



Bicycle Parking Zoning By-Law Directions – *Final Report*

City of Mississauga, Ontario
October 22, 2021



Contents

| | | |
|-----|---|----|
| 1 | Introduction | 1 |
| 1.1 | Jurisdictional Review of Best Practices Methodology | 1 |
| 1.2 | Report Organization | 2 |
| 2 | Directions for Mississauga Zoning By-Law | 3 |
| 2.1 | Off-Street Bicycle Parking Spaces | 3 |
| 3 | Defining Bicycle Parking..... | 11 |
| 3.1 | Classification by Duration..... | 11 |
| 3.2 | Bicycle Parking Space Dimension | 13 |
| 3.3 | Bicycle Parking Space Locational Requirement | 15 |
| 3.4 | Additional Design Requirements | 20 |
| 3.5 | Recommendations for the City of Mississauga for Defining Bicycle Parking..... | 21 |
| 4 | Defining Zones for Bicycle Rates | 23 |
| 4.1 | Bicycle Parking by Area/Zone in Other Jurisdictions | 23 |
| 4.2 | Precincts | 23 |
| 4.3 | Transportation Tomorrow Survey (TTS) Results | 24 |
| 4.4 | Recommendations for the City of Mississauga for By-law Zoning Areas | 24 |
| 5 | Bicycle Parking Land Uses and Control Variables..... | 26 |
| 5.1 | Land Uses..... | 26 |
| 5.2 | Control Variable | 26 |
| 5.3 | Recommendations for the City of Mississauga for Land Uses and Control Variables | 27 |
| 6 | Bicycle Parking Rates | 28 |
| 6.1 | Residential Bicycle Parking Rates..... | 28 |
| 6.2 | Non-Residential Bicycle Parking Rates | 32 |
| 6.3 | Differentiating Rates by Area | 41 |
| 6.4 | Recommendations for City of Mississauga Bicycle Parking Rates | 44 |
| 7 | Amenities for Bicycle Parking..... | 46 |
| 7.1 | Recommendations for End-of-Trip Facilities..... | 49 |
| 8 | Additional By-Law Directions..... | 50 |
| 8.1 | Bicycle Parking for Smaller Developments..... | 50 |
| 8.2 | Offsetting Motor Vehicle Parking with Bicycle Parking..... | 51 |

Exhibits

| | |
|---|----|
| Exhibit 1: Minimum Bicycle Parking Space and Access Aisle Dimensions (Kitchener Zoning By-law 2019-051) | 14 |
| Exhibit 2: Minimum Residential Bicycle Parking Rates | 29 |
| Exhibit 3: Minimum Residential Rates – Comparison with Other Municipalities | 30 |
| Exhibit 4: Minimum Residential Rates – Comparison with Other Municipalities (excluding Vancouver)..... | 31 |
| Exhibit 5: Long-Term Bicycle Parking Rates for Non-Residential Land Uses | 36 |
| Exhibit 6: Short-Term Bicycle Parking Rates for Non-Residential Land Uses | 37 |
| Exhibit 7: Number of Shower Facilities Required..... | 48 |

Tables

| | |
|---|----|
| Table 1: Bicycle Parking Space Definition | 11 |
| Table 2: Bicycle Parking Space Definition by Duration | 12 |
| Table 3: Examples of Horizontal, Vertical, and Stacked Bicycle Parking | 13 |
| Table 4: Dimensions of Bicycle Parking Spaces..... | 14 |
| Table 5: Bicycle Parking Space Locational Requirement | 15 |
| Table 6: Recommended Minimum Dimensions for Bicycle Parking Spaces | 21 |
| Table 7: Differentiation of Bicycle Parking Rates by Area..... | 23 |
| Table 8: Residential Vehicle Parking Rate Reductions for Retirement/Long-Term Care..... | 26 |
| Table 9: Minimum Bicycle Parking Rates for Apartments | 28 |
| Table 10: Comparison of Existing and Recommended Minimum Residential Bicycle Parking Rate | 32 |
| Table 11: Long-Term Bicycle Parking Rates for Non-Residential Land Uses (spaces per 100 m ²) | 34 |
| Table 12: Short-Term Bicycle Parking Rates for Non-Residential Land Uses (spaces per 100 m ²) | 35 |
| Table 13: Bicycle Parking Rate for Schools (spaces per students)..... | 38 |
| Table 14: Minimum Long-Term Bicycle Parking Rates for Other Non-Residential Land Uses ... | 38 |
| Table 15: Minimum Short-Term Bicycle Parking Rates for Other Non-Residential Land Uses... | 39 |
| Table 16: Comparison of Existing and Proposed Minimum Non-Residential Bicycle Parking Rates | 40 |
| Table 17: Grouping of Land Uses for Applicable Bicycle Parking Rates | 40 |
| Table 18: Comparing Residential Bicycle Parking Rates for General and Intensification Areas. | 41 |
| Table 19: Comparing Non-Residential Bicycle Parking Rates for General and Intensification Areas | 42 |
| Table 20: Recommendations for Minimum Residential Bicycle Parking Rate | 44 |
| Table 21: Recommendations for Minimum Non-Residential Bicycle Parking Rates..... | 44 |
| Table 22: Shower and Change Facilities Required (Kitchener Zoning By-law 2019-051) | 46 |
| Table 23: Shower and Change Facilities Required (Toronto By-law 569-2013)..... | 46 |
| Table 24: Shower and Change Facilities Required (Vaughan Draft Comprehensive Zoning By-Law January 2020) | 47 |

| | |
|--|----|
| Table 25: Shower and Change Facilities for Office and Retail (Vancouver By-law 6059) | 47 |
| Table 26: Shower and Change Facilities Required for Other Uses (Vancouver By-law 6059) ... | 47 |
| Table 27: Shower and Change Facilities Required (Mississauga TDM Strategy) | 48 |
| Table 28: Municipalities with Conditions Waiving Bicycle Parking Requirements | 50 |
| Table 29: Municipalities Allowing Offsetting of Motor Vehicle Parking Requirements with Bicycle Parking | 51 |

Attachments

Attachment A – Bicycle Parking Rates

Attachment B – Transportation Tomorrow Survey Findings

1 Introduction

The City of Mississauga is seeking to develop a set of bicycle parking requirements to be incorporated in the Zoning By-law. This report documents a jurisdictional review of current and best practices for bicycle parking standards in other municipalities and provides direction for the City of Mississauga's Zoning By-law.

Bicycle parking is a critical link between the cycling network and a cyclist's origin and destination. An appropriate supply of bicycle parking and supporting amenities enhances the convenience of cycling and makes it a more viable travel option.

The City's **Parking Master Plan and Implementation Strategy** (PMPIS) recommended the addition of bicycle parking requirements in the City's Zoning By-law. Establishing requirements for bicycle parking at new developments also supports the goals of the Cycling Master Plan. Additionally, the City's **Transportation Demand Management Strategy and Implementation Plan** (TDM Strategy) emphasized the role of bicycle parking to reduce reliance on the automobile in an urbanizing city. The TDM Strategy provided recommended guidelines for bicycle parking, including the differentiation between long- and short-term parking, bicycle parking design and placement, recommended bicycle parking supply rates based on size/land use/location of development, and supporting end-of-trip facilities.

The recommendations contained within the City's TDM Strategy were compared against established best practices in other jurisdictions to identify refinements or opportunities to expand or simplify the requirements for adoption into the City of Mississauga Zoning By-law.

1.1 Jurisdictional Review of Best Practices Methodology

This report summarizes the best practices review of how similar municipalities define bicycle parking spaces and the rates for individual land uses. The best practices review focused on the Zoning By-law or Parking Standards from the following municipalities, primarily in the Greater Toronto Area, but also other major cities in Canada:

- City of Halifax (Regional Centre Land Use By-law, Downtown Halifax)
- City of Hamilton (By-law 05-200)
- City of Kitchener (By-law 2019-051)
- City of Markham (Draft Bicycle Parking)
- Town of Newmarket (By-law 2010-40)
- Town of Oakville (By-law 2014-014)
- City of Richmond Hill (By-law 111-17 and By-law 30-18)
- City of Toronto (By-law 569-2013)
- City of Vaughan (Draft Comprehensive Zoning By-law – January 2020)
- City of Vancouver (By-law 6059)

The City of Brampton does not currently have bicycle parking rates in their Zoning By-law 270-2004, but Brampton's Comprehensive Zoning By-law Review (2018) recommended mandating minimum bicycle parking requirements.¹

1.2 Report Organization

This report is structured into the following sections:

- **Section 2** presents the by-law direction for bicycle parking for the City of Mississauga based on the jurisdictional review documented in later sections of this report.
- **Section 3** defines bicycle parking spaces and locations
- **Section 4** presents the use of zones or precincts for applying bicycle parking rates
- **Section 5** presents land uses and control variables for bicycle parking
- **Section 6** establishes minimum bicycle parking rates for Mississauga
- **Section 7** presents required supporting amenities for bicycle parking
- **Section 8** presents conditions for waiving bicycle parking for smaller developments and offsetting motor vehicle parking requirements with bicycle parking

¹ [https://www.brampton.ca/EN/residents/Building-Permits/zoning/Documents/TP9%20-%20Parking%20and%20Loading%20Standards%20Review%20\(Draft\).pdf](https://www.brampton.ca/EN/residents/Building-Permits/zoning/Documents/TP9%20-%20Parking%20and%20Loading%20Standards%20Review%20(Draft).pdf)

2 Directions for Mississauga Zoning By-Law

This section presents specific text that can be considered for inclusion in the City's Zoning By-law based on the best practices review presented in **Sections 3 to 8** of this report. The order of items and suggested wording aim to match the structure of Mississauga's vehicle parking requirements in the Zoning By-law.

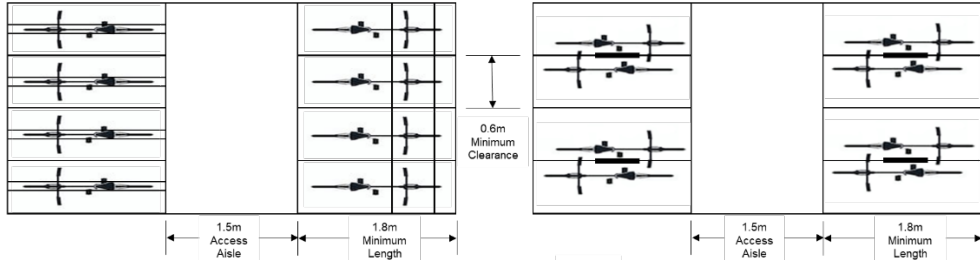
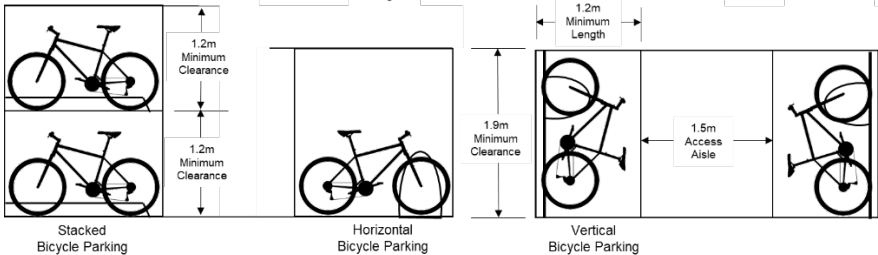
As the City continues to grow and develop, new precincts (discussed in **Section 4.2**) may introduced. Additionally, as cycling demand changes over time it may be necessary to revisit bicycle parking requirements. Higher rates, such as those applied in Vancouver (discussed in **Section 6**), could be more appropriate in the future due to changes in population density, cycling infrastructure, or changes in the cycling culture in Mississauga.

2.1 Off-Street Bicycle Parking Spaces

| By-Law | | Rationale |
|--------------------------------|---|--|
| 1. Definitions | | Refer to Section 3.0 and Section 3.1.1 |
| TERM | DEFINITION | |
| Bicycle | means a vehicle that has one, two or three wheels (a unicycle, bicycle or tricycle), steering handlebars and pedals. | |
| Bicycle Parking Space | means an unobstructed rectangular area exclusive of any aisle or driveway for the temporary parking of a bicycle. | |
| Bicycle Parking Space, Class A | means a bicycle parking space designed to provide long-term parking for employees or residents of the building. | |
| Bicycle Parking Space, Class B | means a bicycle parking space designed to provide short-term transient parking for persons who are not residents or employees of the building. | |
| Bicycle Parking Space, Stacked | means a horizontal bicycle parking space that is positioned above or below another bicycle parking space and equipped with a mechanical device providing floor level access to both bicycle parking spaces. | |

| By-Law | Rationale |
|--|--|
| Bicycle Parking Space, Sheltered | means a bicycle parking space within a partially enclosed free-standing structure that provides a roof and often two or three walls for short-term bicycle parking needs. |
| Gross Floor Area (GFA) – Non-Residential | <p>means the sum of the areas of each storey above or below established grade, measured from the exterior of outside walls, or from the midpoint of common walls, including the area of any floor system or assembly located within a storey which is designed or used for access and passage by persons and including all parts of the building or structure or part thereof below established grade used for retail, office, industrial or warehouse uses, but excluding the following:</p> <ul style="list-style-type: none"> (1) any part of the building, structure or part thereof used for mechanical floor area; (2) areas of stairwells, washrooms or elevators; (3) any enclosed area used for the collection or storage of disposable or recyclable waste generated within the building or structure or part thereof; (4) any part of the building or structure or part thereof above or below established grade used for motor vehicle parking, bicycle parking (including aisle widths), or the provision of loading spaces; (5) any part of the building, structure or part thereof below established grade used for storage incidental to other uses in the building, structure or part thereof or provided and reserved for the personal needs of the occupants of the building, structure or part thereof including lunch rooms, lounges or fitness rooms; and (6) accessory outdoor tank. <p>Update (4) to exclude bicycle parking from GFA definition under Zoning By-Law Section 1.2 (0379-2009)</p> |

| By-Law | Rationale |
|---|--|
| <p>2. Rounding</p> <p>If the calculation of the minimum bicycle parking spaces results in a fraction of a bicycle parking space being required, fractions of less than 0.5 shall be rounded down to the nearest whole number and fractions equal to or greater than 0.5 shall be rounded up to the nearest whole number.</p> <p>3. Location of Bicycle Parking</p> <p>A bicycle parking space must be on the same lot as the use for which it is required.</p> <p>Bicycle parking spaces as required by this by-law shall not be located:</p> <ul style="list-style-type: none"> a) In a dwelling unit; b) Storage locker; or c) On a balcony. <p>All Class A bicycle parking areas shall be indoors.</p> <p>All indoor bicycle parking areas shall be:</p> <ul style="list-style-type: none"> a) Located on the ground floor; or b) Located within one storey of the ground floor and accessible from the ground floor with ramps or by elevator; or c) Located on other levels of the building commencing with the level within one storey of the ground floor and moving up or down, in one level increments when at least 50% of the area of that level is occupied by bicycle parking spaces, until all required bicycle spaces have been provided, and are accessible from the ground floor with ramps or by elevator. <p>All outdoor bicycle parking spaces shall be:</p> <ul style="list-style-type: none"> a) Within 15 metres from a pedestrian entrance to the building on the lot for unsheltered bicycle parking, or b) Within 30 metres from the pedestrian entrance for sheltered bicycle parking. | <p>Similar to vehicle parking under Zoning By-Law Section 3.1.1.1.4 (0190-2014)</p> <p>Refer to Section 3.3</p> |

