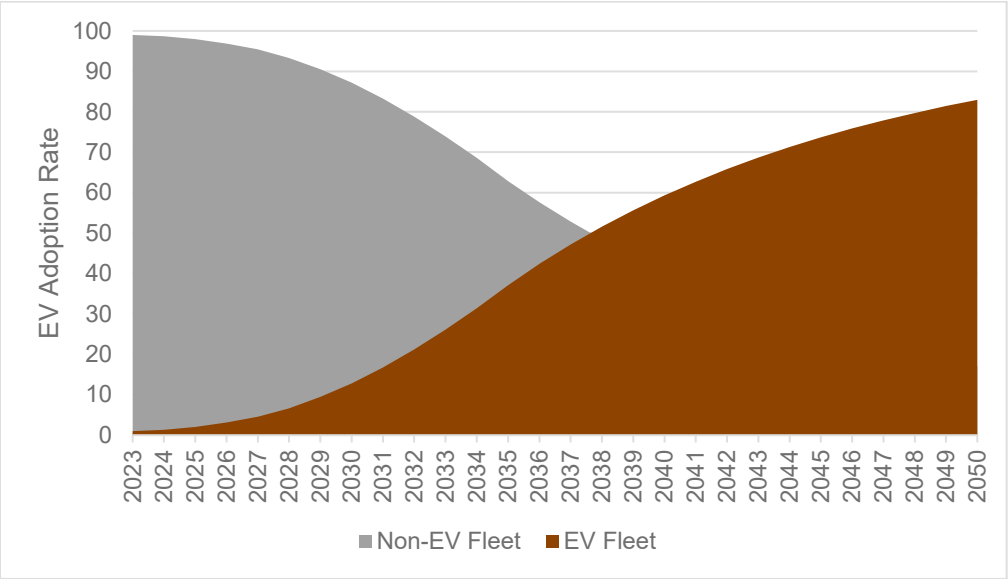


Figure 23: Estimated Overall Fleet Adoption

Enabling Infrastructure

Figure 24: EVSE Components (image source: U.S. National Renewable Energy Lab) illustrates the components of EVSE infrastructure and their ownership. Utilities will make significant investments "behind the meter" in new power generation sources and distribution infrastructure to support EV charging. Property owners, guided by zoning regulations and the building code, will make the required "front of meter" investments to support charging at individual parking spaces.

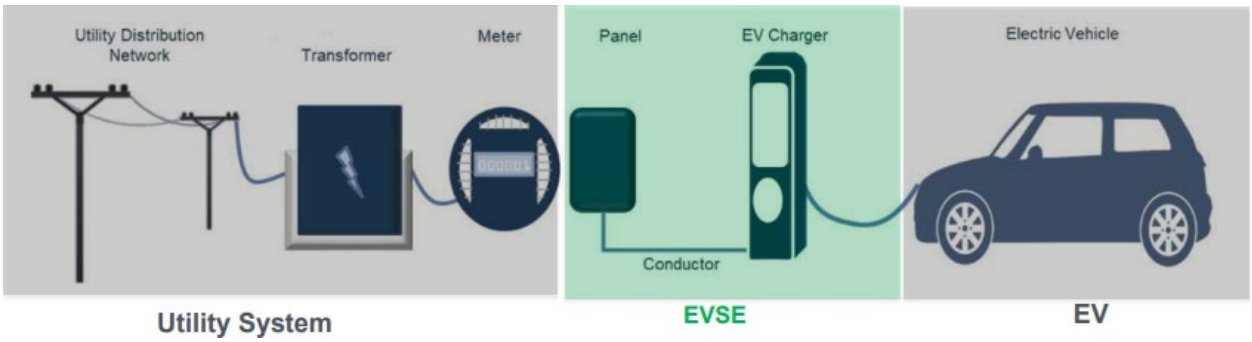


Figure 24: EVSE Components (image source: U.S. National Renewable Energy Lab)

Property owners will be responsible for the items identified in green. Assuming Level 2 charging equipment (enables a vehicle to fully recharge over a period of 4-8 hours), specific components will include:

- **Metering/sub-metering:** While a responsibility of utilities, EVSE benefits from a dedicated meter or a meter capable of sub-metering to help property owners allocate user costs accurately and avoid demand charges. Demand charges increase monthly electric bills by applying a higher rate based on peak use (versus overall use throughout the month).

- **Electric Panel:** Each Level 2 charging station should have a dedicated "double-pole" 240-volt circuit on the electric panel, similar to a clothes dryer.
- **Conductor:** New wiring from the electric panel to the parking location will need to be installed. Alternatively, a conduit can be installed for future wiring.
- **Wall Outlet:** Each EVSE should have a dedicated 240-volt wall outlet to support Level 2 charging. EVs are capable of charging from a standard outlet (known as Level 1 charging), but this only adds about 5 miles of charge per hour.
- **Clearance:** Level 2 EVSE is relatively compact, with at-home charging stations usually hanging on a wall. Public chargers may require extra clearance for access to the controls/payment screen, cord management, and bollards/barriers to protect the charging unit.
- **Lighting and Signage:** Publicly accessible charging should have the same security and wayfinding features common to public parking.

EVSE Parking Rate Methodology

The proposed methodology is based on two different time horizons:

- **Design Year:** Parking built today should *directly accommodate* (i.e., provide all items above) the expected demand for a given land use based on projected EV adoption.
- **Peak Adoption:** Parking built today should be *future-proofed* (i.e., provide capacity for electric meter and panel upgrades, a conduit for future wiring, and floor plan flexibility to meet EVSE clearance requirements) in anticipation of EV market share eventually reaching a peak of 85% based on government mandates and anticipated fleet turnover. *Note: As EVSE is installed this will subtract from future-proofing requirements for peak adoption.*

The City of Waterloo has outlined a progressive approach to EV adoption through section 6.3 of its Zoning By-Law. This approach ensures that all components of the market are EV ready with only minor adjustment, it provides the greatest opportunity for market adaptability and is the only way to ensure the entire market is able to meet the peak adoption rate. Critical to this understanding is that zoning is not a flexible tool for the purposes of adapting to users or customers once a land use is set, since EV charging is anticipated on private property the opportunity to have that infrastructure available needs to be ahead of the adoption rate.

Section 6.3.1 provides that all structured parking spaces are constructed "electric vehicle ready", and surface parking will comply with Table 6C of the ZBL presented here as Table 22: Electric Vehicle Parking - Surface Parking Spaces (Table 6C of City of Waterloo ZBL 2018-050).

Table 22: Electric Vehicle Parking - Surface Parking Spaces (Table 6C of City of Waterloo ZBL 2018-050)

Surface Parking Spaces	Electric Vehicle Parking Spaces (minimum)
0 – 19	0
20-49	1
50-84	2

85-119	3
120 – 149	4
>150	3% or total parking requirements

EVSE parking rates blend the functions of multiple land uses including multi-family residential and commercial, employment, and major institutional approaches. Determining the required EVSE rate for these land uses will depend on the percentage of parking dedicated to public or private charging and the adoption rate. By ensuring all structured parking is EV ready a significant risk has been addressed, updates to the requirements for minimum parking can be informed by the requirements outlined below:

Design Year: Add the following to determine the percentage of spaces that must have EVSE:

- **Residential split:** Use the adoption rate table multiplied by the residential factor to determine the percentage of spaces that must have EVSE charging infrastructure.
- **Non-residential split:** Use the adoption rate table multiplied by the non-dedicated parking factor, multiplied by the non-residential factor.