| By-Law | Rationale |
|---|---|
| <p>4. Bicycle Parking Space Dimension</p> <p>A bicycle parking space must comply with the following:</p> <ol style="list-style-type: none"> the minimum dimension of a bicycle parking space is: <ol style="list-style-type: none"> minimum length of 1.8 metres; minimum width of 0.6 metres; and minimum vertical clearance from the ground of 1.9 metres; the minimum dimension of a bicycle parking space if placed in a vertical position on a wall, structure or mechanical device is: <ol style="list-style-type: none"> minimum length or vertical clearance of 1.9 metres; minimum width of 0.6 metres; and minimum horizontal clearance from the wall of 1.2 metres; if a stacked bicycle parking space is provided, the minimum vertical clearance for each bicycle parking space is 1.2 metres, and the minimum clearance from the floor shall be 2.4 metres. <p style="text-align: center;">Plan View</p>  <p style="text-align: center;">Side View</p>  <p>Stacked Bicycle Parking</p> <p>Horizontal Bicycle Parking</p> <p>Vertical Bicycle Parking</p> <p>Note: The above illustrations are for clarification and convenience only and do not form part of this By-law. The Definitions and General Provisions parts of this By-law must be referenced.</p> <p>5. Aisles</p> <p>The minimum aisle width shall be 1.5 metres.</p> | <p>Refer to Section 3.2</p> <p>Refer to Section 3.2</p> |

| By-Law | Rationale | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---------------------------------|--|---------------------------------|--|--------------------|--|-------------------------|-------------------------------|-------------------------------|---------------------|--------------------|--|-------------|---------------------------------|---------------------------------|--|--------------------|--|-------------------------|-------------------------------|-------------------------------|---------------------|--------------------|--|---|
| <div>6. Required Number of Bicycle Parking Spaces for Residential Uses</div> <div>Bicycle parking spaces for residential uses shall be provided in accordance with the table below.</div> <div>Required Number of Bicycle Parking Spaces for Residential Uses in City Centre</div> <table><tr><th>Type of Use</th><th>Minimum Class A Bicycle Parking</th><th>Minimum Class B Bicycle Parking</th></tr><tr><td>Apartments (including condominium, rental, and townhouses without exclusive garages)</td><td>0.80 spaces / unit</td><td>0.10 spaces per unit (6 minimum space)</td></tr><tr><td>Long-Term Care Building</td><td>0.30 / 100 m² GFA</td><td>0.30 / 100 m² GFA</td></tr><tr><td>Retirement Building</td><td>0.40 spaces / unit</td><td>0.05 spaces per unit (6 minimum space)</td></tr></table> <div>Required Number of Bicycle Parking Spaces for Residential Uses in Rest of Mississauga</div> <table><tr><th>Type of Use</th><th>Minimum Class A Bicycle Parking</th><th>Minimum Class B Bicycle Parking</th></tr><tr><td>Apartments (including condominium, rental, and townhouses without exclusive garages)</td><td>0.60 spaces / unit</td><td>0.05 spaces per unit (6 minimum space)</td></tr><tr><td>Long-Term Care Building</td><td>0.20 / 100 m² GFA</td><td>0.20 / 100 m² GFA</td></tr><tr><td>Retirement Building</td><td>0.30 spaces / unit</td><td>0.03 spaces per unit (6 minimum space)</td></tr></table> | Type of Use | Minimum Class A Bicycle Parking | Minimum Class B Bicycle Parking | Apartments (including condominium, rental, and townhouses without exclusive garages) | 0.80 spaces / unit | 0.10 spaces per unit (6 minimum space) | Long-Term Care Building | 0.30 / 100 m ² GFA | 0.30 / 100 m ² GFA | Retirement Building | 0.40 spaces / unit | 0.05 spaces per unit (6 minimum space) | Type of Use | Minimum Class A Bicycle Parking | Minimum Class B Bicycle Parking | Apartments (including condominium, rental, and townhouses without exclusive garages) | 0.60 spaces / unit | 0.05 spaces per unit (6 minimum space) | Long-Term Care Building | 0.20 / 100 m ² GFA | 0.20 / 100 m ² GFA | Retirement Building | 0.30 spaces / unit | 0.03 spaces per unit (6 minimum space) | <div>Refer to Section 6.1 and Section 6.4</div> |
| Type of Use | Minimum Class A Bicycle Parking | Minimum Class B Bicycle Parking | | | | | | | | | | | | | | | | | | | | | | | |
| Apartments (including condominium, rental, and townhouses without exclusive garages) | 0.80 spaces / unit | 0.10 spaces per unit (6 minimum space) | | | | | | | | | | | | | | | | | | | | | | | |
| Long-Term Care Building | 0.30 / 100 m ² GFA | 0.30 / 100 m ² GFA | | | | | | | | | | | | | | | | | | | | | | | |
| Retirement Building | 0.40 spaces / unit | 0.05 spaces per unit (6 minimum space) | | | | | | | | | | | | | | | | | | | | | | | |
| Type of Use | Minimum Class A Bicycle Parking | Minimum Class B Bicycle Parking | | | | | | | | | | | | | | | | | | | | | | | |
| Apartments (including condominium, rental, and townhouses without exclusive garages) | 0.60 spaces / unit | 0.05 spaces per unit (6 minimum space) | | | | | | | | | | | | | | | | | | | | | | | |
| Long-Term Care Building | 0.20 / 100 m ² GFA | 0.20 / 100 m ² GFA | | | | | | | | | | | | | | | | | | | | | | | |
| Retirement Building | 0.30 spaces / unit | 0.03 spaces per unit (6 minimum space) | | | | | | | | | | | | | | | | | | | | | | | |

| By-Law | Rationale | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---------------------------------|---------------------------------|---------------------------------|--|-------------------------------|-------------------------------|--|-------------------------------|-------------------------------|--|-------------------------------|-------------------------------|--|-------------------------------|-------------------------------|---|-------------------------------|-------------------------------|--|-------------------------------|-------------------------------|---|-------------------------------|-------------------------------|--|-------------------------------|-------------------------------|---|
| <p>7. Required Number of Bicycle Parking Spaces for Non-Residential Uses</p> <p>Bicycle parking spaces for non-residential uses shall be provided in accordance with the table below.</p> <p>Required Number of Bicycle Parking Spaces for Non-Residential Uses in City Centre</p> <table><tr><th>Type of Use</th><th>Minimum Class A Bicycle Parking</th><th>Minimum Class B Bicycle Parking</th></tr><tr><td>Retail <i>(including retail centre, and retail store, entertainment establishment, personal service establishment, convenience restaurant, restaurant, take-out restaurant)</i></td><td>0.15 / 100 m² GFA</td><td>0.30 / 100 m² GFA</td></tr><tr><td>Business Office <i>(including office, real estate office)</i></td><td>0.20 / 100 m² GFA</td><td>0.15 / 100 m² GFA</td></tr><tr><td>Medical Office <i>(including medical office, medical office – restricted)</i></td><td>0.15 / 100 m² GFA</td><td>0.20 / 100 m² GFA</td></tr><tr><td>Employment <i>(including education and training facility, financial institution, manufacturing facility, science and technology facility, warehouse/ distribution facility, wholesaling facility)</i></td><td>0.15 / 100 m² GFA</td><td>0.15 / 100 m² GFA</td></tr><tr><td>School, Elementary / Secondary <i>(including public/private)</i></td><td>0.10 / 100 m² GFA</td><td>0.40 / 100 m² GFA</td></tr><tr><td>School, Post-Secondary <i>(including college/university)</i></td><td>1.00 / 100 m² GFA</td><td>1.20 / 100 m² GFA</td></tr><tr><td>Institutional <i>(including active recreational use, arena, art gallery, community centre, hospital, library, museum, place of religious assembly, recreational establishment)</i></td><td>0.30 / 100 m² GFA</td><td>0.30 / 100 m² GFA</td></tr><tr><td>Other Non-Residential <i>(Land uses not specified in this table.)</i></td><td>0.08 / 100 m² GFA</td><td>0.15 / 100 m² GFA</td></tr></table> | Type of Use | Minimum Class A Bicycle Parking | Minimum Class B Bicycle Parking | Retail <i>(including retail centre, and retail store, entertainment establishment, personal service establishment, convenience restaurant, restaurant, take-out restaurant)</i> | 0.15 / 100 m ² GFA | 0.30 / 100 m ² GFA | Business Office <i>(including office, real estate office)</i> | 0.20 / 100 m ² GFA | 0.15 / 100 m ² GFA | Medical Office <i>(including medical office, medical office – restricted)</i> | 0.15 / 100 m ² GFA | 0.20 / 100 m ² GFA | Employment <i>(including education and training facility, financial institution, manufacturing facility, science and technology facility, warehouse/ distribution facility, wholesaling facility)</i> | 0.15 / 100 m ² GFA | 0.15 / 100 m ² GFA | School, Elementary / Secondary <i>(including public/private)</i> | 0.10 / 100 m ² GFA | 0.40 / 100 m ² GFA | School, Post-Secondary <i>(including college/university)</i> | 1.00 / 100 m ² GFA | 1.20 / 100 m ² GFA | Institutional <i>(including active recreational use, arena, art gallery, community centre, hospital, library, museum, place of religious assembly, recreational establishment)</i> | 0.30 / 100 m ² GFA | 0.30 / 100 m ² GFA | Other Non-Residential <i>(Land uses not specified in this table.)</i> | 0.08 / 100 m ² GFA | 0.15 / 100 m ² GFA | <p>Refer to Section 6.2 and Section 6.4</p> |
| Type of Use | Minimum Class A Bicycle Parking | Minimum Class B Bicycle Parking | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Retail <i>(including retail centre, and retail store, entertainment establishment, personal service establishment, convenience restaurant, restaurant, take-out restaurant)</i> | 0.15 / 100 m ² GFA | 0.30 / 100 m ² GFA | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Business Office <i>(including office, real estate office)</i> | 0.20 / 100 m ² GFA | 0.15 / 100 m ² GFA | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Medical Office <i>(including medical office, medical office – restricted)</i> | 0.15 / 100 m ² GFA | 0.20 / 100 m ² GFA | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Employment <i>(including education and training facility, financial institution, manufacturing facility, science and technology facility, warehouse/ distribution facility, wholesaling facility)</i> | 0.15 / 100 m ² GFA | 0.15 / 100 m ² GFA | | | | | | | | | | | | | | | | | | | | | | | | | | |
| School, Elementary / Secondary <i>(including public/private)</i> | 0.10 / 100 m ² GFA | 0.40 / 100 m ² GFA | | | | | | | | | | | | | | | | | | | | | | | | | | |
| School, Post-Secondary <i>(including college/university)</i> | 1.00 / 100 m ² GFA | 1.20 / 100 m ² GFA | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Institutional <i>(including active recreational use, arena, art gallery, community centre, hospital, library, museum, place of religious assembly, recreational establishment)</i> | 0.30 / 100 m ² GFA | 0.30 / 100 m ² GFA | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Other Non-Residential <i>(Land uses not specified in this table.)</i> | 0.08 / 100 m ² GFA | 0.15 / 100 m ² GFA | | | | | | | | | | | | | | | | | | | | | | | | | | |

| By-Law | | Rationale |
|--|---------------------------------|---------------------------------|
| Required Number of Bicycle Parking Spaces for Non-Residential Uses in Rest of Mississauga | | |
| Type of Use | Minimum Class A Bicycle Parking | Minimum Class B Bicycle Parking |
| Retail (including retail centre, and retail store, entertainment establishment, personal service establishment, convenience restaurant, restaurant, take-out restaurant) | 0.10 / 100 m ² GFA | 0.20 / 100 m ² GFA |
| Business Office (including office, real estate office) | 0.10 / 100 m ² GFA | 0.10 / 100 m ² GFA |
| Medical Office (including medical office, medical office – restricted) | 0.10 / 100 m ² GFA | 0.10 / 100 m ² GFA |
| Employment (including education and training facility, financial institution, manufacturing facility, science and technology facility, warehouse/distribution facility, wholesaling facility) | 0.10 / 100 m ² GFA | 2 minimum |
| School, Elementary / Secondary (including public/private) | 0.10 / 100 m ² GFA | 0.40 / 100 m ² GFA |
| School, Post-Secondary (including college/university) | 1.00 / 100 m ² GFA | 1.20 / 100 m ² GFA |
| Institutional (including active recreational use, arena, art gallery, community centre, hospital, library, museum, place of religious assembly, recreational establishment) | 0.10 / 100 m ² GFA | 0.10 / 100 m ² GFA |
| Other Non-Residential (Land uses not specified in this table.) | 0.05 / 100 m ² GFA | 0.10 / 100 m ² GFA |
| Non-Residential – Exceptions (Contractor's Yard, Essential Emergency Service, Power Generating Facility, Self Storage Facility, Utility [Electric Transformer and Distribution Facility, Sewage Treatment Plant, Utility Building, Water Treatment Facility], Waste Transfer Station) | - | 2 spaces |

| By-Law | Rationale | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|------------------------------|------------------------------|------------------------------|-------|--------|---|---|---|---------|---|---|---|----------|---|---|---|----------|---|---|---|-----------|---|---|---|------------|---|---|---|------------|---|---|---|----------|------------------------------|------------------------------|------------------------------|---|
| <p>8. Waived Bicycle Parking</p> <p>Despite the bicycle parking space rates set out in #6, if the lot with residential use has less than 20 units, then zero bicycle parking spaces are required for the residential use.</p> <p>Despite the bicycle parking space rates set out in #7, if the lot with non-residential use has less than 1000 m² of GFA, then zero bicycle parking spaces are required for the non-residential use.</p> <p>9. Multiple-Use Developments</p> <p>If a development contains parking for more than one land use, the total number of bicycle spaces shall be the sum of the bicycle spaces required for each land use calculated separately; and, a bicycle space required for one land use shall be deemed not to meet the requirement for any other use on the lot.</p> <p>10. End-of-Trip Facilities</p> <p>If a building has uses, other than dwelling units, for which a Class A bicycle parking space is required, the number of toilets, sinks, and shower facilities shall be provided in accordance with the below table.</p> <table><tr><th>Class A Bicycle Spaces</th><th>Toilets</th><th>Showers</th><th>Sinks</th></tr><tr><td>0 to 3</td><td>0</td><td>0</td><td>0</td></tr><tr><td>4 to 29</td><td>1</td><td>1</td><td>1</td></tr><tr><td>30 to 64</td><td>2</td><td>2</td><td>1</td></tr><tr><td>65 to 94</td><td>3</td><td>3</td><td>2</td></tr><tr><td>95 to 129</td><td>4</td><td>4</td><td>2</td></tr><tr><td>130 to 159</td><td>5</td><td>5</td><td>3</td></tr><tr><td>160 to 194</td><td>6</td><td>6</td><td>3</td></tr><tr><td>Over 194</td><td>6 + 1 / additional 30 spaces</td><td>6 + 1 / additional 30 spaces</td><td>3 + 1 / additional 30 spaces</td></tr></table> | Class A Bicycle Spaces | Toilets | Showers | Sinks | 0 to 3 | 0 | 0 | 0 | 4 to 29 | 1 | 1 | 1 | 30 to 64 | 2 | 2 | 1 | 65 to 94 | 3 | 3 | 2 | 95 to 129 | 4 | 4 | 2 | 130 to 159 | 5 | 5 | 3 | 160 to 194 | 6 | 6 | 3 | Over 194 | 6 + 1 / additional 30 spaces | 6 + 1 / additional 30 spaces | 3 + 1 / additional 30 spaces | <p>Refer to Section 8.0</p> <p>Refer to Section 7.0</p> |
| Class A Bicycle Spaces | Toilets | Showers | Sinks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 to 3 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 to 29 | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 to 64 | 2 | 2 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 to 94 | 3 | 3 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 95 to 129 | 4 | 4 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 130 to 159 | 5 | 5 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 160 to 194 | 6 | 6 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Over 194 | 6 + 1 / additional 30 spaces | 6 + 1 / additional 30 spaces | 3 + 1 / additional 30 spaces | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

3 Defining Bicycle Parking

The jurisdictional review identified a few municipalities that provide a general definition of a “bicycle parking space” as shown in **Table 1**. Most municipalities provide separate definitions for “long-term” and “short-term” bicycle parking spaces (discussed further in **Section 3.1**).

Table 1: Bicycle Parking Space Definition

| Municipality | Definition of Bicycle Parking Space |
|--------------|---|
| Oakville | An unobstructed rectangular space that is designed to be used for the temporary parking of a bicycle. |
| Toronto | An area used for parking or storing a bicycle. |
| Vancouver | A space for the parking of one bicycle either outside or inside a structure. |
| Vaughan | An area used exclusively for the secure parking of a bicycle. |

3.1 Classification by Duration

All of the municipalities reviewed, with the exception of the Town of Oakville, have established both long-term (or ‘Class A’) and short-term (or ‘Class B’) bicycle parking requirements. The Town of Oakville differentiates between the two forms of bicycle parking only for visitors and residents in an apartment building, but does not differentiate for non-residential uses.

Long-term parking is intended for residents of residential uses or employees of non-residential uses, and short-term parking is intended for visitors or patrons. Typically, a long-term space must be located within a building, and must be accompanied by shower and change facilities, when provided for a non-residential use. Sometimes long-term bicycle parking may be located outside but requires greater weather protection and security, whereas short-term bicycle parking is intended to be conveniently located near the entrance and easily seen (from the sidewalk or building) for security.

Some of the more detailed requirements also specify location of the bicycle parking (often in terms of distance from a main entrance), as well as lighting and security requirements.

3.1.1 Long-Term and Short-Term Bicycle Parking

Long-term parking is typically used by employees, residents, and public transit users. These users have routine destinations such as the home or workplace and will often leave their bicycles for longer periods of time, requiring a degree of security and weather protection.

Short-term parking is typically used by visitors of businesses and institutions where they will only need the parking space for a short period of time. Parking spaces for short-term needs emphasize convenience of use.

Definitions for long-term and short-term parking from the various municipalities in the jurisdictional review are summarized in **Table 2**. In general, definitions are fairly consistent across municipalities – long-term spaces emphasize security and short-term spaces emphasize convenient access and designs.

Table 2: Bicycle Parking Space Definition by Duration

| Municipality | Bicycle Parking Space Definition | |
|----------------------------|---|--|
| | Long-Term ('Class A') | Short-Term ('Class B') |
| Mississauga (TDM Strategy) | Long-term bicycle parking includes bicycle racks in secure, enclosed, weather-protected areas with controlled access. Common forms include bicycle cages, bicycle rooms and bicycle lockers. | Short-term bicycle parking usually constitutes bicycle racks in a visible, accessible locations that may or may not be weather protected. Short-term bicycle parking is typically for customers or visitors. |
| Halifax | Bicycle parking that secures the entire bicycle and protects it from inclement weather. | Bicycle parking that permits the locking of a bicycle by its frame and front wheel, and which supports the bicycle in a stable position with at least two points of contact. |
| Kitchener | A bicycle locker or an enclosed, secure area with controlled access in which a bicycle may be parked and secured for the long term in a stable position with at least one point of contact with the frame of the bicycle. | An area in which a bicycle may be parked and secured for the short term in a stable position with two points of contact with the frame of the bicycle. |
| Newmarket | Spaces that are located in a building, enclosed in a lockable locker, or enclosed in a secured area with controlled access. | Spaces that are located outdoors, on a bicycle rack, or in an easily accessible location. |
| Toronto | Bicycle parking spaces for use by the occupants or tenants of a building. | Bicycle parking spaces for use by visitors to a building. |
| Vancouver | Bicycle space primarily designed to provide long-term parking for employees or residents of the building. | Bicycle space primarily designed to provide short-term transient parking for persons who are not residents or employees of the building. |
| Vaughan | A locked room within a building or part of a building for the exclusive use of parking bicycles. | A designated area for the exclusive use of parking bicycles and equipped with a rack or stand designed to lock the wheel and frame of a bicycle. |

Other definitions include “bicycle locker” to mean an individual bicycle storage unit that is weather protected, enclosed, and has a controlled access system (Kitchener).

Halifax also defines “Enhanced Bicycle Parking” that means any of the following: bicycle parking in excess of the required minimums in terms of quantity or class; the provision of sheltered bicycle parking; the provision of showers (at the rate of one for every six bicycle spaces); and the provision of clothes lockers (at the rate of one for every bicycle space). Although there are

no requirements for providing enhanced spaces, these allow for a reduction in the minimum vehicle parking requirements.

3.2 Bicycle Parking Space Dimension

There are three physical design types of bicycle parking that are mentioned within the various municipalities: horizontal, vertical, and stacked bicycle parking. The City of Toronto describes a “stacked bicycle parking space” as a horizontal bicycle parking space that is positioned above or below another bicycle parking space and equipped with a mechanical device providing floor level access to both bicycle parking spaces. Example photos of the three types are shown in **Table 3**.

Table 3: Examples of Horizontal, Vertical, and Stacked Bicycle Parking

| Horizontal Bicycle Parking | Vertical Bicycle Parking | Stacked Bicycle Parking |
|--|--|--|
|  |  |  |

Source: Guidelines for the Design and Management of Bicycle Parking Facilities (City of Toronto)

Table 4 shows the minimum dimension requirements for bicycle parking as defined by municipal zoning by-laws. There is a high degree of consistency across the municipalities.

Exhibit 1 shows an example of how the dimensions are measured for horizontal and vertical bicycle parking spaces as presented in Kitchener’s By-law 2019-051.

Some unique by-law provisions include Vancouver requiring a minimum of 5% of spaces to be oversized spaces of 2.4 metres in length and 0.9 metres in width and may not be vertical or stacked spaces. Vancouver’s by-law also details minimum dimensions for the room holding the long-term bicycle parking spaces (such as door widths, etc.)

Most municipalities do not differentiate dimensions for long- or short-term spaces, but Halifax defines a separate dimension guidelines for Class A and Class B parking with a minimum height of 1.2m (locker), and minimum overhead clearance of 2.0m, respectively. Kitchener also recognizes in the by-law that overhead clearance is not required within a bicycle locker.

Table 4: Dimensions of Bicycle Parking Spaces

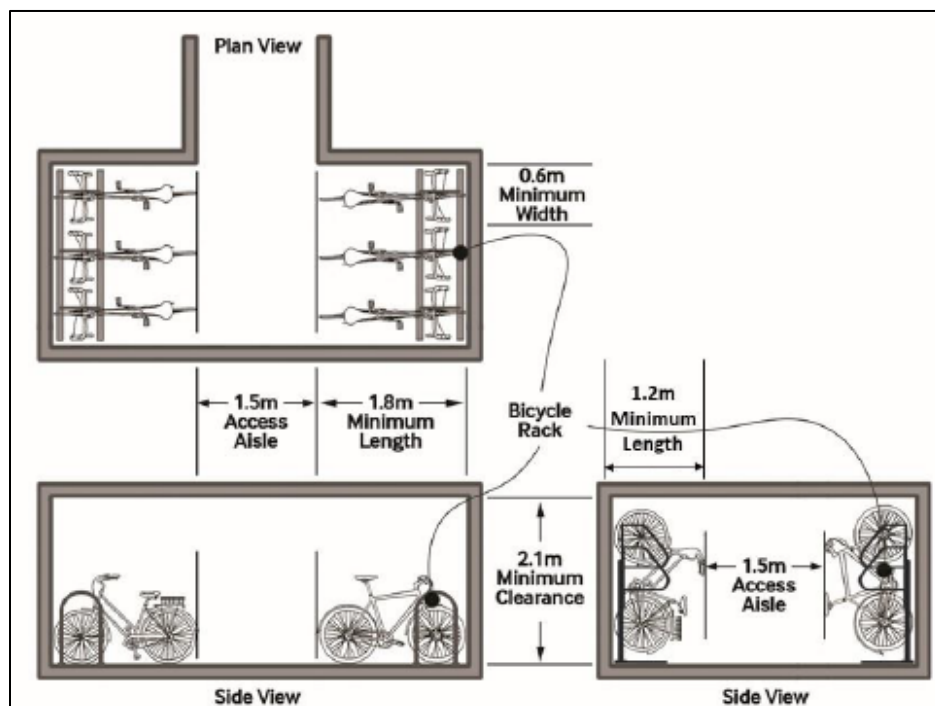
| Municipality | Horizontal Bicycle Parking Space Dimensions (m) | | | Vertical Bicycle Parking Space Dimensions (m) | | | Aisle Width (m) |
|----------------------------|---|-------|--------|---|-------|--------|-----------------|
| | Length | Width | Height | Length | Width | Height | |
| Mississauga (TDM Strategy) | - | - | - | - | - | - | - |
| Hamilton | - | - | - | - | - | - | - |
| Halifax | 1.8 | 0.6 | 2.0 | - | - | - | 1.5 |
| Kitchener | 1.8 | 0.6 | 2.1 | 1.2 | 0.6 | 2.1 | 1.5 |
| Markham | - | - | - | - | - | - | - |
| Newmarket | 1.8 | 0.6 | 1.9 | 1.2 | 0.6 | 1.9 | - |
| Oakville | - | - | - | - | - | - | - |
| Richmond Hill | 1.8 | 0.6 | - | - | - | - | - |
| Toronto | 1.8 | 0.6 | 1.9 | 1.2 | 0.6 | 1.9 | - |
| Vancouver | 1.8 | 0.6 | 1.9 | 1.0 | 0.6 | 1.9 | 1.5 |
| Vaughan | 1.8 | 0.6 | 1.9 | 1.2 | 0.6 | 1.9 | 1.5 |

Note: Height for horizontal bicycle parking refers to vertical clearance from the ground; Length for vertical bicycle parking refers to horizontal clearance from the wall. Kitchener and Halifax refer to the height of horizontal bicycle parking as “overhead clearance”.

Halifax has an increased minimum width of 0.9 metres for bicycle racks.

Vancouver dimensions are for Class A (Long-Term) spaces; Class B (Short-Term) spaces only require 0.6 m width for each bicycle, an aisle minimum width of 1.2 m, and unrestricted access behind the space of a minimum length of 0.5 m; In the City of Toronto the vertical clearance required for stacked bicycle parking spaces is the minimum vertical clearance for each bicycle at 1.2 m each.

Exhibit 1: Minimum Bicycle Parking Space and Access Aisle Dimensions (Kitchener Zoning By-law 2019-051)



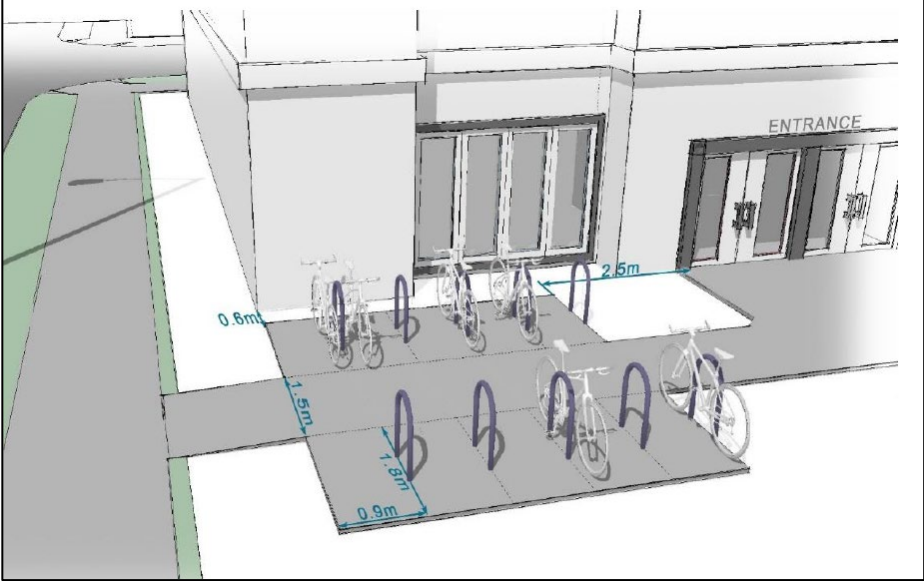
Source: Kitchener Zoning By-law 2019-051

3.3 Bicycle Parking Space Locational Requirement

A summary of location requirements for long-term and short-term bicycle parking from the jurisdictional review is provided in **Table 5**.