Peak Adoption: Add the following to determine the percentage of spaces that be *future-proofed*.

- **Residential split:** Use peak adoption multiplied by the residential factor to determine the percentage of spaces that must have EVSE.
- **Non-residential split:** Use peak adoption multiplied by the non-dedicated parking factor, multiplied by the non-residential factor.

Adoption rates may occur faster or slower than projected, while the current requirements cover the adoption rate requirements especially in structured parking, directly in the Zoning By-Law. Any updates to the City of Waterloo ZBL should consider the rates provided in Table 23: Summary of Minimum Parking EVSE Rates as a framework for minimums.

Table 23: Summary of Minimum Parking EVSE Rates

Land Use	2025	2030	2035	2040	2045	Peak
Single Detached Residential	100% of new single-detached residential future-proofed for EVSE.					
Multi-Unit Residential*	5%	15%	40%	60%	75%	85%
Commercial, Employment, Major Institutional	(EV adoption rate) X (% of citywide residents without assigned parking)					
Example non-dedicated parking factor: 20%	1%	3%	8%	12%	15%	17%
Mixed Use Residential	[(EV adoption rate) X (% residential)] + [(EV adoption rate) X (% of citywide residents without assigned parking) X (% non-residential)]					
Example residential factor: 25%	2%	6%	16%	24%	30%	34%

Example residential factor: 50%	3%	9%	24%	36%	45%	51%
Example residential factor: 75%	4%	12%	32%	48%	60%	68%

* All estimated adoption rates were rounded up to the nearest 5%.

4.6 Non-Zoning Related Solutions

4.6.1 Opportunity: Update the language in the policy direction of the Official Plan

The Zoning By-Law implements the policies in the Official Plan. Through the development of the zoning recommendations in this report, there have been opportunities to clarify the intent of some of the Official Plan policy language, to reduce mixed interpretations of the policy intent and the subsequent submission of variances that are not desired by the City.

The City's parking objectives are outlined in Section 6.1.5 of the Official Plan which include:

> (1) To plan for and/or create an appropriate amount of bicycle and vehicular parking to accommodate the intended use.
>
> (2) To plan for bicycle and vehicular parking areas that are attractive and well designed and reflect consideration of safe, secure and convenient access to all segments of the community.
>
> (3) To ensure that parking will be efficient and environmentally sensitive in terms of design, location, and surface treatment.
>
> (4) To support transit and measures relating to transportation demand management through restrictions on parking supply, where appropriate.
>
> (5) To minimize large areas of surface parking associated with higher density development in Nodes, Corridors and Major Transit Station Areas, where possible, and encourage the use of parking structures and/or underground parking.

A notable opportunity in the language is to provide context for the word 'appropriate' in Section 6.1.5(1) above, which could be interpreted as zero for example. It can be clear as a policy objective that minimum parking levels must account for parking on site, and that zero parking is not the intent. At a minimum, visitor and accessible parking needs to be provided on the site. Similarly parking maximums provide policy language that an oversupply of parking is inappropriate for all land uses.

It is critical to acknowledge that updates to the OP language should not provide specific numbers, as this is the function of the Zoning By-Law.

4.6.2 Opportunity: Comprehensive Parking Management

The parking system in Waterloo has multiple components, of which zoning is only one. Parking regulations, such as price, time limits, and permits have a key role to play and are managed by others. Components of comprehensive parking management include wayfinding, multimodal access, and

information distribution. Through leveraging these tool the City can create capacity or reduce oversupply in the parking supply. The City of Waterloo can consider matching zoning regulations with strong parking management to mitigate externalities, and to move the City closer toward its goals of a balanced parking approach. The overall goal of this would be to view the public benefit of parking in a comprehensive system. This can involve focusing on problem areas, to begin with, and then evolving out to the rest of the City.

4.6.3 Opportunity: Stakeholder Roundtables

This Study acknowledges the role that applicants and developers play in delivering the built environment. When the City has policies that are broadly different from market expectations it can increase the number of parking variance and amendment requests. It is recommended that the City continue to engage with the development industry through holding developer roundtables as it rolls out new Zoning By-law regulations. This will serve two purposes: first, to understand their ideas and concerns with local development, and second, to clearly articulate the City's expectations for submissions. This can be ongoing and may help ensure that changes to the by-law are having the desired effect, are not further limiting development, and will still meet the goals and expectations of the City.

4.7 Phasing

With all recommendations, the timing and phasing will be a critical component of their success. As mentioned at the start of this section, the recommendations have been produced to enable them to be delivered independently or as part of a structured holistic program of updates; however, the recommended implementation is outlined below and shown in Table 24.

4.7.1 Short Term Quick Wins

Establishing a process for ongoing collection of parking utilization data, through either parking audits or use of automatic data, presents an easy win following this report. While the implementation is short-term in terms of how soon it could be implemented, both could be ongoing into the future.

These recommendations deliver tangible outcomes and would provide beneficial information to the City moving forward to help inform other aspects of parking management. These recommendations are also entirely independent which means that the work to begin delivering on them can start without requiring outputs from other recommendations. Once the work has been undertaken to create and build the processes, they will provide long-term benefits, creating an avenue of ongoing information gathering that becomes part of business as usual.

4.7.2 Medium Term

In the medium term, the City can consider updating the overall parking areas, structure, and rates. This would begin with redefining the parking Overlay Areas, which would require consultation and engagement with stakeholders through an amendment to the City's Zoning By-Law. Redefining the parking Overlay Areas would provide an opportunity to reassess how the parking rates are structured overall. This would enable the City to choose a new structure to fit their current needs, in alignment with their goals of

balancing parking rates, leveraging investments in ION and active transportation, and climate change mitigation.

Following a decision around which structure will be deployed, the City can then look to update the parking rates themselves. This needs to be done in conjunction with formalizing the process for cash-in-lieu of parking rates to ensure they are closely associated, along with creating the right design and multi-modal incentives that are reflective of the new parking rates being implemented.

4.7.3 Long Term

Longer-term recommendations have been considered. While they can be started in the short-term, due to their complexity they will have a longer time for delivery. These include the comprehensive parking management approach, and the overall approach to shared parking. Beyond solving complex issues within both interventions as outlined in the sections above, both may also require collaboration with stakeholders, such as key developers, private parking providers, and building owners, which will take time. Furthermore, this process will use data gathered from the other recommendations, as well as being cognisant of any updates to the parking structure and rates overall.

Table 24: Potential Phasing of the Recommendations

Timeframe		Short Term	Medium Term	Long Term			
	Recommendations	Present	+ 6 months	+1 year	+ 1 year and 6 month	+ 2 years	Over 2 years
1	On-going data collection						
3	Revised Parking Overlay Areas						
3.1	New Parking Rate Structure						
3.2	Stakeholder Roundtables						
3.3	Amend Parking Rates						
3.4	Design and Multi-modal Incentives						
3.5	Cash-In-Lieu of Parking Policy						
4	Comprehensive Parking Management						

5	Adopt Shared Parking							

While this is the recommended phasing approach, it is recognized that implementation timelines may vary as a result of external factors. If it is required that other recommendations be brought forward, or pushed further back, it will be important at that stage to re-examine the recommendations to determine if any other ones would benefit from being implemented at the same time or if it impacts plans to implement other recommendations.

5 Conclusion

The recommendations made in this Study outline an evolution in the approach to parking requirement that can be adopted in parking standards, policies, and regulations of the City. Through the process of analysis, review of best practices and presentation of recommendations, this Study has identified key actionable responses to the existing parking framework. The recommendations have been produced to enable them to be delivered independently or as part of a structured holistic program of updates.

These recommendations are aimed at helping the City to achieve their primary, long-term goals around enabling more housing development, reducing car dependence, and combating climate change, while ensuring sufficient parking needs are delivered on site, and parking impacts are mitigated (in particular in relation to municipal roads). Table 25 extracts the key goals policies to transportation from the City of Waterloo and identifies which of the recommendations in this report will help to specifically address those goals, if implemented. Recommended rates provided in this report are based on ITE rates, which can be calibrated to better reflect the local context once additional data has been collected from the sites within the community.

Table 25: Parking Study Recommendations presented against the Waterloo Goals

	City of Waterloo's Key Policies								
Parking Study Standards Potential Recommendations	Transportation Master Plan	Urban Design Manual	City of Waterloo Official Plan	University of Waterloo Campus Master Plan Update	University of Waterloo Northwest Campus- Development Design Guidelines	City of Waterloo Station Area Planning	City of Waterloo Corporate Climate Change Adaptation Plan	Northdale Land Use and Community Plan Study: Urban Design and Built Form Guidelines	West Side Employment Lands Urban Design Guidelines
Developer Roundtables		✓	✓						

On-going data collection	✓	✓	✓	✓			✓		✓
Revised Parking Overlay Areas			✓		✓	✓	✓		✓
New parking rate structure	✓	✓	✓		✓	✓			✓
Amend Parking rates		✓	✓	✓		✓	✓		✓
Design and Multi-modal incentives	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cash-in-lieu of parking policy	✓	✓	✓	✓	✓		✓	✓	✓
Comprehensive parking management	✓	✓	✓	✓	✓		✓	✓	✓
Adopted Shared parking	✓	✓	✓	✓	✓		✓		✓