Table 5: Bicycle Parking Space Locational Requirement

| Municipality | Long-Term / Class A Bicycle Parking Spaces | Short-Term / Class B Bicycle Parking Spaces |
|----------------------------|---|--|
| Mississauga (TDM Strategy) | <p>The most common forms of long-term or Class A bicycle parking are bicycle cages, bicycle rooms and bicycle lockers.</p> <p>Cages and rooms are more common in multi-unit residential buildings, employment uses and postsecondary institutions. Bicycle lockers can be located outdoors, away from other forms of shelter.</p> | <p>Should be located in areas that are well lit, within 15 metres of a building entrance, and visible from that entrance. Racks in a road right-of-way should not impede pedestrian, cyclist or vehicular travel.</p> |
| Halifax | <p>May be located up to 200 m from an entrance.</p> <p>Shall be located on hard surfaces in areas that are visible and well illuminated.</p> | <p>Shall be located no more than 15 metres from an entrance.</p> <p>Where there are shelters such as building awnings or overhangs or special purpose-designed shelters that protect bicycles from the elements, bicycle parking may be located up to 30 metres from an entrance.</p> <p>Shall be located at ground level and visible to passers-by or building security personnel. Where not immediately visible to passers-by, directional signage shall be provided.</p> <p>In cases of 100% lot coverage, Class B bicycle parking may be installed within the street right-of-way, in accordance with the provisions of the Streets By-law, provided it is within 91.4m from the location they are to serve.</p> |

| Municipality | Long-Term / Class A Bicycle Parking Spaces | Short-Term / Class B Bicycle Parking Spaces |
|---------------------|---|---|
| Halifax (continued) | <p>Bicycle parking racks are prohibited within 2.5 metres of any building entrance.</p> <p>A 1.5-metre-wide clear aisle shall be provided between rows of bicycle parking racks, based on a typical bicycle length of 1.8 metres.</p> <p>Excluding wall-mounted racks, a space of 0.6 metres shall be provided between bicycle parking spaces and any obstruction, on all sides.</p> <p>On lots where lot coverage exceeds 90%, or where it is otherwise impractical to provide Class B bicycle parking spaces on-site, the applicant may request an encroachment license from the Municipality to install the required Class B bicycle parking spaces in the adjacent public right-of-way.</p> <p>Halifax Bicycle Parking Geometric Locational Requirements</p>  | |
| Hamilton | Long-term Bicycle Parking Space shall be located in a secure enclosed bicycle parking area. | Short-term Bicycle Parking Space shall be located within a bicycle parking area at grade. |
| Kitchener | Class A bicycle parking stalls shall be located within a building, structure, and/or bicycle locker. | - |

| Municipality | Long-Term / Class A Bicycle Parking Spaces | Short-Term / Class B Bicycle Parking Spaces |
|---------------|---|--|
| Newmarket | <p>A bicycle parking space must be on the same lot as the use for which it is required.</p> <p>Bicycle parking spaces as required by this by-law shall not be located in a dwelling unit, or on a balcony.</p> <p>Where required bicycle parking spaces are located internal to a building, they shall be located:</p> <ul style="list-style-type: none"> a) on the ground floor; or b) on the second floor or the first level below the ground floor if the bicycle parking spaces are accessible via an elevator or ramp. | |
| Richmond Hill | - | Visitor bicycle parking spaces shall be located at grade. |
| Toronto | Must be on the same lot as the use for which it is required. | |
| | <p>Must be located in a building;</p> <p>Bicycle parking spaces for dwelling units and non-dwelling units may be located:</p> <ul style="list-style-type: none"> (i) on the first storey of the building; (ii) on the second storey of the building; (iii) on levels of the building below-ground commencing with the first level below-ground and moving down, in one level increments when at least 50% of the area of that level is occupied by bicycle parking spaces, until all required bicycle parking spaces have been provided; | <p>Must be located within 30 metres from a pedestrian entrance to the principal building on the lot, must comply with the City of Toronto's Guidelines for the Design and Management of Bicycle Parking Facilities, and must be visible from the sidewalk.²</p> |
| Vancouver | <p>Shall be provided in a separate bicycle room located within a building, except that:</p> <ul style="list-style-type: none"> (a) the spaces can be in a building which provides parking | <p>Shall be provided in a convenient, well-lit location that provides visual surveillance by occupants of the building the racks are intended to serve. If the racks are not readily</p> |

² This provision is not identified in the Zoning By-Law; however, it is required under the Toronto Green Standard: <https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/toronto-green-standard/toronto-green-standard-version-3/mid-to-high-rise-residential-all-non-residential-version-3/air-quality-for-mid-to-high-rise-residential-all-non-residential-development/>

| Municipality | Long-Term / Class A Bicycle Parking Spaces | Short-Term / Class B Bicycle Parking Spaces |
|--------------------------|--|--|
| Vancouver (continued) | <p>for motor vehicles for one particular residential unit only, instead of in a bicycle room, or</p> <p>(b) the spaces can be provided in a building in an expanded metal mesh compound which complies with sections 6.3.14, 6.3.15, and 6.3.16 instead of in a bicycle room, or</p> <p>(c) the spaces can be provided in a building or private parking area in numbered bicycle lockers which comply with sections 6.3.17, 6.3.18 and 6.3.19 instead of in a bicycle room.</p> <p>The bicycle room, compound, or lockers shall be located no lower than the first complete parking level below grade and shall have direct access to outside, except that a location more than one level below grade may be permitted where an elevator designed to accommodate the loading and unloading of at least two bicycles is provided, offering direct, convenient access to the outside. There shall be no stairs on the access route, except that the Director of Planning may allow stairs provided a wheel ramp of a minimum width of 150 millimetres is provided without cutting into the stair tread. Where an elevator is provided to access bicycle parking, a distinct call button for that elevator shall be provided on all levels with bicycle parking and all levels that provide access to the outside. Where an elevator is provided to access bicycle parking for residential uses, it shall not also be normally used for the loading or unloading of goods, for move in or move out activity associated with residential uses, or other activities</p> | <p>visible to visitors to a site, directional signage to the racks shall be provided.</p> <p>Shall be independently accessible by means of an aisle with a minimum width of 1.2 metres which is separate from pedestrian access. There shall be unrestricted access behind the space of a minimum length of 0.5 metres. All doors on the route from Class B bicycle parking spaces to the outside shall be fitted with automatic door openers.</p> |

| Municipality | Long-Term / Class A Bicycle Parking Spaces | Short-Term / Class B Bicycle Parking Spaces |
|-----------------------|---|--|
| Vancouver (continued) | which may significantly reduce accessibility to the elevator for people with bicycles. | |
| Vaughan | <p>Where a required bicycle parking space is wholly located within a building or structure, it shall be subject to the following requirements:</p> <p>a. A required bicycle parking space shall have direct access from an interior communal area of a building or structure; and,</p> <p>b. A required bicycle parking space located within the ground floor area of a building or structure shall have direct access to the exterior of that building or structure.</p> | |
| | <p>Must be located within the building</p> <p>A long-term bicycle parking space required for a dwelling unit shall be required to be located within the following areas of a building:</p> <p>a. Within the ground floor area;</p> <p>b. On the storey above the ground floor area; or,</p> <p>c. On the first storey located below grade.</p> <p>Shall have direct access from the exterior of a building, and that access shall be located on the ground floor.</p> | <p>1. A short-term bicycle parking space shall be required to be located in the following areas:</p> <p>a. Wholly within a building in which the principal use is located and for which the short-term bicycle parking space is required; or,</p> <p>b. In any yard, provided the short-term bicycle parking space is wholly open and unenclosed.</p> <p>2. Where a short-term bicycle parking space is located in a yard, it shall be permitted to be located in a required yard, subject to the following:</p> <p>a. A short-term bicycle parking space shall have a minimum setback of 0.6 m from the nearest lot line.</p> <p>b. A short-term bicycle parking space shall have a minimum setback of 3.0 m from a parking area.</p> <p>3. Where a short-term bicycle parking space is located wholly within a building, the following additional requirements shall apply:</p> <p>a. A short-term bicycle parking space located wholly within a</p> |

| Municipality | Long-Term / Class A Bicycle Parking Spaces | Short-Term / Class B Bicycle Parking Spaces |
|------------------------|---|--|
| Vaughan (continued) | | <p>building shall be located within the ground floor area; and,</p> <p>b. A short-term bicycle parking space shall have direct access from the exterior of a building.</p> |

3.4 Additional Design Requirements

Of the by-laws included in the jurisdictional review, only Halifax specifies the material and design of bicycle parking. This includes the following:

- All bicycle parking racks shall be constructed from galvanized steel or stainless steel, and designed to be tamper-resistant. All bicycle parking racks and bicycle lockers shall be firmly secured to the ground, floor, or wall.
- All bicycle parking racks shall provide two points of contact between each bicycle and rack, and be designed so that each bicycle is individually supported and lockable.

Vancouver specifies that at least 10% of the Class A bicycle spaces must be bicycle lockers. There is also an extensive detailing of the requirements for the end-of-use facilities including room size, door widths, security etc.

3.5 Recommendations for the City of Mississauga for Defining Bicycle Parking

The recommended minimum dimensions for bicycle parking spaces for the City of Mississauga are shown in **Table 6** based on the consistency of the dimensions from the best practices review.

Table 6: Recommended Minimum Dimensions for Bicycle Parking Spaces

| Bicycle Parking Space | Length | Width | Height | Vertical Clearance | Aisle Width |
|-----------------------|--------|-------|--------|--------------------|-------------|
| Horizontal | 1.8 m | 0.6 m | 1.9 m | 1.9 m | 1.5 m |
| Vertical | 1.2 m | 0.6 m | 1.9 m | 1.9 m | |
| Stacked | 1.8 m | 0.6 m | 1.2 m | 2.4 m | |

Plan View

Side View

Based on the best practices review, the following locational requirements are recommended:

- A bicycle parking space must be on the same lot as the use for which it is required.
- Bicycle parking spaces as required by this by-law shall not be located:
 - In a dwelling unit; or
 - A storage locker; or
 - On a balcony.
- All long-term parking spaces shall be indoors.

- All indoor bicycle parking areas shall be:
 - Located on a ground floor; or
 - Located within one storey of a ground floor and accessible from a ground floor with ramps or by elevator; or
 - Located on other levels of the building commencing with the level within one storey of a ground floor and moving up or down, in one level increments when at least 50% of the area of that level is occupied by bicycle parking spaces, until all required bicycle spaces have been provided, and are accessible from a ground floor with ramps or by elevator.
- All outdoor bicycle parking areas shall be:
 - Within 15 m from a pedestrian entrance to the principal building on the lot, or up to 30 m from the pedestrian entrance if the spaces are weather protected (e.g., building awnings, overhangs, or special purpose designed shelters); and
 - Provided in a convenient, well-lit location that provides visual surveillance by occupants of the building the racks are intended to serve. If the racks are not readily visible to visitors to a site, directional signage to the racks shall be provided.

4 Defining Zones for Bicycle Rates

4.1 Bicycle Parking by Area/Zone in Other Jurisdictions

The best practices review indicated that when there is a distinction between growth areas and general areas, higher minimum bicycle parking requirements apply to the intensification and downtown areas where there is typically a higher cycling modal split supported by better infrastructure, more cycling routes and pathways, and higher transit availability.

In general, most municipalities establish a general bicycle rate that applies to all areas of the municipality. The exceptions include Halifax, Kitchener, Markham, and Toronto that establish higher rates for downtowns and/or intensification areas.

The City may choose to require higher rates in urban areas to further support and encourage a higher cycling mode share. **Table 7** summarizes the municipalities that establish varying rates across the city based on zones.

Table 7: Differentiation of Bicycle Parking Rates by Area

| Municipalities | Differentiation of Rates |
|--|--|
| Halifax, Kitchener, Markham, Toronto | Separate rates for intensification areas |
| Mississauga, Newmarket, Oakville, Vancouver, Vaughan | Same rates across municipality |
| Hamilton, Richmond Hill | Provide rates only for intensification areas |

Note: Halifax rates only differ for one land use (school), and so only the general by-law rates were used for comparison

4.2 Precincts

The City's Parking Master Plan and Implementation Study (PMPIS) recommended a precinct approach to parking management. The precinct concept recognizes the influence of the surrounding built form on parking demand, supply, and management. Grouping areas with similar characteristics such as land use densities, access to transit, access to active transportation networks, etc., into precincts allows for tailored parking management policies specific to the precinct. The PMPIS, and the precinct approach, was approved by Council in June 2019. The precinct boundaries are being finalized by the Parking Regulations Study.

The parking management needs of bicycle parking are similar to that of vehicle parking where the built form of the surrounding community has a significant influence on bicycle parking demand. A precinct approach is also recommended for bicycle parking. For consistency, the same precincts that are to be defined for vehicle parking should be applied to bicycle parking.

Until the precincts are formally defined and adopted by the City, it is recommended that high and low bicycle parking rates be established for the City Centre and rest of Mississauga,

respectively. These rates can then be expanded to appropriate precincts when these are formally defined and approved.

The principal objective of establishing a higher bicycle parking rate for the City Centre is to meet the existing and envisioned cycling demands in an area with higher densities and more access to cycling infrastructure.

4.3 Transportation Tomorrow Survey (TTS) Results

Cycling mode split for the City was determined through a review of information in the 2016 Transportation Tomorrow Survey (TTS) database. The Transportation Tomorrow Survey is a survey of households within the Greater Golden Horseshoe, including the Greater Toronto Area that summarizes travel patterns, characteristics and related transportation information that can be used to aid in planning.

TTS data was used to determine if there are areas in Mississauga (Planning District of Household #36) with higher cycling mode share. Overall daily cycling mode share was 0.6%. It should be noted that the survey may not fully capture all types of bicycle trips (e.g., recreation bicycle trips). Detailed results are provided in **Attachment B**. The data does not show a strong correlation between the City's growth centres, transit corridors, or transportation nodes.

Of the total 135 zones (zone³ of household), few zones have greater than 0.5% cycling mode shares as summarized below:

- 46 zones greater than 0.5% cycling mode share,
- 27 zones greater than 1% cycling mode share,
- 6 zones greater than 2% cycling mode share,
- 3 zones greater than 3% cycling mode share, and
- 1 zone greater than 4% cycling mode share.

With very few zones showing noticeably higher cycling rates, current cycling demand cannot be used as a reliable tool to identify areas where higher rates would be appropriate.

4.4 Recommendations for the City of Mississauga for By-law Zoning Areas

Of the 11 municipalities included as part of the best practices review, six established a higher bicycle parking rate in intensification areas (Hamilton and Richmond Hill have minimums set in intensifications areas, but no minimums in general areas).

Although TTS data did not reveal significant areas of higher cycling use at present, areas envisioned to have higher bicycle use include those with a higher population density (current or planned), degree of urbanization, or greater access to cycling infrastructure (current and

³ 2006 GTA zone system

planned). Examples include, the downtown, mobility hubs and station areas, and along higher order transit corridors.

Until precinct area boundaries are defined for the City of Mississauga, higher bicycle parking rate requirements are recommended for the City Centre as this area is envisioned and expected to have a greater reliance of alternative modes of travel. Lower or 'standard' bicycle parking rate requirements are recommended for the rest of Mississauga. When precinct boundaries are defined, the City Centre rates could be expanded to apply to precincts that include development intensification, access to frequent or higher-order transit, proximity to mobility hubs, and other socio-economic or demographic criteria. Discussion on the recommended bicycle parking rates for the City Centre and rest of Mississauga are presented in **Section 6.3**.