APPENDICES

Appendix A By-law Assessment Database

City of Waterloo - Parking Rates Analysis

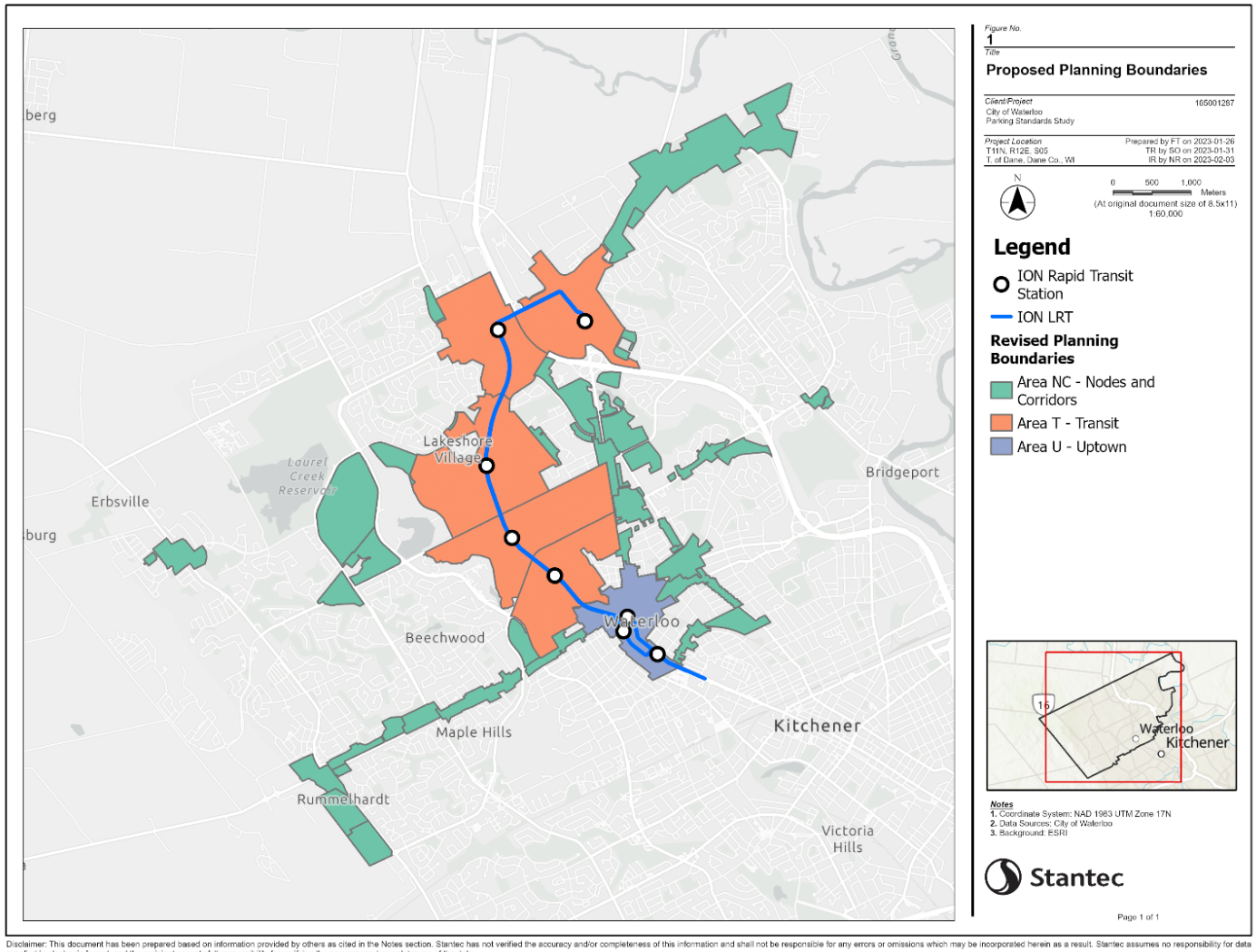
Waterloo					ITE				Suggested Rates for Waterloo			
Category	By-Law Section	Use	Applicable rate	Unit	ITE Use	Rate (Sq.M) +10%	Unit	Std Dev	A-Min	Min	Max	A-Max
Parking, Driveways, Loading	6.1.3 - Table 6A	Assisted Living Facility	0.30	per bedroom	254 - Assisted Living	0.43	Beds	0.11	0.10	0.32	0.65	0.71
Parking, Driveways, Loading	6.1.3 - Table 6A	Auditorium	5.00	/100m2	441 - Live Theater	0.42	Attendees	0.01	0.10	0.41	0.44	0.48
Parking, Driveways, Loading	6.1.3 - Table 6A	Automobile Service Centre	3.50	/100m2	943 - Automobile Parts and Service Center	2.00	1000 Sq. M	1.80	0.10	0.19	5.20	5.72
Parking, Driveways, Loading	6.1.3 - Table 6A	Banquet Hall	5.00	/100m2	931 - Quality Restaurant	12.46	1000 Sq. M	1.80	0.10	9.90	14.91	16.40
Parking, Driveways, Loading	6.1.3 - Table 6A	Child care centre < 1000m2	4.00	/100m2	565 - Day Care Center	2.90	1000 Sq. M	1.80	0.10	1.03	6.04	6.64
Parking, Driveways, Loading	6.1.3 - Table 6A	Funeral Home	3.00	/100m2	560 - Church	No ITE Rate for Weekday	1000 Sq. M	1.80	0.10	No ITE Rate for Weekday	No ITE Rate for Weekday	No ITE Rate for Weekday
Parking, Driveways, Loading	6.1.3 - Table 6A	Group Home	1.00	per employee	255 - Continuing Care Retirement Community	1.20	Dwelling units	1.67	0.10	-0.47	4.54	4.99
Parking, Driveways, Loading	6.1.3 - Table 6A	Hospital	0.30	per hospital bedroom	610 -Hospital	4.11	Beds	1.67	0.10	2.44	7.45	8.20
Parking, Driveways, Loading	6.1.3 - Table 6A	Hotel	1.00	per guest room	310 - Hotel	0.81	Rooms	1.67	0.10	-0.86	4.15	4.57
Parking, Driveways, Loading	6.1.3 - Table 6A	Home occupation - Class A Artist Studio (Operator + 0 employee)	0.00	per dwelling unit	715 - Single Tenant Office Building	0.86	Employees	1.67	0.10	-0.81	4.20	4.62
Parking, Driveways, Loading	6.1.3 - Table 6A	Home occupation - Personal Grooming(Operator + 0 employee)	1.00	per dwelling unit	715 - Single Tenant Office Building	0.86	Employees	1.67	0.10	-0.81	4.20	4.62
Parking, Driveways, Loading	6.1.3 - Table 6A	Home occupation - Home Childcare(Operator + 0 employee)	1.00	per dwelling unit	715 - Single Tenant Office Building	0.86	Employees	1.67	0.10	-0.81	4.20	4.62
Parking, Driveways, Loading	6.1.3 - Table 6A	Home occupation - Home Commercial Wellness(Operator + 0 employee)	1.00	per dwelling unit	715 - Single Tenant Office Building	0.86	Employees	1.67	0.10	-0.81	4.20	4.62
Parking, Driveways, Loading	6.1.3 - Table 6A	Home occupation - Home Health Practioner(Operator + 0 employee)	3.00	per dwelling unit	715 - Single Tenant Office Building	0.86	Employees	1.67	0.10	-0.81	4.20	4.62
Parking, Driveways, Loading	6.1.3 - Table 6A	Home occupation - Home Office(Operator + 0 employee)	0.00	per dwelling unit	715 - Single Tenant Office Building	0.86	Employees	1.67	0.10	-0.81	4.20	4.62
Parking, Driveways, Loading	6.1.3 - Table 6A	Home occupation - Home Personal Service(Operator + 0 employee)	1.00	per dwelling unit	715 - Single Tenant Office Building	0.86	Employees	1.67	0.10	-0.81	4.20	4.62
Parking, Driveways, Loading	6.1.3 - Table 6A	Home occupation - Teacher(Operator + 0 employee)	1.00	per dwelling unit	715 - Single Tenant Office Building	0.86	Employees	1.67	0.10	-0.81	4.20	4.62
Parking, Driveways, Loading	6.1.3 - Table 6A	Home occupation - Class A Artist Studio(Operator + 1 employee)	1.00	per dwelling unit	715 - Single Tenant Office Building	0.86	Employees	1.67	0.10	-0.81	4.20	4.62
Parking, Driveways, Loading	6.1.3 - Table 6A	Home occupation - Personal Grooming(Operator + 1 employee)	3.00	per dwelling unit	715 - Single Tenant Office Building	0.86	Employees	1.67	0.10	-0.81	4.20	4.62
Parking, Driveways, Loading	6.1.3 - Table 6A	Home occupation - Home Childcare(Operator + 1 employee)	3.00	per dwelling unit	715 - Single Tenant Office Building	0.86	Employees	1.67	0.10	-0.81	4.20	4.62
Parking, Driveways, Loading	6.1.3 - Table 6A	Home occupation - Home Commercial Wellness(Operator + 1 employee)	3.00	per dwelling unit	715 - Single Tenant Office Building	0.86	Employees	1.67	0.10	-0.81	4.20	4.62
Parking, Driveways, Loading	6.1.3 - Table 6A	Home occupation - Home Health Practioner(Operator + 1 employee)	4.00	per dwelling unit	715 - Single Tenant Office Building	0.86	Employees	1.67	0.10	-0.81	4.20	4.62
Parking, Driveways, Loading	6.1.3 - Table 6A	Home occupation - Home Health Practioner(Operator + 1 employee)	4.00	per dwelling unit	715 - Single Tenant Office Building	0.86	Employees	1.67	0.10	-0.81	4.20	4.62
Parking, Driveways, Loading	6.1.3 - Table 6A	Home occupation - Home Office (Operator + 1 employee)	1.00	per dwelling unit	715 - Single Tenant Office Building	0.86	Employees	1.67	0.10	-0.81	4.20	4.62
Parking, Driveways, Loading	6.1.3 - Table 6A	Home occupation - Home Personal Service(Operator + 1 employee)	3.00	per dwelling unit	715 - Single Tenant Office Building	0.86	Employees	1.67	0.10	-0.81	4.20	4.62
Parking, Driveways, Loading	6.1.3 - Table 6A	Home occupation - Teacher(Operator + 1 employee)	3.00	per dwelling unit	715 - Single Tenant Office Building	0.86	Employees	0.12	0.10	0.74	1.10	1.21
Parking, Driveways, Loading	6.1.3 - Table 6A	Lodging House	0.50	per lodging room	310 - Hotel	0.81	Rooms	0.22	0.10	0.59	1.25	1.38
Parking, Driveways, Loading	6.1.3 - Table 6A	Long Term Care Facility	0.30	per bedroom	620 - Nursing Home	0.85	1000 Sq. M	0.30	0.10	0.51	1.35	1.49
Parking, Driveways, Loading	6.1.3 - Table 6A	Private School	2.00	per teaching area	536 - Private School (K-12)	0.39	Students	0.08	0.10	0.31	0.55	0.60
Parking, Driveways, Loading	6.1.3 - Table 6A	Public School	2.00	per teaching area	530 - High School	0.29	Students	0.05	0.10	0.24	0.39	0.42
Parking, Driveways, Loading	6.1.3 - Table 6A	Restaurant < 1000m2	1.00	per 4 seats	930 - Fast Casual Restaurant	11.76	1000 Sq. M	1.32	0.10	9.69	13.38	14.72
Parking, Driveways, Loading	6.1.3 - Table 6A	Restaurant - Take Out <1000m2	15.00	/100m2	933 - Fast Food Restaurant without Drive-Through	11.73	1000 Sq. M	6.34	0.10	5.01	22.68	24.95
Parking, Driveways, Loading	6.1.3 - Table 6A	Second Residential Unit	No Rate	No Rate	220 - Multifamilty Housing (Low-rise)	1.33	Dwelling units	0.27	0.10	1.06	1.87	2.06
Parking, Driveways, Loading	6.1.3 - Table 6A	Spiritual	No Rate	No Rate	560 - Church	No ITE Rate for Weekday	1000 Sq. M	6.06	0.10	No ITE Rate for Weekday	No ITE Rate for Weekday	No ITE Rate for Weekday
Parking, Driveways, Loading	6.1.3 - Table 6A	Triplex Building	4.00	per building	220 - Multifamilty Housing (Low-rise)	1.33	Dwelling units	0.27	0.10	1.06	1.87	2.06
Residential Zoning	7.1.2	Single Detached	1.00	per dwelling unit	220 - Multifamilty Housing (Low-rise)	1.33	Dwelling units	0.27	0.10	1.06	1.87	2.06
Residential Zoning	7.2.2	Single Detached	1.00	per dwelling unit	220 - Multifamilty Housing (Low-rise)	1.33	Dwelling units	0.27	0.10	1.06	1.87	2.06
Residential Zoning	7.3.2	Single Detached	1.00	per dwelling unit	220 - Multifamilty Housing (Low-rise)	1.33	Dwelling units	0.27	0.10	1.06	1.87	2.06
Residential Zoning	7.4.2	Single Detached	1.00	per dwelling unit	220 - Multifamilty Housing (Low-rise)	1.33	Dwelling units	0.27	0.10	1.06	1.87	2.06
Residential Zoning	7.4.2	Semi detached	1.00	per dwelling unit	220 - Multifamilty Housing (Low-rise)	1.33	Dwelling units	0.27	0.10	1.06	1.87	2.06
Residential Zoning	7.4.2	Freehold Semi Detached	1.00	per dwelling unit	220 - Multifamilty Housing (Low-rise)	1.33	Dwelling units	0.27	0.10	1.06	1.87	2.06

Figure 25: Sample of By-law Assessment Database

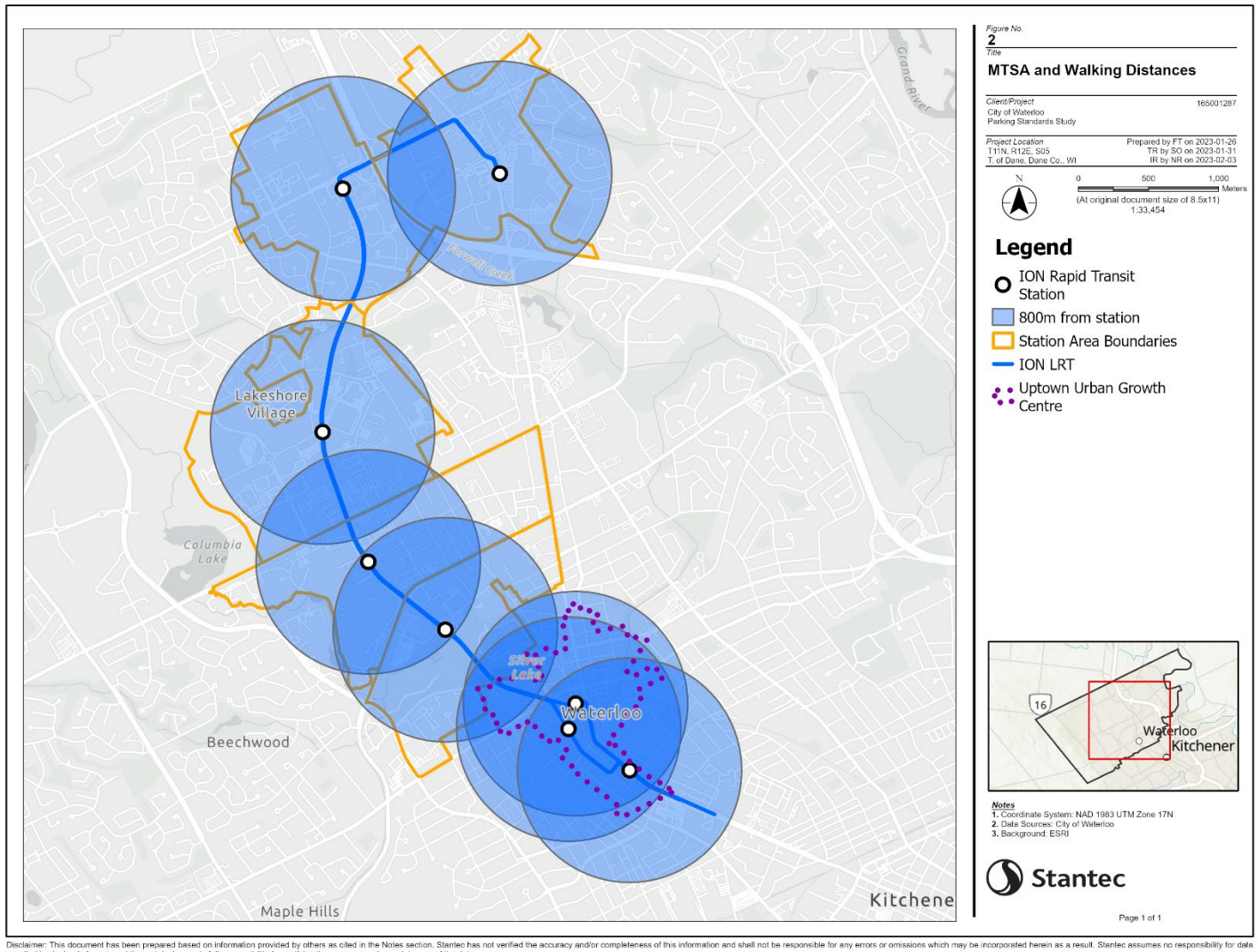
For the full assessment database, please see the accompanying spreadsheet.