5 Bicycle Parking Land Uses and Control Variables

5.1 Land Uses

Bicycle parking minimums for multi-unit residential (apartments) and various non-residential land uses from each municipality in the jurisdictional review were studied, with a focus on the land uses listed in the City Mississauga's TDM Strategy (retail, office, medical office, employment uses, schools, and institutional uses). In general, these land uses are consistent across other municipalities.

The residential rates recommended in the TDM Strategy apply to all “residential apartments and multi-unit dwellings” which would include retirement or senior’s buildings and other specialty multi-unit residences. A review of the City’s vehicle parking requirements in the Zoning By-Law indicate that reduced vehicle parking requirements apply to specific residential uses such as “long-term care” facilities and “retirement” homes. A comparison of parking rates for typical residential units and specialty residential units is shown in **Table 8**.

Table 8: Residential Vehicle Parking Rate Reductions for Retirement/Long-Term Care

| Type of Use | Minimum Vehicle Parking Requirements | Percentage of Apartment Rate |
|-------------------------|--------------------------------------|------------------------------|
| Apartment* | 1.0 spaces / unit | 100% |
| Long-term care building | 0.33 spaces / bed | - |
| Retirement building | 0.50 spaces / unit | 50% |

* Apartment parking rate shown only applies to the Downtown Core. Apartment parking rates in the rest of the City are higher and depend on the number of bedrooms and ownership (condominium vs. rental apartments).

It is recommended that an equivalent reduction of 50% be applied to the apartment bicycle parking rates to establish a retirement building rate, and that long-term care buildings be considered an institutional land use for determining a rate (further discussed in **Section 6**).

5.2 Control Variable

The majority of the TDM Strategy's bicycle parking rates are based on gross floor area (GFA) with the exceptions of residential developments where minimum rates are based on number of dwelling units and schools where minimum rates are based on number of students. In Mississauga's Zoning By-law, the vehicle parking requirements for schools is based on GFA (plus additional spaces for portable classrooms).

In general, requirements in other municipalities are based on the size of the development – GFA is used by Halifax, Kitchener, Markham, Newmarket, Richmond Hill, Vancouver, and Vaughan; net floor area (NFA) is used by Oakville; and Toronto uses interior floor area (IFA). For this review, it is assumed that the variation in rates due to the different ‘types’ of floor area is negligible, e.g., a rate of 1 space / 100 m² of GFA will be equivalent to a rate of 1 space / 100 m² of NFA for comparison purposes. There may be greater difference for some uses, like

shopping centres which have large hallways, or any other use that has a large proportion of mechanical floor area that reduce the usable floor area.

Aside from size of the development, the variable for schools varies across municipalities. Hamilton and Oakville base rates on classrooms while Mississauga, Markham, and Vancouver base rates on number of students. Vancouver also sets long-term rates for elementary/secondary schools and hospitals by number of employees. This is discussed further in **Section 6.2** when comparing the rates across municipalities.

Typically, long-term spaces are provided in separate rooms within the building. There is the possibility of defining bicycle parking by minimum floor area instead of number of spaces; however, the ability to design various layouts of bicycle spaces (i.e., wide rooms requiring multiple aisles versus narrow rooms with a single aisle, stacked bicycle spaces) could result in buildings providing significantly more or less bicycle parking spaces than expected. Based on best practices and the variability of parking layout designs, it is recommended that the bicycle parking rates continue to be based on a minimum number of spaces rather than a minimum floor area.

5.3 Recommendations for the City of Mississauga for Land Uses and Control Variables

Based on the review of land uses used by other municipalities, it is recommended that the land uses in the TDM Strategy be carried forward with the following additions:

- Long-term care facility should have the same rate as institutional land uses; and
- Retirement home should be differentiated from multiple unit dwellings.

It is recommended that residential requirements be per unit rates and non-residential requirements (including schools) be per 100 m² GFA rates. This is consistent with practices by other municipalities and how vehicle parking rates are currently defined in Mississauga.

6 Bicycle Parking Rates

A summary of the bicycle parking rates by municipality is provided in **Attachment A**.

6.1 Residential Bicycle Parking Rates

All municipalities in the best practice review base minimum rates on the number of units, and/or establish provisions for a minimum number of bicycle parking spaces to be provided. For example, Mississauga's TDM Strategy recommends a minimum of 6 short-term spaces regardless of the size of the development.

Although Oakville does not differentiate between long-term and short-term spaces, Oakville requires that 25% of the bicycle parking spaces be designated as bicycle parking spaces for visitors.

Bicycle parking can be waived for smaller developments such as buildings having fewer than 20 units (Oakville and Vancouver). Kitchener requires a minimum of 6 spaces for buildings with 20 or more units, but it reduces to 2 spaces for buildings with less than 20 units.

A summary of the minimum bicycle parking rates for apartments is provided in **Table 9** and **Exhibit 2**.

Table 9: Minimum Bicycle Parking Rates for Apartments

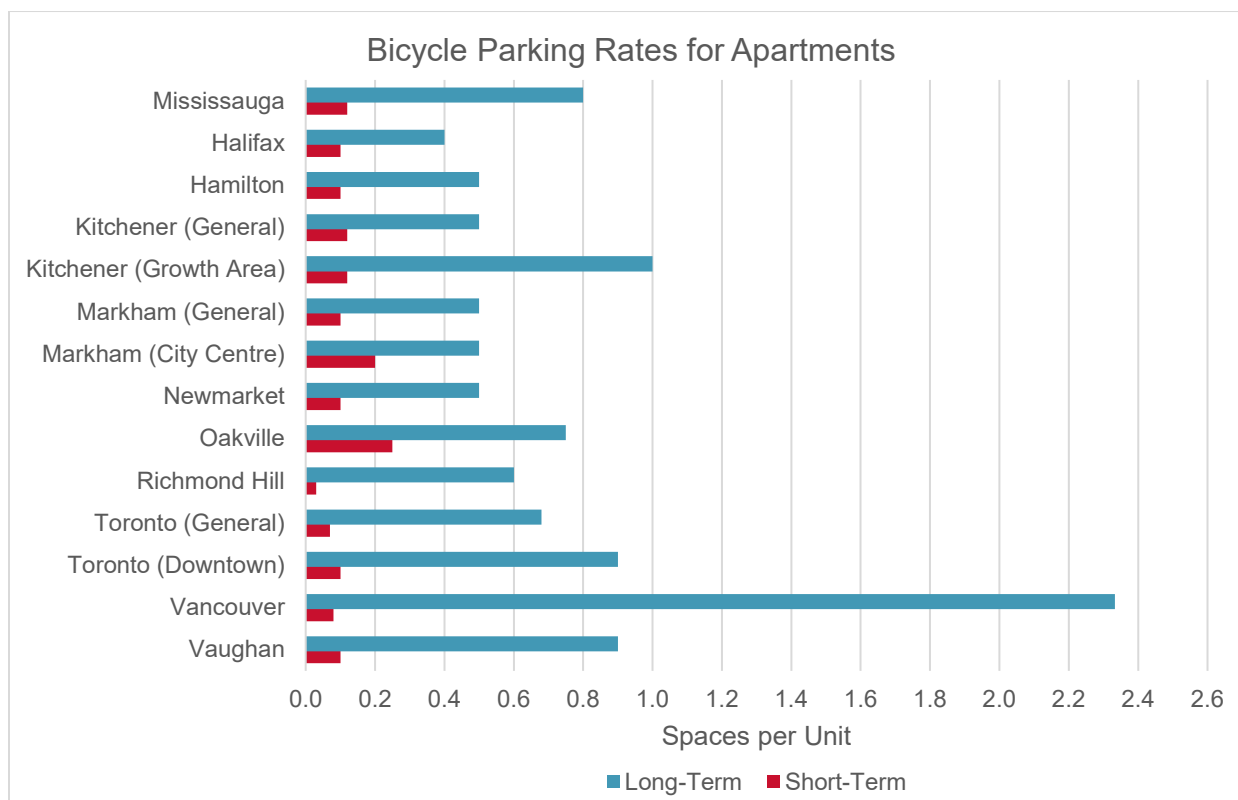
| Municipality | Minimum Bicycle Parking Rates for Apartments | |
|---|--|---|
| | Long-Term | Short-Term |
| Halifax | 0.40 / unit | 0.10 / unit, 4 minimum |
| Hamilton | 0.50 / unit | 5 minimum |
| Kitchener (<i>General</i>) | 0.50 / unit | 6 minimum* |
| Kitchener (<i>Growth Area</i>) | 1.00 / unit | 6 minimum* |
| Markham (<i>General</i>) | 0.50 / unit | 0.10 / unit |
| Markham (<i>City Centre</i>) | 0.50 / unit | 0.20 / unit |
| Newmarket | 0.50 / unit | 0.10 / unit |
| Oakville | 0.75 / unit | 0.25 / unit |
| Richmond Hill | 0.60 / unit | 0.03 / unit |
| Toronto (<i>Bicycle Zone 2 – General</i>) | 0.68 / unit | 0.07 / unit |
| Toronto (<i>Bicycle Zone 1 – Downtown</i>) | 0.90 / unit | 0.10 / unit |
| Vancouver (<i>Dwelling size less than 65 m²</i>) | 1.50 / unit | 2 minimum* plus 1 for every additional 20 units |
| Vancouver (<i>Dwelling size between 65 m² and 105 m²</i>) | 2.50 / unit | |
| Vancouver (<i>Dwelling size over 105 m²</i>) | 3.00 / unit | |
| Vaughan | 0.90 / unit | 0.10 / unit |

| Municipality | Minimum Bicycle Parking Rates for Apartments | |
|--|--|-------------|
| | Long-Term | Short-Term |
| Summary of Other Municipality Rates | | |
| Minimum | 0.40 / unit | 0.03 / unit |
| Median | 0.68 / unit | 0.10 / unit |
| Average | 0.98 / unit | 0.11 / unit |
| Maximum | 3.00 / unit | 0.25 / unit |
| Mississauga (TDM Strategy) Rates | | |
| Mississauga TDM Strategy | 0.80 / unit | 6 minimum** |

*Minimum 20 units; Kitchener short-term rate reduces to 2 spaces minimum for buildings with less than 20 units

**Represents a 50-unit building and a rate of 0.12 short-term spaces per unit, or a 60-unit building and a rate of 0.10 per unit

Exhibit 2: Minimum Residential Bicycle Parking Rates



Note: Mississauga, Hamilton, Kitchener, and Vancouver rates shown are based on a 50-unit building. Vancouver rate for long-term parking varies from 1.50 spaces/unit to 3.00 spaces/unit based on the size of the unit size – an average was used for Vancouver's long-term parking rate.

In general, the long-term rate for Mississauga (as proposed in the TDM Strategy) is on the higher end of the spectrum and is similar to rates from Oakville, Toronto, and Vaughan. Vancouver's rate (which takes an average of the varied parking rates by unit size) is significantly higher than all the other municipalities. **Exhibit 3** further demonstrates that Mississauga's

residential bicycle parking rates are similar to the other municipalities; however, it should be noted that the Mississauga TDM Strategy only establishes a minimum recommended supply of 6 short-term spaces which equates to a rate of 0.12 spaces per unit rate for a 50-unit building. Although this rate is similar to the other municipalities, a building with a larger number of units would still be required to only provide 6 spaces resulting in a much lower rate (e.g., 6 spaces for 200 units equates to 0.03 spaces / unit). As the number of units increase, Mississauga's rate becomes lower and further away from the average of other municipalities due to the consistent per unit rate used by municipalities such as Markham, Newmarket, Oakville, Richmond Hill, Toronto, and Vaughan.

It is recommended that the minimum short-term bicycle parking requirement be a rate based on the number of units. There can be an additional provision that the greater of the applied rate or 6 spaces be provided, to ensure that smaller developments will still have sufficient visitor parking.

Exhibit 3: Minimum Residential Rates – Comparison with Other Municipalities

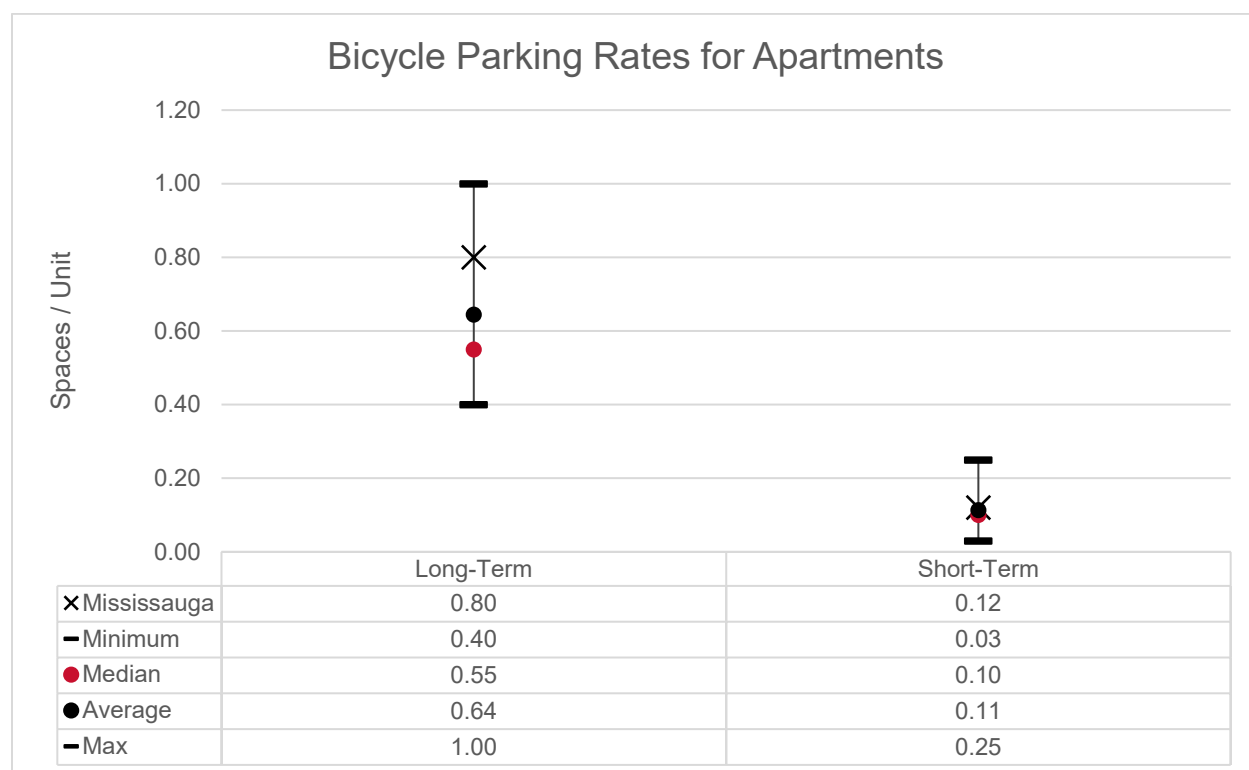


Note: Minimum, average, and maximum values are calculated excluding the Mississauga rates. Mississauga, Hamilton, Kitchener, and Vancouver rates shown are based on a 50-unit building. Vancouver rate for long-term parking varies from 1.50 spaces/unit to 3.00 spaces/unit based on the size of the unit size – an average was used for Vancouver's long-term parking rate.