Appendix B Maps

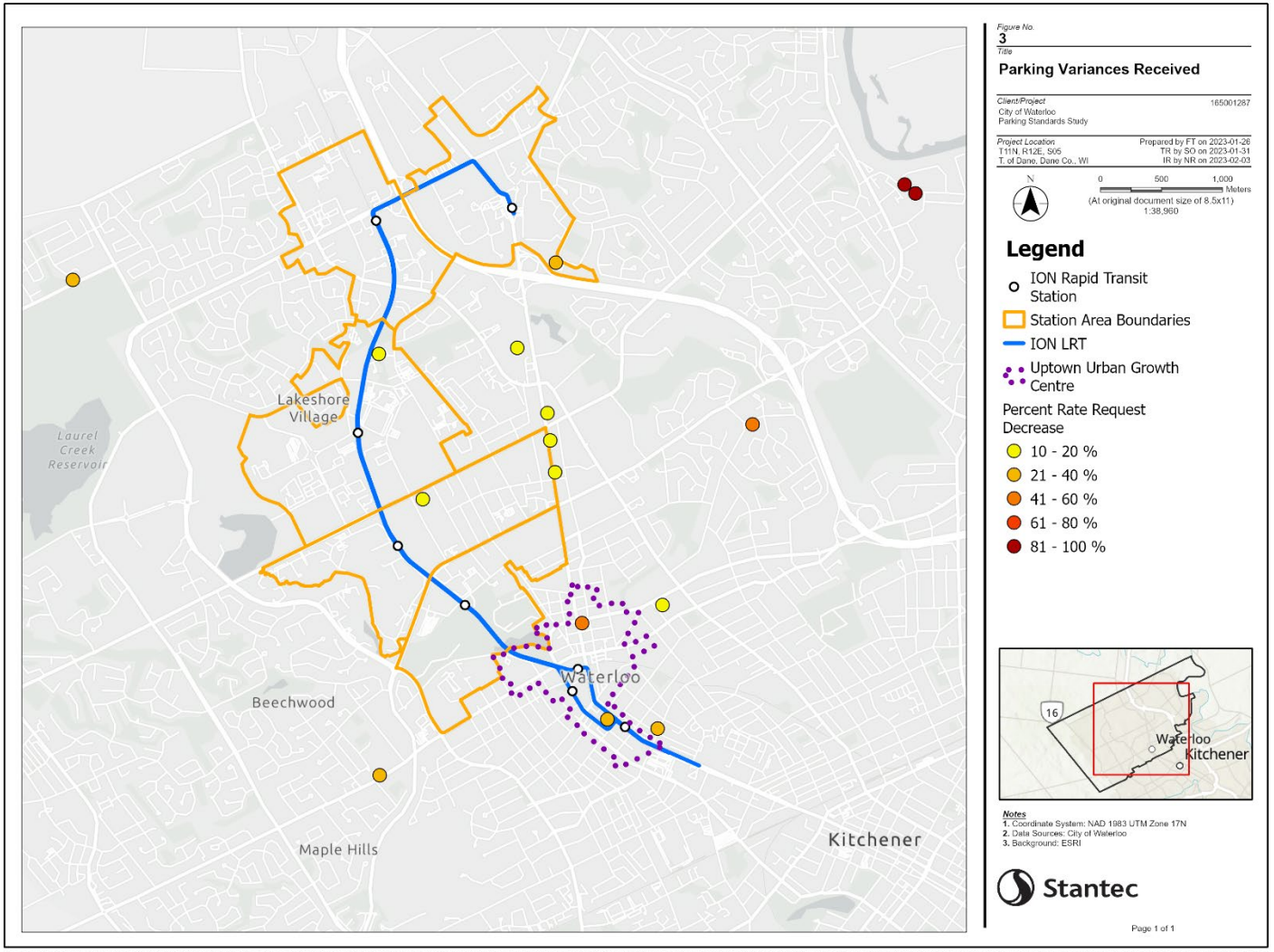
B.1 Revised Planning Boundaries



B.2 Major Transit Station Areas and 10-minute isochrones

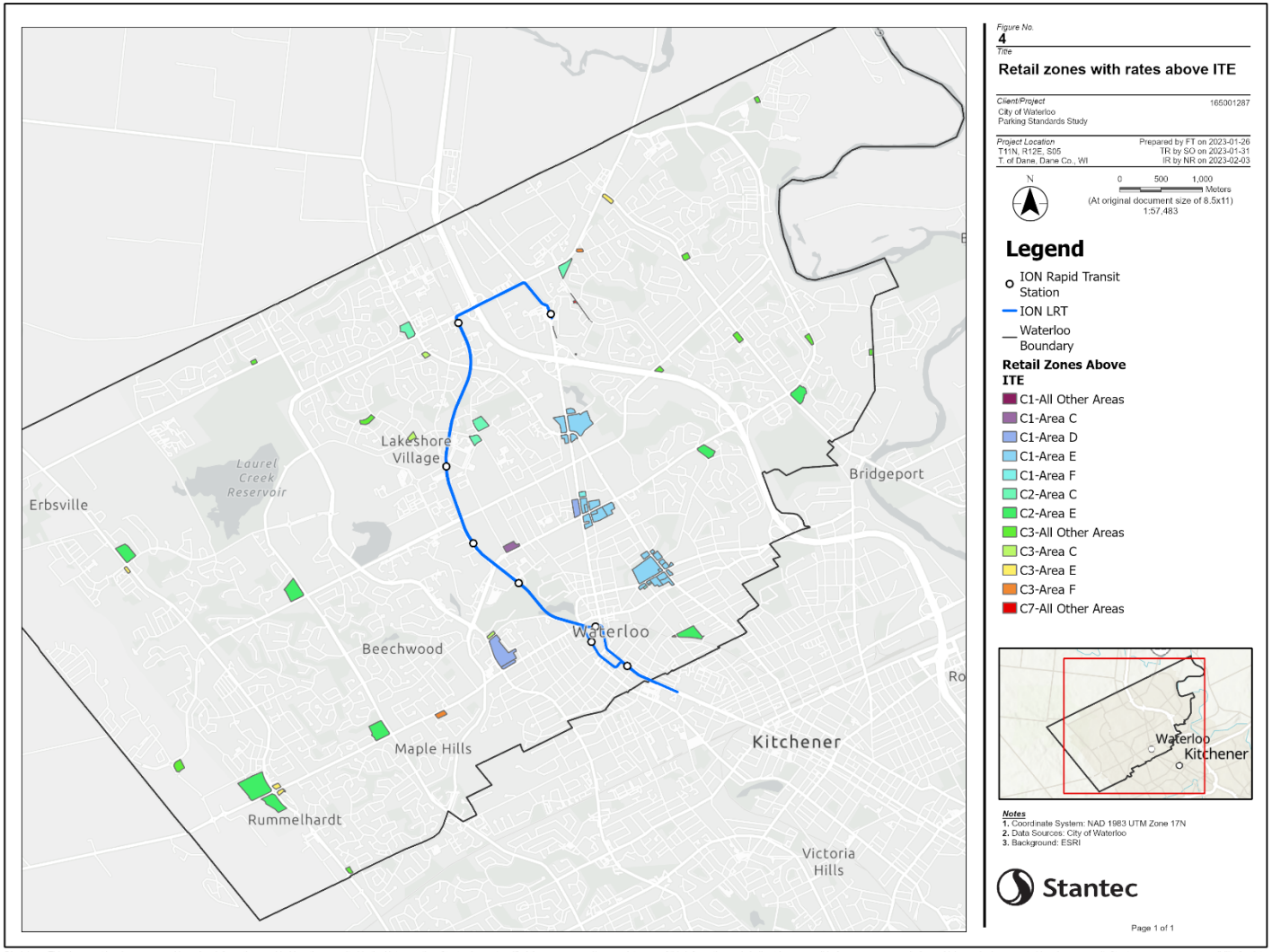


B.3 Minor Parking Variance requests since Jan 2020 (plottable locations)



Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

B.4 Retail Zones with Parking rates higher than ITE



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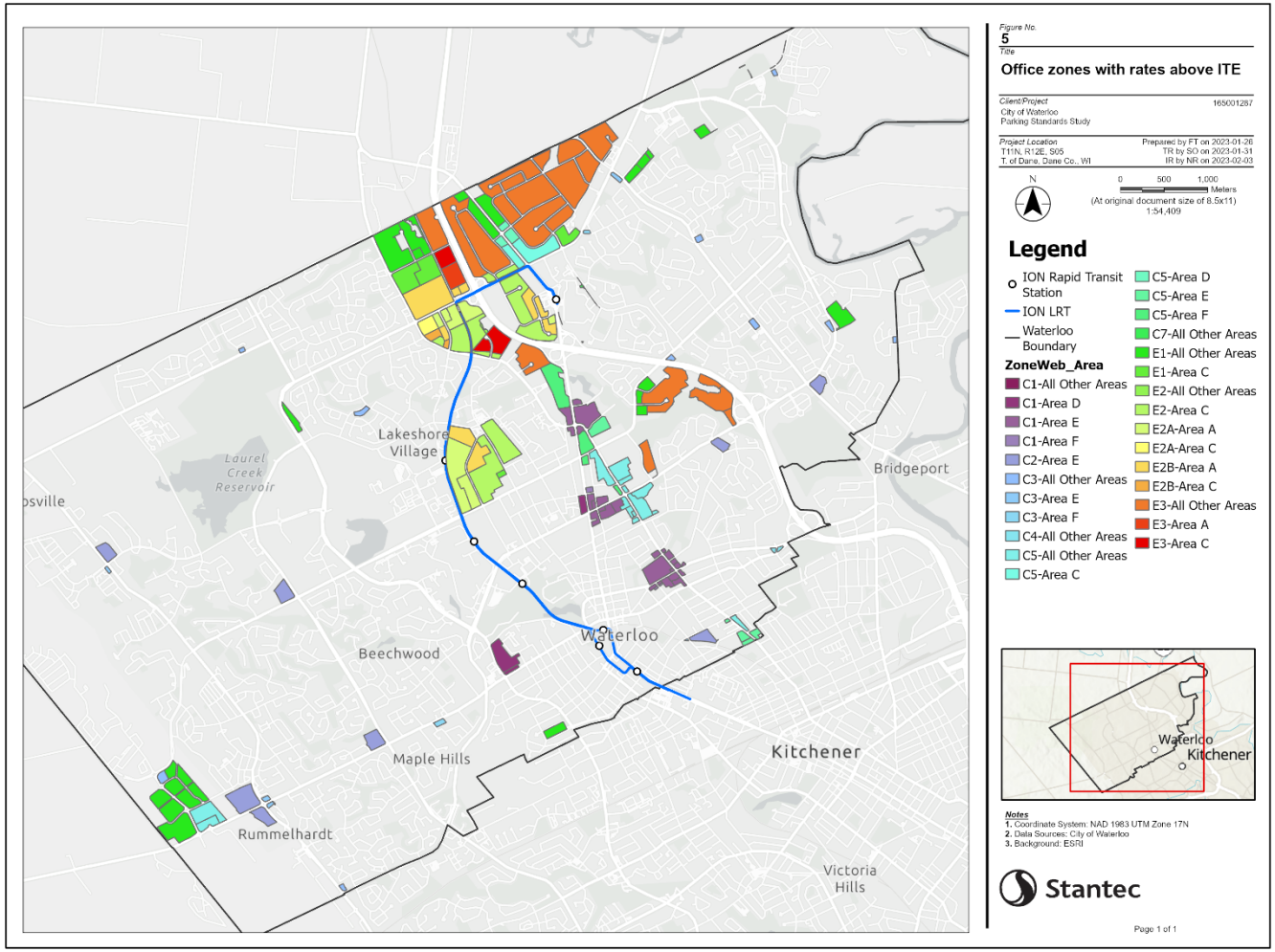
B.5 Office Zones with Parking rates higher than ITE



Appendix C Parking Data Collection

Collecting information on parking utilization is a relatively simple goal, yet there are several steps to follow to ensure that data collected is as useful as possible. These include:

1. **Prepare data collection sheets before fieldwork.** A sample is provided below. Having a place to organize the data is extremely useful so that field work can focus on the task at hand.
2. **Inventory existing parking**. Ideally this task is completed in the field, as what is on the ground can differ from site plans, etc. This step is key as it provides a baseline for determining parking utilization percentages, which can illuminate whether parking is over or under built. Depending on the site, it may be important to capture inventory by regulation, such as permit parking or parking for a particular restaurant.
3. **Plan for the right occupancy count day**. It is important to collect data on a 'representative' day. This typically is a weekday in the middle of the week (not a Monday or a Friday, as travel patterns may be slightly different on those days). Confirm that there are no special events or construction on-site or nearby. "Typical' includes weather; a best practice is to collect data on a fair weather day. When planning, it can be helpful to select an alternate date ahead of time in case of inclement weather.
4. **Plan for the right occupancy count times.** Different uses peak at different times. ITE provides this information and can help pinpoint peak data collection times. It is also helpful to collect off-peak data to start to understand how demand fluctuates throughout the day.
5. **Collect the data.** Using the data collection sheet, count all of the vehicles in all of the spaces at a given facility. If a vehicle is in the process of parking or leaving at the time of the count, count it as parked.

Sample Data Collection Sheet:

Inventory			Utilization		
Name	Loc_ID	Total #	Begin Time:	Begin Time:	Begin Time:
			End Time:	End Time:	End Time:
			# Count	# Count	# Count
Site 1	L076	100			
Site 2	L077	624			
Site 2 Permits	L077B	46			
Site 3	L078	40			

For more information on how to do a complete parking study, see https://www.mapc.org/resource-library/how-to-do-a-parking-study/

Appendix D Parking Variance and Amendment requests January 2020 to August 2022

Address	Zone	Original Requirement	Requested parking related requirement	Justification provided
180 King St S	U2-30	1) By-law requires 160 parking spaces	1) maintain the existing shape, size, and number of parking spaces on site (154) 2) adding additional width to parking spaces abutting wall or column	Parking Relief
181 King St S	U2-81	1) residential visitor parking requirement is 0.15 spaces per dwelling unit (29 total visitor parking spaces for this development)	1) 0.1 spaces per dwelling unit were proposed (19 total visitor parking spaces)	Relief from visitor parking
620 King St N	C5-81	1) loading space requirement of 2 loading spaces 2) parking space requirement of 84 spaces	1) loading space existing is 2.2m 2) 70 parking spaces provided	Relief for retained lot for the side yard, reduced loading spaces, and reduced parking
120 King St N	U1-60	1) minimum parking requirement of 9 spaces	1) 7 parking spaces are proposed	Parking relief, relief from building height minimum
308 King St N	C1-81	1) residential parking rate of 1.10 spaces per dwelling unit (374 spaces)	1) residential parking rate of 0.895 spaces per dwelling unit (305 spaces) is proposed	Parking relief
63 Union St E	RMU-20	1) parking requirement of 5.0 spaces	1) 2 spaces are provided in the garage, and two spaces are provided in tandem with the garage spaces in the driveway	Front yard, parking, and front entrance relief for 4-unit stack town building
726 New Hampshire St	RMU-20	1) 99 parking stalls are required for the new building	1) 30 parking stalls are proposed on the new lot and 69 parking stalls are proposed on the retained lot	Relief related to parking *development includes some affordable housing units
363 Redwood Pl	R1	1) By-Law permits three private garage bays in the R3 zone only 2) permits a maximum driveway width of 7.0m in the R1 zone 3) permits a maximum of three private garage bays in the R3 zone only	1) to legalize the existing third private garage bay in the R1 zone 2) to legalize the existing 10.89m wide driveway 3) Requesting relief to permit a fourth private garage bay	Permit a 4th private garage space

413 Erb St W	RMU-20	1) 9 parking stalls are required	1) 8 parking stalls are proposed	Relief from parking, the height of the first storey, and the street line setback
409-417 Woolwich St	R8	1) visitor parking requirement of 0.33 spaces per dwelling unit	1) 0 visitor parking spaces are proposed	Interior lot line setback, visitor parking spaces
120 King St N	U1-60	1) minimum parking requirement of 9 spaces	1) 7 parking spaces are proposed	Parking and a minimum height of building relief
380 King St N	C5-81	1) 3.75 spaces per 100 sqm of building floor area (64 spaces required)	1) 3.09 spaces per 100 sqm of building floor area (50 spaces) are existing	Parking relief
103 Bauer Pl	E2B-27	1) restricts parking facilities to structure parking	1) surface parking	Relief from the requirement to have parking facilities within a structure (A-02/20 lapsed)
346 King St N	RMU-81	1) 15 required parking spaces (0.9 spaces per dwelling unit plus 0.1 visitor parking spaces per dwelling unit)	1) proposed 13 parking spaces (0.1 visitor spaces per dwelling unit for a total of 2 visitor spaces plus 0.786 residential parking spaces per dwelling unit for a total of 11)	Parking relief for the new 4-storey multi-res apartment building
400 Northfield Dr W	R8	1) minimum parking requirement of 6.5 spaces per 100 sqm of building floor area (site specific By-law C217), for a total of 101 required spaces 2) requirement for a loading space 3) commercial parking facility is not permitted within the R4 zoning category	1) 70 parking spaces are proposed 2) no loading space is proposed 3) agreement between the Church and the property owner to the west to provide 7 residential visitor parking spaces within the church property	Parking deficit, landscape buffer relief, loading space relief
33 Allen St E	R4	1) 66 parking spaces exist, and 107 parking spaces would be required for the total building floor area 2) maximum permitted width of 7.0m 3) required loading space of 1 Type A space	1) Permission to permit 61 parking spaces 2) Permission to recognize the existing driveway widths 3) proposed 1 Type B loading space	Extend legal non-conforming front yard, parking, driveway, relief from loading space
416 Kingscourt	RMU-20	1) parking requirement of 132 spaces (0.9 spaces per unit, 0.1 spaces per unit for visitor parking, 2.10 spaces per 100 sqm of building floor area)	1) 106 spaces is proposed (0.70 spaces per unit for a total of 93 residential spaces, 0.075 spaces per unit for a total of 10 visitor, 1.4 spaces per 100 sqm. of building floor area for a total of 3 spaces for the non-residential use	Relief from parking, amenity space, and street line front building façade *development is affordable housing