There is a wide range in long-term parking rates. Vancouver's long-term rates are significantly higher than the other municipalities, with a rate more than twice as high as the next highest rate. The comparison of rates without Vancouver is presented in **Exhibit 4**. Based on the updated

comparison, Mississauga's TDM Strategy rates still fall within the range of the rates at the other municipalities but is now viewed to be on the higher end of the spectrum.

Exhibit 4: Minimum Residential Rates – Comparison with Other Municipalities (excluding Vancouver)



Note: Minimum, average, and maximum values are calculated excluding the Mississauga rates. Mississauga, Hamilton, Kitchener, and Vancouver rates shown are based on a 50-unit building. Vancouver rates have been excluded from the comparison.

It is noted that the Mississauga rates from the TDM Strategy are within 0.20 spaces per unit of half of the other municipalities (Kitchener – growth area, Oakville, Richmond Hill, Toronto – general and downtown, and Vaughan). The remaining municipalities (Halifax, Hamilton, Kitchener – general, Markham – general and city centre, and Newmarket) have rates that range from 0.40 to 0.50 spaces per unit.

Although most of the rates are 0.50 spaces per unit or less, there are municipalities that require minimums ranging from 0.60 to 1.00 spaces per unit. Since the TDM Strategy rates have already been applied to developments in Mississauga, and to further support the vision for cycling in Mississauga, it is recommended that the new rate stay within the existing range.

A comparison of the existing and recommended rates is shown in **Table 10**.

Applying residential bicycle parking rates by precinct is discussed in **Section 6.3**. Note that **Section 5.1** introduces rates for Long-Term Care Building and Retirement Building. The rates for the long-term care and retirement buildings are presented in **Section 6.4**.

Table 10: Comparison of Existing and Recommended Minimum Residential Bicycle Parking Rate

| Mississauga Rates | Minimum Bicycle Parking Rates – Residential | |
|------------------------------|---|---|
| | Long-Term Spaces | Short-Term Spaces |
| Existing Rate (TDM Strategy) | 0.80 / unit | 6 spaces |
| Recommended Rate | 0.80 / unit | Greater of 0.10 / unit or 6 spaces |

Based on the multi-unit residential land uses in the City's existing zoning by-law, the residential rates will be applied to the following land uses:

- Condominium Apartment;
- Rental Apartment;
- Apartment; and
- Condominium Back to Back and Stacked Townhouse, Rental Back to Back and Stacked Townhouse, and Rental Townhouse without exclusive use garage and driveway for each of these land uses.

6.2 Non-Residential Bicycle Parking Rates

Mississauga's TDM Strategy defined minimum bicycle parking rates for the following non-residential land use categories:

- Retail
- Business Office
- Medical Office
- Employment
- Elementary School / Secondary School
- Post-Secondary School
- Institutional

These non-residential land uses appear consistently across all municipalities; however, employment uses are typically specified into various commercial/industrial land uses in other municipalities. Because units are not consistent across all by-laws, rates were converted to spaces per 100 m² (most commonly use unit). To compare the rates, a summary of the long-term and short-term parking rates per 100 m² GFA is provided in **Table 11** and **Table 12**, respectively.

In the jurisdictional review, most municipalities have established either individual rates for each land use (e.g., Toronto, Vaughan) or group rates based on land uses that are expected to have similar long-term and short-term parking patterns (e.g., Halifax). Richmond Hill's By-law for the Key Development Areas defines a single parking rate for all non-residential land uses. This may be due to the specific local nature of this by-law or the limited land uses allowed in these areas. Because of the varying demands for long-term and short-term bicycle parking, there may be

under- (or over-) estimations in the required parking. For comparison purposes, these rates are included and expanded to each land use.

Exhibit 5 and **Exhibit 6** show where the Mississauga TDM Strategy rates fall within the spectrum of the other municipalities. In general, the Mississauga TDM Strategy rates are 50% lower than rates from other municipalities, which means there is opportunity to increase the bicycle parking rate to be more consistent with practices in other jurisdictions.

Table 11: Long-Term Bicycle Parking Rates for Non-Residential Land Uses (spaces per 100 m²)

| Land Use Categories | Mississauga TDM Strategy | Halifax | Kitchener | Kitchener (Growth Area) | Markham | Markham (City Centre) | Newmarket | Richmond Hill | Toronto | Toronto (Downtown) | Vancouver | Vaughan |
|-------------------------------|--------------------------|---------|-----------|-------------------------|----------------------|-----------------------|--------------------|---------------|---------|--------------------|----------------------|---------|
| Retail | 0.10 | 0.07 | 0.10 | 0.20 | 0.10 | 0.13 | <i>Min. Spaces</i> | 0.13 | 0.13 | 0.20 | 0.29 | 0.20 |
| Business Office | 0.10 | 0.10 | 0.20 | 0.30 | 0.08 | 0.13 | <i>Min. Spaces</i> | 0.13 | 0.13 | 0.20 | 0.59 | 0.20* |
| Medical Office | 0.10 | 0.10 | 0.10 | 0.20 | - | - | - | 0.13 | 0.10 | 0.15 | - | 0.15 |
| Employment Uses | 0.10 | - | - | - | - | - | - | 0.13 | - | - | - | - |
| School, Elementary/ Secondary | <i>Student based</i> | 0.13 | 0.10 | 0.20 | 0.05 | 0.05 | 0.06 | 0.13 | 0.06 | 0.10 | <i>Emp. Based</i> | 0.10 |
| School, Post-Secondary | <i>Student based</i> | 0.13 | 2.00 | 2.00 | <i>Student based</i> | <i>Student based</i> | 0.06 | 0.13 | 0.60 | 2.00 | <i>Student based</i> | 0.10 |
| Institutional | 0.10 | 0.10 | 0.10 | 0.13 | 0.05 | 0.05 | <i>Min. Spaces</i> | 0.13 | 0.06 | 0.10 | <i>Emp. Based</i> | 2.00 |

Notes:

None of Hamilton's rates were based on size of the development and have been excluded from the comparison.

Markham's retail rates provide a range based on the density of the retail (strip plaza, shopping mall, high density). The highest rate was taken for comparison.

Oakville does not differentiate rates between long-term and short-term spaces. Rates have been assumed to be short-term rates for comparison purposes.

Emp. Based refers to employee-based rates.

*This rate has an additional 3 spaces added to the minimum requirements, but only the rate provided is shown for comparison purposes.

Table 12: Short-Term Bicycle Parking Rates for Non-Residential Land Uses (spaces per 100 m²)

| Land Use Categories | Mississauga TDM Strategy | Halifax | Kitchener | Kitchener (Growth Area) | Markham | Markham (City Centre) | Newmarket | Oakville | Richmond Hill | Toronto | Toronto (Downtown) | Vancouver | Vaughan |
|-------------------------------|--------------------------|---------|-----------|-------------------------|---------------|-----------------------|-----------|-------------|---------------|---------|--------------------|---------------|---------|
| Retail | 0.20 | 0.27 | 0.30 | 0.60 | 0.15 | 0.20 | 0.50 | 0.10 | 0.15 | 0.23* | 0.30* | Min. Spaces | 0.30* |
| Business Office | 0.10 | 0.10 | 0.13 | 0.20 | 0.05 | 0.10 | 0.50 | 0.10 | 0.15 | 0.15* | 0.20* | Min. Spaces | 0.20 |
| Medical Office | 0.10 | 0.10 | 0.30 | 0.60 | - | - | - | 0.10 | 0.15 | 0.10* | 0.15* | - | 0.15* |
| Employment Uses | Min. Spaces | - | - | - | - | - | - | 0.10 | 0.15 | - | - | - | - |
| School, Elementary/ Secondary | Student based | 0.53 | 1.00 | 1.00 | 0.40 | 0.40 | 0.06 | Class based | 0.15 | 0.06* | 0.10* | Student based | 0.10* |
| School, Post-Secondary | Student based | 0.53 | 2.00 | 2.00 | Student based | Student based | 0.06 | 2.00 | 0.15 | 2.00* | 2.00* | Student based | 0.10* |
| Institutional | 0.10 | 0.10 | 0.05 | 0.07 | 0.05 | 0.05 | 0.50 | 1.00 | 0.15 | 0.06* | 0.10* | Min. Spaces | 1.00* |

Notes:

None of Hamilton's rates were based on size of the development and have been excluded from the comparison.

Markham's retail rates provide a range based on the density of the retail (strip plaza, shopping mall, high density). The highest rate was taken for comparison.

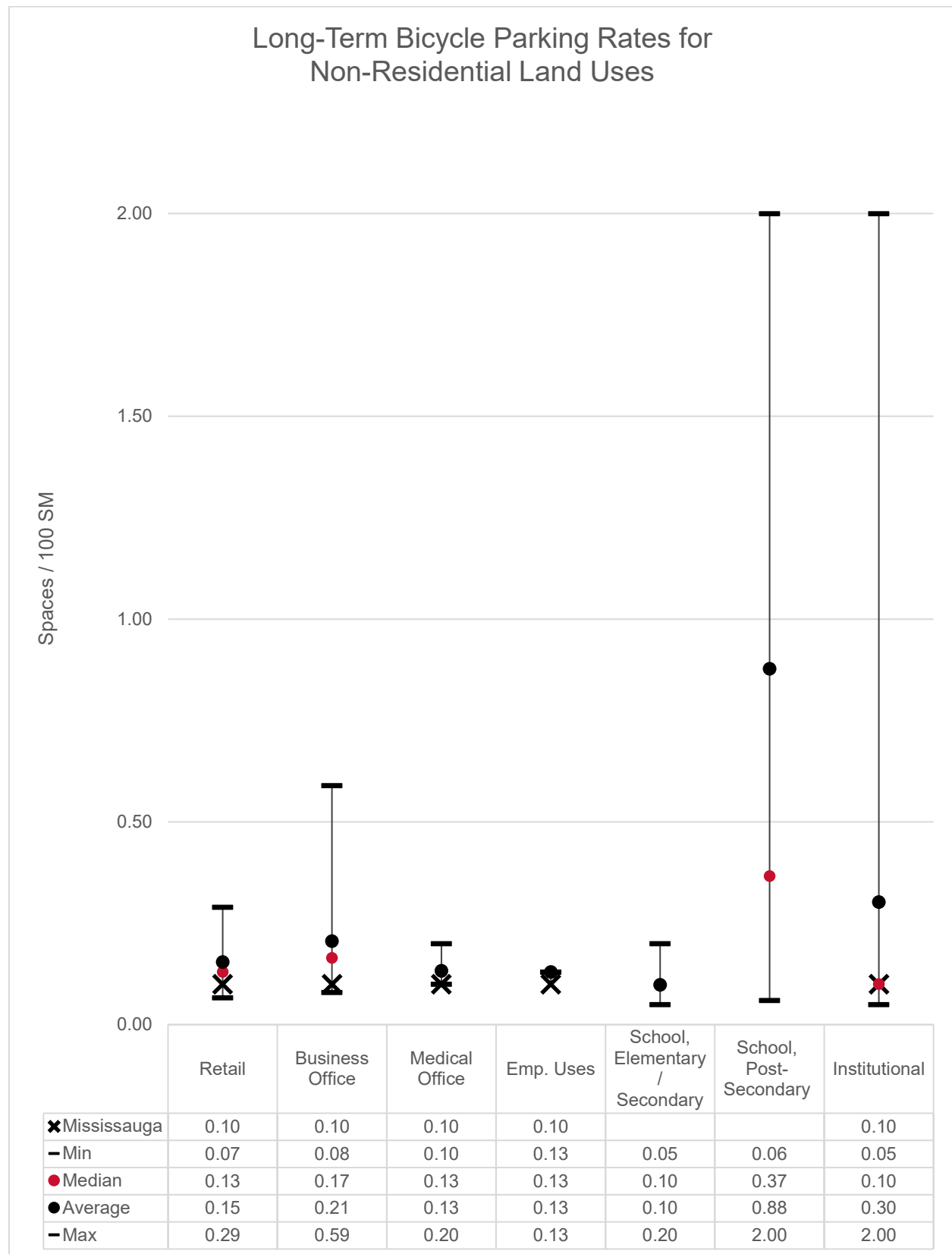
Markham also considers the minimum number of spaces for short-term bicycle parking to be the greater of the calculated rate, or 6 spaces minimum (or 3 for low-density retail).

Oakville does not differentiate rates between long-term and short-term spaces. Rates have been assumed to be short-term rates for comparison purposes.

Emp. based refers to employee-based rates.

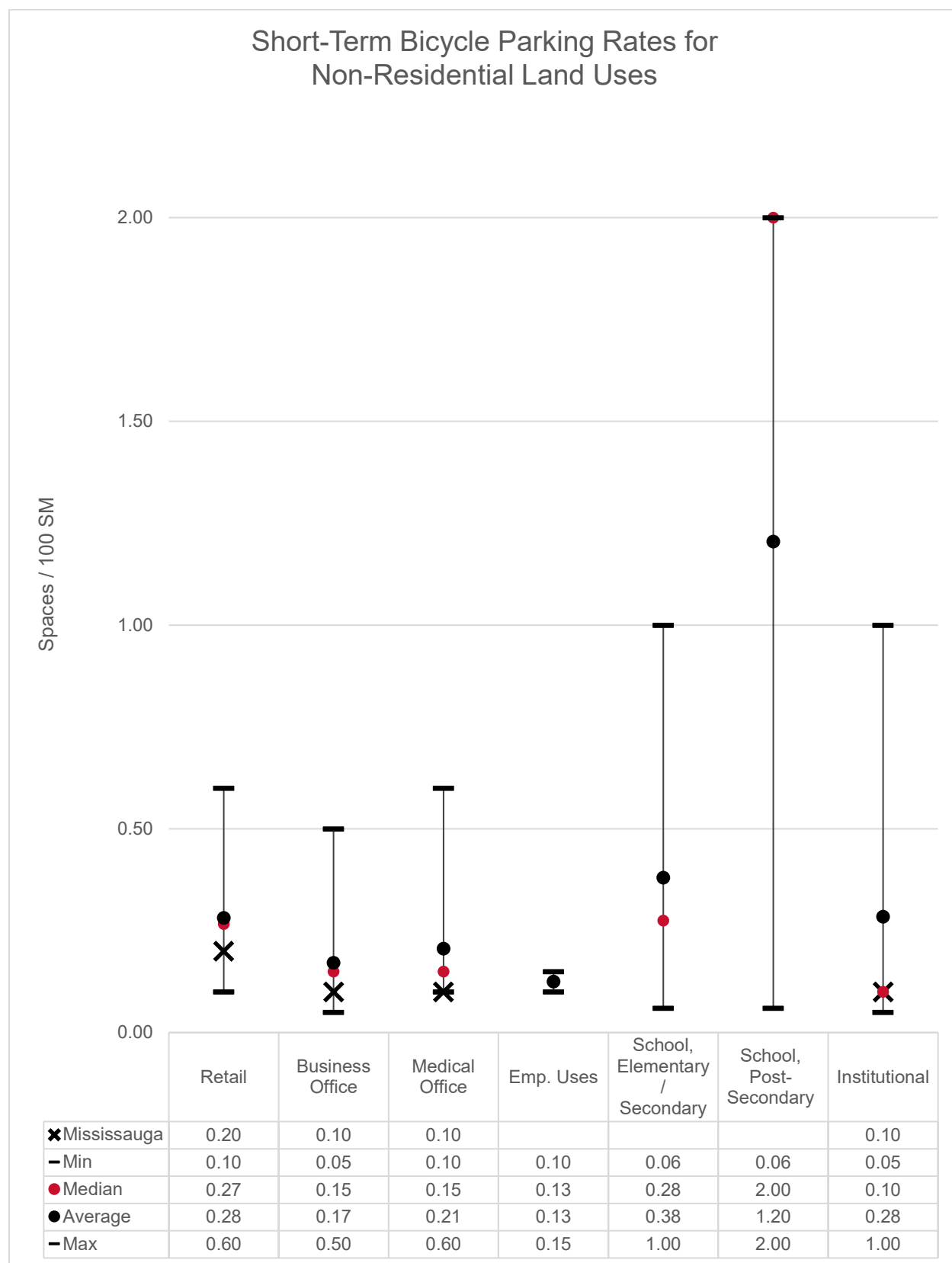
*This rate has an additional 3 spaces added to the minimum requirements, but only the rate provided is shown for comparison purposes.

Exhibit 5: Long-Term Bicycle Parking Rates for Non-Residential Land Uses



Note: Minimum, average, and maximum values are calculated excluding the Mississauga rates.

Exhibit 6: Short-Term Bicycle Parking Rates for Non-Residential Land Uses



Note: Minimum, average, and maximum values are calculated excluding the Mississauga rates.

Table 13 compares the school rate of other municipalities that use student-based rates. The rates range from 0.6 to 1.5 spaces per 15 students for long-term bicycle parking, and 0.8 to 1.5 spaces per 15 students for short-term bicycle parking. Although, this is a small sample size, Mississauga rates are within the range of what other municipalities are applying. Despite the TDM Strategy's consistency with the other student-based rates, it is recommended that the City adopt a GFA-based rate at schools for bicycle parking as this is consistent with the majority of municipalities in the jurisdictional review and the City's GFA-based rates at schools for vehicle parking.

Table 13: Bicycle Parking Rate for Schools (spaces per students)

| Land Use – Schools | Long-Term Bicycle Parking | | | Short-Term Bicycle Parking | | |
|----------------------|---------------------------|-------------------|-----------------------|----------------------------|-------------------|-------------------|
| | Mississauga | Markham | Vancouver | Mississauga | Markham | Vancouver |
| Elementary/Secondary | 1 / 15 students | <i>GFA based</i> | <i>Employee based</i> | 1.5 / 15 students | <i>GFA based</i> | 0.8 / 15 students |
| Post-Secondary | 1 / 15 students | 1.5 / 15 students | 0.6 / 15 students | 1 / 15 students | 1.5 / 15 students | 0.9 / 15 students |

Additional land uses for consideration of a separate rate include restaurant, community facility, place of assembly/public hall, and manufacturing/industrial. Long-term and short-term rates for these land uses in other municipalities are summarized in **Table 14** and **Table 15**. These rates can be categorized with other land uses such as retail or institutional for example.

Table 14: Minimum Long-Term Bicycle Parking Rates for Other Non-Residential Land Uses

| Land Use | Halifax | Kitchener | Kitchener (Growth Areas) | Markham | Newmarket | Richmond Hill | Toronto | Toronto (Downtown) | Vancouver | Vaughan |
|--------------------------|-----------|-----------|--------------------------|---------|-----------|---------------|---------|--------------------|------------|---------|
| Restaurant | 0.07 | 0.4 | 1.0 | - | - | 0.13 | 0.13* | 0.20* | - | 0.2 |
| Community Facility | Min space | 0.1 | 0.2 | - | - | 0.13 | - | - | 0.2 | 2.0 |
| Hospital | 0.1 | 0.1 | 0.13 | 0.5 | - | 0.13 | 0.06 | 0.1 | Emp. based | 0.1 |
| Manufacturing/Industrial | 0.1 | 0.07 | 0.1 | 0.05 | 0.2 | 0.13 | - | - | 0.1 | - |

None of Hamilton's rates were based on size of the development and have been excluded from the comparison.

Markham City Centre rates were the same as the general rates for these land uses.

Emp. based refers to employee-based rates.

*This rate has an additional 3 spaces added to the minimum requirements, but only the rate provided is shown for comparison purposes.

Table 15: Minimum Short-Term Bicycle Parking Rates for Other Non-Residential Land Uses

| Land Use | Halifax | Kitchener | Kitchener (Growth Areas) | Markham | Newmarket | Richmond Hill | Toronto | Toronto (Downtown) | Vancouver | Vaughan |
|------------------------------|---------|--------------|-----------------------------|---------|-----------|---------------|---------|-----------------------|--------------|---------|
| Restaurant | 0.27 | Min space | Min space | - | - | 0.15 | 0.25* | 0.30* | - | 0.30* |
| Community Facility | 0.10 | 0.20 | 0.40 | - | - | 0.15 | - | - | 0.04 | 1.00* |
| Hospital | 0.03 | 0.50 | 0.67 | 0.50 | - | 0.15 | 0.06* | 0.10* | Min space | 0.10* |
| Manufacturing/ Industrial | 0.10 | 0.03 | 0.50 | 0.05 | 0.20 | 0.15 | - | - | - | - |

None of Hamilton's rates were based on size of the development and have been excluded from the comparison.

Markham City Centre rates were the same as the general rates for these land uses.

Emp. based refers to employee-based rates.

*This rate has an additional 3 spaces added to the minimum requirements, but only the rate provided is shown for comparison purposes.

A comparison of the existing rate and recommended rate, based on best practices, is shown in **Table 16**. Two additional categories for “other” non-residential uses and non-residential “exceptions” have been added to capture land uses defined in the City's Zoning By-law but not explicitly captured in the bicycle parking review. A subset of non-residential uses, mainly related to utilities and public services, are expected to have very low bicycle parking demand for the size of the facility. For these particular uses, a minimum bicycle parking requirement of 2 spaces for staff needs is recommended.

The applicable land uses defined in the City of Mississauga's Zoning By-law have been grouped by land use category and associated bicycle parking rates as shown in **Table 17**.

Table 16: Comparison of Existing and Proposed Minimum Non-Residential Bicycle Parking Rates

| Land Use Categories | Minimum Bicycle Parking Rates – Non-Residential Land Uses | | | |
|--------------------------------|---|---------------------------|---------------------------|---------------------------|
| | Existing Rate (TDM Strategy) | | Recommended Rate | |
| | Long-Term | Short-Term | Long-Term | Short-Term |
| Retail | 0.10 / 100 m ² | 0.20 / 100 m ² | 0.15 / 100 m ² | 0.30 / 100 m ² |
| Business Office | 0.10 / 100 m ² | 0.10 / 100 m ² | 0.20 / 100 m ² | 0.15 / 100 m ² |
| Medical Office | 0.10 / 100 m ² | 0.10 / 100 m ² | 0.15 / 100 m ² | 0.20 / 100 m ² |
| Employment Uses | 0.10 / 100 m ² | 2 minimum | 0.15 / 100 m ² | 0.15 / 100 m ² |
| School, Elementary / Secondary | 1 / 15 students | 1 / 10 students | 0.10 / 100 m ² | 0.40 / 100 m ² |
| School, Post-Secondary | 1 / 15 students | 1 / 15 students | 1.00 / 100 m ² | 1.20 / 100 m ² |
| Institutional | 0.10 / 100 m ² | 0.10 / 100 m ² | 0.30 / 100 m ² | 0.30 / 100 m ² |
| Other Non-Residential | - | - | 0.05 / 100 m ² | 0.10 / 100 m ² |
| Non-Residential – Exceptions | - | - | - | 2 spaces |

Table 17: Grouping of Land Uses for Applicable Bicycle Parking Rates

| Land Use Categories | Applicable Land Uses |
|--------------------------------|--|
| Retail | Retail Centre, Retail Store, Entertainment Establishment, Personal Service Establishment, Convenience Restaurant, Restaurant, Take-out Restaurant |
| Business Office | Office, Real Estate Office |
| Medical Office | Medical Office, Medical Office - Restricted |
| Employment | Education and Training Facility, Financial Institution, Manufacturing Facility, Science and Technology Facility, Warehouse/ Distribution Facility, Wholesaling Facility |
| School, Elementary / Secondary | Public/Private School |
| School, Post-Secondary | College, University |
| Institutional | Active Recreational Use, Arena, Art Gallery, Community Centre, Hospital, Library, Museum, Place of Religious Assembly, Recreational Establishment |
| Other Non-Residential | Land uses not specified in this table. |
| Non-Residential – Exceptions | Contractor's Yard, Essential Emergency Service, Power Generating Facility, Self Storage Facility, Utility [Electric Transformer and Distribution Facility, Sewage Treatment Plant, Utility Building, Water Treatment Facility], Waste Transfer Station |

6.3 Differentiating Rates by Area

In the jurisdictional review, only three municipalities establish separate rates for general areas and intensification/downtown areas as summarized in **Table 18** and **Table 19**. Compared to the general areas, Markham increases the short-term parking rate (doubling) for the intensification area, whereas Kitchener only increases the long-term parking rate (doubling). In Toronto, the long-term and short-term rates for the intensification areas are 32% and 43% higher than the respective rates in the general area.

The Mississauga TDM Strategy rates have already been applied to new developments in various areas of the City. Since the residential rates in the TDM Strategy were found to be on the higher end compared to other municipalities, it is recommended that these rates be applied to the City Centre. For non-residential uses, the TDM Strategy rates were well below average and it is recommended that parking rates based on best practices be applied to the City Centre instead.

It is recommended that higher bicycle parking rates (i.e., for the City Centre) be approximately 50% higher than rates for general areas. The exception will be short-term parking rates for schools as typical parking needs at schools have shown to remain the same in all areas.

Table 18: Comparing Residential Bicycle Parking Rates for General and Intensification Areas

| Bicycle Parking | General Area | Intensification Area | Increase (%) |
|--------------------------------|--------------|----------------------|--------------|
| Residential (Apartment) | | | |
| Kitchener | | | |
| Long-Term | 0.50 / unit | 1.00 / unit | 100% |
| Short-Term | 6 spaces* | 6 spaces* | 0% |
| Markham | | | |
| Long-Term | 0.50 / unit | 0.50 / unit | 0% |
| Short-Term | 0.10 / unit | 0.20 / unit | 100% |
| Toronto | | | |
| Long-Term | 0.68 / unit | 0.90 / unit | 32% |
| Short-Term | 0.07 / unit | 0.10 / unit | 43% |

*Minimum 2 spaces for buildings with 20 or less units

Table 19: Comparing Non-Residential Bicycle Parking Rates for General and Intensification Areas

| Bicycle Parking | General Area | Intensification Area | Increase (%) |
|-------------------------------------|--------------|----------------------|--------------|
| Retail | | | |
| Kitchener | | | |
| Long-Term | 0.10 | 0.20 | 100% |
| Short-Term | 0.30 | 0.60 | 100% |
| Markham | | | |
| Long-Term | 0.10 | 0.13 | 30% |
| Short-Term | 0.15 | 0.20 | 33% |
| Toronto | | | |
| Long-Term | 0.13 | 0.20 | 54% |
| Short-Term | 0.23 | 0.30 | 30% |
| Business Office | | | |
| Kitchener | | | |
| Long-Term | 0.20 | 0.30 | 50% |
| Short-Term | 0.13 | 0.20 | 54% |
| Markham | | | |
| Long-Term | 0.08 | 0.13 | 63% |
| Short-Term | 0.05 | 0.10 | 100% |
| Toronto | | | |
| Long-Term | 0.13 | 0.20 | 54% |
| Short-Term | 0.15 | 0.20 | 33% |
| Medical Office | | | |
| Kitchener | | | |
| Long-Term | 0.10 | 0.20 | 100% |
| Short-Term | 0.30 | 0.60 | 100% |
| Markham | | | |
| Long-Term | - | - | - |
| Short-Term | - | - | - |
| Toronto | | | |
| Long-Term | 0.13 | 0.20 | 54% |
| Short-Term | 0.10 | 0.15 | 50% |
| School, Elementary/Secondary | | | |
| Kitchener | | | |
| Long-Term | 0.10 | 0.20 | 100% |
| Short-Term | 1.00 | 1.00 | 0% |
| Markham | | | |
| Long-Term | 0.05 | 0.05 | 0% |
| Short-Term | 0.40 | 0.40 | 0% |
| Toronto | | | |
| Long-Term | 0.06 | 0.10 | 67% |
| Short-Term | 0.06 | 0.10 | 67% |

| Bicycle Parking | General Area | Intensification Area | Increase (%) |
|-------------------------------|-----------------|----------------------|--------------|
| School, Post-Secondary | | | |
| Kitchener | | | |
| Long-Term | 2.00 | 2.00 | 0% |
| Short-Term | 2.00 | 2.00 | 0% |
| Markham | | | |
| Long-Term | 1 / 10 students | 1 / 10 students | 0% |
| Short-Term | 1 / 10 students | 1 / 10 students | 0% |
| Toronto | | | |
| Long-Term | 0.60 | 2.00 | 233% |
| Short-Term | 2.00 | 2.00 | 0% |
| Institutional | | | |
| Kitchener | | | |
| Long-Term | 0.10 | 0.13 | 30% |
| Short-Term | 0.05 | 0.07 | 40% |
| Markham | | | |
| Long-Term | 0.05 | 0.05 | 0% |
| Short-Term | 0.05 | 0.05 | 0% |
| Toronto* | | | |
| Long-Term | 0.06 | 0.10 | 67% |
| Short-Term | 0.06 | 0.10 | 67% |

* Under appeal.

6.4 Recommendations for City of Mississauga Bicycle Parking Rates

A summary of the recommended rates is presented in **Table 20** and **Table 21**.