580 Coldstream Dr	C3-10	1) minimum of 1.15 parking spaces per residential unit is required (37 spaces) 2) a minimum of 4 parking spaces per 100 sqm of building floor area is required for commercial uses (17 spaces)	1) 1 parking space per residential unit is proposed (32 spaces) 2) 3 parking spaces per 100 sqm of commercial building floor area is proposed (13 spaces)	Residential and commercial parking reduction, landscape buffer reduction, loading space relief, structure parking on the first storey of the structure
289 Lincoln Rd	R1	1) requires 8 parking spaces per 100 sqm of building floor area (110 spaces)	1) requesting 4.45 parking spaces per 100 sqm. of building floor area (61 spaces)	Parking relief
439 Woolwich St	R8	1) minimum visitor parking requirement of 0.33 spaces per dwelling unit	1) 0 visitor parking spaces are proposed	Relief from the interior lot lines, front yard, and visitor parking
580 Coldstream Dr	C3-10	1) requires a minimum of 1.15 parking spaces per residential unit (37 spaces) 2) requires a minimum of 0.10 visitor parking spaces per residential unit (4 spaces) 3) requires a minimum of 4 parking spaces per 100 sqm of building floor area for commercial uses (17 spaces) 4) requires a Type B loading spaces (3m x 12m) 5) structured parking shall not be permitted on the first storey	1) 1 parking space per residential unit is proposed (32 spaces) 2) 0.09 visitor parking spaces per residential unit is proposed (3 spaces); 3) 3 parking spaces per 100sq.m. of building floor area is proposed (13 spaces) 4) requesting a Type A loading space (3m x 7m) 5) structured parking is proposed at grade of the first storey	Relief for residential, visitor, commercial parking, loading space, and parking on the first storey
145 Columbia St W	RN-25	1) residential parking required 0.20 spaces/bedroom (109 res. spaces required)	1) residential parking requested is 0.175 spaces/bedroom (98 res. spaces proposed)	City Staff Report (pp. 6, 10) - staff supported as the site is well served by transit including being in ION Station Area, the total parking requirement of 390 spaces is satisfied on the combined land holdings (145 Columbia and 330 Phillip), close to WLU, close to Idea Quarter
24-30 Union St. E.	RMU-20	1) By-law requires 1.20 spaces per unit (1.10 per unit for residents + 0.10 per unit for visitors) for a total of 56 parking spaces.	1) requesting a parking rate of 0.85 spaces per unit (40 spaces total - 36 residential and 4 visitor)	City Staff Report (pp.9-10) - parking Study included observed parking utilization of other similar-sized developments (noting not

		Total of 46 units in the proposed development.		all were direct comparisons with the site). The Study also summarized various TDM measures to support the requested parking rate including the provision of bike spaces exceeding zoning requirements, access to transit, car share space, proximity to trails, public schools and parks, and unbundled spaces.
525 & 565 Conestogo Rd. W.	FD	1) By-law requires 2.8 spaces/100 sq.m. for office and retail uses and 1.0 space/residential unit (0.9 for residence and 0.1 for visitors). Based on this the property should provide 3,102 parking spaces	1) 2,648 parking spaces are proposed (underground, podium, and surface parking)	Applicant PJR (p.30) - refers to TDM Report and states in accordance with the RMOW TDM checklist the proposed redevelopment is TDM supportive, resulting in a 25% reduction in parking demand (says is based on transit, LRT services, participation in the Region's Travelwise and Community Care Share programs, onsite transit, cycling support and unbundled parking.
310-316 Erb St. W.	C1-40	1) required parking of 113 parking spaces (1.2 spaces/unit). Total of 93 units in the proposed development.	1) reduce the required parking to 84 parking spaces (0.9 spaces/unit); more specifically - a residential parking rate of 0.79 spaces per dwelling unit.	City Staff Report (p.12) - staff had no objections to parking request for reasons including the site is well served by transit, transit-supportive development in a designated Minor Corridor, commercial uses nearby, are providing the required 10 visitor parking spaces
535 Quiet Place	RMU-40	1) parking requirement of 1.0 space/unit 2) no parking is permitted in front of the front yard building line *423 units in the proposed development	1) reduce the res. parking requirement from 1.0 spaces per unit to 0.9 spaces per unit; no alteration to 0.1 visitor spaces/unit requirement (424 parking spaces proposed vs. 466 spaces required) 2) permit 1 parking space in front of the building line (for couriers/parcel delivery, food delivery, pick-up/drop-off, etc.)	City Staff Report (p.12) - 1. staff supported as the site is in a designated node/corridor, well-served by transit. 2. Staff of the opinion that the proposed development meets the intent of regulation that requires parking spaces to be located behind the front yard building line, it's to function as short-duration parking spaces (typically less than 15

				minutes in duration per occurrence).
70 King St. N. (2022)	(H)U1-81	1) required non-residential parking rate of 1.5 spaces per 100 sqm of Building Floor Area 2) required visitor parking rate of 0.1 spaces per unit	1) reduce the non-residential parking rate to 0.6 spaces per 100 sqm of Building Floor Area 2) reduce the visitor parking rate to 0.045 spaces per unit	City Staff Report (pp.17-19) - staff did not support, rather recommended and supported the following parking rates: *residential-0.535 spaces/unit (vs 0.6 spaces/unit required) *visitor - 0.09 spaces/ dwelling unit (vs. 0.1 spaces/unit required) *non-resdiential-1.5 spaces/100 sqm (as required by By-Law) Reasons given for supporting this allocation is: impact of reducing the residential rate will be borne by the owner(s) of the proposed development rather than the surrounding area, convenient access to transit, biking and walking facilities, visitor parking spaces can be used by non-res. or res. users, installation of signage to ensure that the non-exclusive visitor spaces are made available during non-business hours for res. visitors
435 King St. N.	C5-81	1) requires a minimum of 1.0 residential space per/unit 2) requires 3.25 spaces per 100 sqm of non-res. building floor area	1) proposing 0.9 residential spaces per/unit 2) proposing 2.7 spaces per 100 sqm of non-res building floor area	Applicant PJR (pp.21-22) - lands located along a Major Corridor and partially within a Major Node, well-served by transit and active transportation options
81-85 Bridgeport Rd. E.	C1-40	1) requires 1 space/unit for residential use 2) requires 3.20 spaces/ 100 sqm of non-residential building floor area 3) total spaces required (residential, non-residential, and visitor) is 564 spaces	1) proposing 0.9 residential spaces/unit 2) 2.4 spaces/100 sqm of building floor area for non-residential uses 3) total spaces proposed is 508 (includes residential, non-residential, and visitor)	Applicant PJR (pp.27-28) - parking will be unbundled from the units, alternative transportation options (active transportation and transit stops) in the area, proximity to a range of commercial and employment uses, 600sqm commercial use proposed on the ground floor-expect some of the

				residents will also use the commercial space on site which won't create new demand for parking