Table 20: Recommendations for Minimum Residential Bicycle Parking Rate

| Land Uses | Minimum Bicycle Parking Rates – Residential Land Uses | | | |
|--|---|--------------------------------|---------------------------|--------------------------------|
| | City Centre | | Rest of Mississauga | |
| | Long-Term | Short-Term | Long-Term | Short-Term |
| Apartment (including condominium, rental, and townhouses without exclusive use garages) | 0.80 / unit | 0.10 / unit (6 spaces min.) | 0.60 / unit | 0.05 / unit (6 spaces min.) |
| Long-Term Care Facility | 0.30 / 100 m ² | 0.30 / 100 m ² | 0.20 / 100 m ² | 0.20 / 100 m ² |
| Retirement Home | 0.40 / unit | 0.05 / unit | 0.30 / unit | 0.03 / unit (6 spaces min.) |

Table 21: Recommendations for Minimum Non-Residential Bicycle Parking Rates

| Land Uses | Minimum Bicycle Parking Rates – Non-Residential Land Uses | | | |
|---|---|---------------------------|---------------------------|---------------------------|
| | City Centre | | Rest of Mississauga | |
| | Long-Term | Short-Term | Long-Term | Short-Term |
| Retail (including retail centre, and retail store, entertainment establishment, personal service establishment, convenience restaurant, restaurant, take-out restaurant) | 0.15 / 100 m ² | 0.30 / 100 m ² | 0.10 / 100 m ² | 0.20 / 100 m ² |
| Business Office (including office, and real estate office) | 0.20 / 100 m ² | 0.15 / 100 m ² | 0.10 / 100 m ² | 0.10 / 100 m ² |
| Medical Office (including medical office, medical office – restricted) | 0.15 / 100 m ² | 0.20 / 100 m ² | 0.10 / 100 m ² | 0.10 / 100 m ² |

| Land Uses | Minimum Bicycle Parking Rates – Non-Residential Land Uses | | | |
|--|--|---------------------------|---------------------------|---------------------------|
| | City Centre | | Rest of Mississauga | |
| | Long-Term | Short-Term | Long-Term | Short-Term |
| Employment Uses (including education and training facility, financial institution, manufacturing facility, science and technology facility, warehouse/ distribution facility, wholesaling facility) | 0.15 / 100 m ² | 0.15 / 100 m ² | 0.10 / 100 m ² | 2 minimum |
| School, Elementary / Secondary (including public/private) | 0.10 / 100 m ² | 0.40 / 100 m ² | 0.10 / 100 m ² | 0.40 / 100 m ² |
| School, Post-Secondary (including college/university) | 1.00 / 100 m ² | 1.20 / 100 m ² | 1.00 / 100 m ² | 1.20 / 100 m ² |
| Institutional (including active recreational use, arena, art gallery, community centre, hospital, library, museum, place of religious assembly, recreational establishment) | 0.30 / 100 m ² | 0.30 / 100 m ² | 0.10 / 100 m ² | 0.10 / 100 m ² |
| Other Non-Residential (Land uses not specified in this table.) | 0.08 / 100 m ² | 0.15 / 100 m ² | 0.05 / 100 m ² | 0.10 / 100 m ² |
| Non-Residential – Exceptions (Contractor's Yard, Essential Emergency Service, Power Generating Facility, Self Storage Facility, Utility [Electric Transformer and Distribution Facility, Sewage Treatment Plant, Utility Building, Water Treatment Facility], Waste Transfer Station) | -- | - | - | 2 spaces |

7 Amenities for Bicycle Parking

The Mississauga TDM Strategy proposed rates for end-of-trip facilities including showers, sinks, and toilets.

Table 22 through **Table 27** summarize the minimum requirements of end-of-trip facilities. Of the municipalities reviewed, Kitchener, Richmond Hill, Toronto, Vancouver, and Vaughan establish requirements for the provision of shower and change facilities at a rate based on the long-term bicycle parking requirement. Kitchener and Toronto have the same rate (Vaughan uses half of these rates), whereas Richmond Hill and Vancouver have higher rates. Additionally, Richmond Hill requires a total of 1 shower and change facilities for each gender at the rate of 1 per 30 bicycle parking spaces for non-residential uses. End-of-trip amenities are required for non-residential uses only.

Vancouver provides separate rates for offices and retail. The office rate is similar to the general rate, whereas the retail rate is about half of the general rate.

In additions to shower and change facilities, Kitchener also requires a minimum area for the facilities and Vancouver specifies additional requirements for water closets (toilets) and wash basins (sinks).

Table 22: Shower and Change Facilities Required (Kitchener Zoning By-law 2019-051)

| Long-Term Bicycle Spaces | Minimum number of Showers within Facilities | Minimum Area of Shower and Change Facilities |
|--------------------------|---|--|
| 5 to 60 | 2 | 8 m ² |
| 61 to 120 | 4 | 12 m ² |
| 121 to 180 | 6 | 16 m ² |
| Greater than 180 | 8 | 20 m ² |

Table 23: Shower and Change Facilities Required (Toronto By-law 569-2013)

| Long-Term Bicycle Spaces | Minimum Number of Shower and Change Facilities (for each gender) |
|--------------------------|--|
| Less than 5 | 0 |
| 5 to 60 | 1 |
| 61 to 120 | 2 |
| 121 to 180 | 3 |
| Greater than 180 | 4 |

**Table 24: Shower and Change Facilities Required
(Vaughan Draft Comprehensive Zoning By-Law January 2020)**

| Long-Term Bicycle Spaces | Minimum Number of Shower and Change Facilities |
|--------------------------|--|
| Less than 5 | 0 |
| 5 to 60 | 1 |
| 61 to 120 | 2 |
| 121 to 180 | 3 |
| Greater than 180 | 4 |

Table 25: Shower and Change Facilities for Office and Retail (Vancouver By-law 6059)

| Land Use | Water Closet (Toilets) | Wash Basin (Sinks) | Showers |
|-------------------------|---|--|---|
| Office | 1 water closet for every 10 Class A bicycle spaces up to 50 spaces and one for every 20 spaces above 50 | 1 wash basin for any development requiring between 5 and 10 Class A bicycle parking spaces, plus one for every additional 20 spaces up to 50 spaces and one for every 40 spaces above 50 | 1 shower for every 10 Class A bicycle spaces up to 50 spaces and one for every 20 spaces above 50 |
| Retail and Service Uses | 1 water closet for every 10 Class A bicycle spaces up to 50 spaces and one for every 20 spaces above 50 | 1 wash basin for any development requiring between 5 and 10 Class A bicycle parking spaces, plus one for every additional 20 spaces up to 50 spaces and one for every 40 spaces above 50 | 1 shower for any development requiring between 5 and 10 Class A bicycle spaces, plus one for every 40 spaces above 10 |

Table 26: Shower and Change Facilities Required for Other Uses (Vancouver By-law 6059)

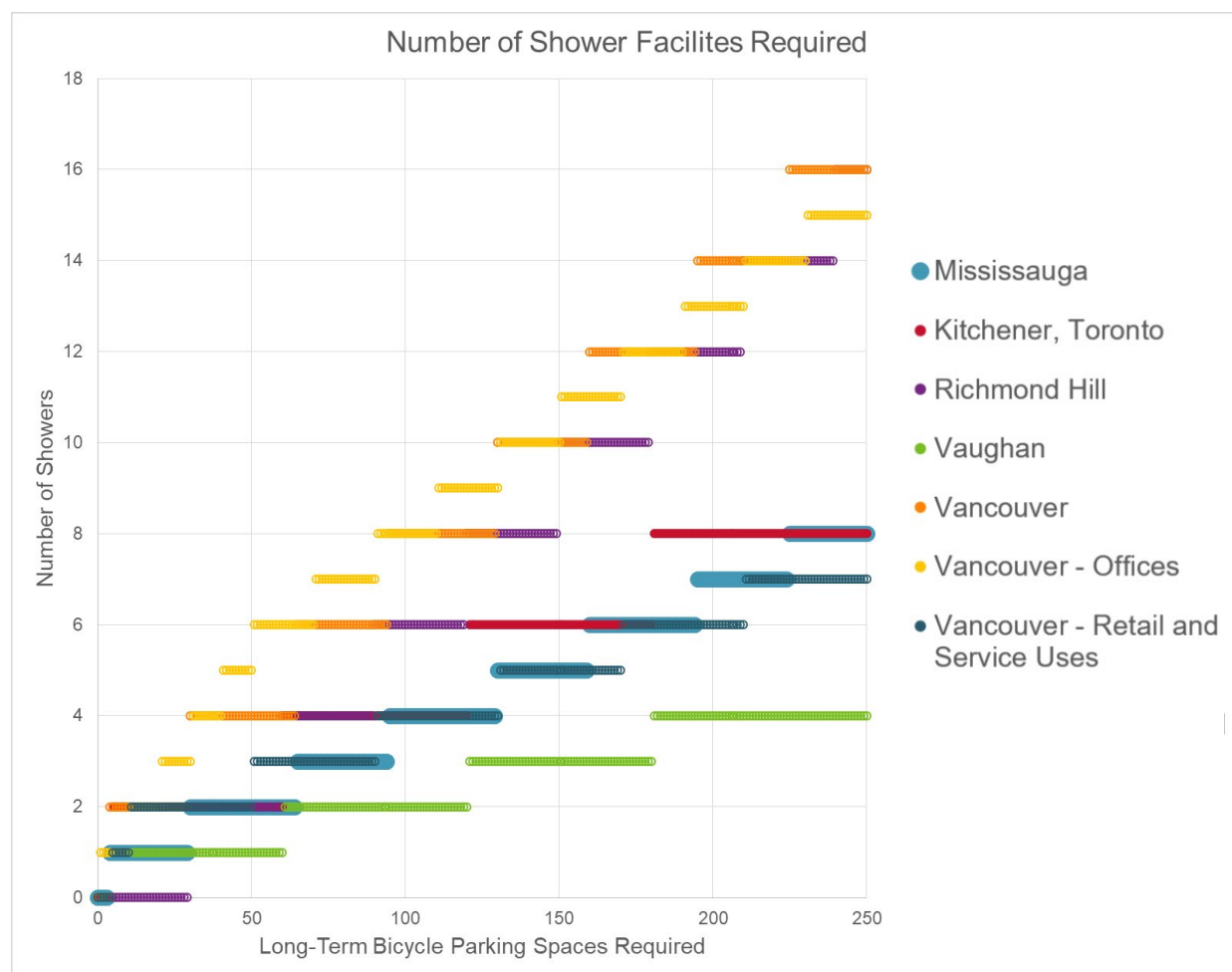
| Class A Bicycle Spaces | Water Closet (Toilets) | Wash Basin (Sinks) | Showers |
|------------------------|-------------------------------|------------------------------|-------------------------------|
| 0 to 3 | 0 | 0 | 0 |
| 4 to 29 | 2 | 2 | 2 |
| 30 to 64 | 4 | 2 | 4 |
| 65 to 94 | 6 | 4 | 6 |
| 95 to 129 | 8 | 4 | 8 |
| 130 to 159 | 10 | 6 | 10 |
| 160 to 194 | 12 | 6 | 12 |
| Over 194 | 12 + 2 / additional 30 spaces | 6 + 2 / additional 30 spaces | 12 + 2 / additional 30 spaces |

Table 27: Shower and Change Facilities Required (Mississauga TDM Strategy)

| Class A Bicycle Spaces | Toilets | Showers and Lockers | Sinks |
|------------------------|------------------------------|------------------------------|------------------------------|
| 0 to 3 | 0 | 0 | 0 |
| 4 to 29 | 1 | 1 | 1 |
| 30 to 64 | 2 | 2 | 1 |
| 65 to 94 | 3 | 3 | 2 |
| 95 to 129 | 4 | 4 | 2 |
| 130 to 159 | 5 | 5 | 3 |
| 160 to 194 | 6 | 6 | 3 |
| Over 194 | 6 + 1 / additional 30 spaces | 6 + 1 / additional 30 spaces | 3 + 1 / additional 30 spaces |

The required number of showers for each of the municipalities are illustrated in **Exhibit 7**. Mississauga falls within the typical range for all size of developments.

Exhibit 7: Number of Shower Facilities Required



7.1 Recommendations for End-of-Trip Facilities

The TDM Strategy recommends end-of-trip facilities at half the rate set out by Vancouver. Compared to Kitchener and Toronto, the TDM Strategy rates are slightly or equal depending on the number of bicycle parking spaces required as the TDM Strategy rates have smaller increments than Kitchener or Toronto. The TDM Strategy rates for gender-neutral end-of-trip facilities are recommended to be carried over to the Zoning By-law.

8 Additional By-Law Directions

8.1 Bicycle Parking for Smaller Developments

The majority of the bicycle parking rates are based on the size of development (GFA or number of units). Some municipalities waive the bicycle parking requirements for small developments.

Table 28 summarizes conditions that warrant waiving bicycle parking requirements in other municipalities.

Additionally, to account for smaller developments that still require bicycle parking, by-laws will provide the minimum bicycle parking rate, along with an absolute minimum number of spaces (e.g., development requires the greater of 0.1 spaces / 100 m² of GFA, or 6 spaces). An alternative method to achieve this is to establish a minimum amount plus a rate similar to what Toronto and Vaughan has established for the short-term parking requirements (e.g., minimum bicycle parking spaces required is 3 plus 0.1 spaces / 100 m² of GFA).

Table 28: Municipalities with Conditions Waiving Bicycle Parking Requirements

| Municipality | Conditions Waiving Bicycle Parking Requirements |
|--------------|--|
| Oakville | Waives the bicycle parking space requirement for residential buildings with fewer than 20 assisted living units or dwelling units. |
| Toronto | Waives the bicycle parking space requirement if the total interior floor area of the lot is 2000 m ² or less. |
| Hamilton | Waives the short-term space requirement for office, personal services, restaurant, or retail uses less than 450 m ² . |
| Vancouver | Waives the short-term parking requirement when there are 20 units or less. |

Oakville also includes a provision that the number of minimum bicycle parking spaces required on a lot shall not exceed 30 spaces. Halifax has a similar provision at spectator venues where the minimum number of spaces required shall not exceed 50 spaces.

Similarly, by-laws that require end-of-use facilities typically waive these requirements for small developments. The jurisdictional review indicates that a minimum of four long-term (Class A) spaces is commonly used as a threshold for requiring end-of-trip facilities.

Recommendations for City of Mississauga

It is recommended that bicycle parking requirements be waived for residential uses with less than 20 units and non-residential land uses with less than 1,000 m² of GFA.

For end-of-trip facilities, it is recommended that requirements be waived for non-residential developments that require less than four long-term (Class A) bicycle parking spaces.

8.2 Offsetting Motor Vehicle Parking with Bicycle Parking

Generally, the size, location, and supply rate of the bicycle spaces define the majority of the by-laws pertaining to bicycle parking; however, offsetting vehicular parking spaces for the provision of bicycle parking beyond the minimum requirements is being offered by some municipalities as incentive for developers to implement TDM measures. **Table 29** summarizes the municipalities that include this provision in their by-law.

Table 29: Municipalities Allowing Offsetting of Motor Vehicle Parking Requirements with Bicycle Parking

| Municipality | Offsetting Motor Vehicle Parking with Bicycle Parking |
|--------------|--|
| Halifax | <p>Where bicycle parking spaces are required in Section 210, 2 additional bicycle parking spaces of any type may be provided in substitution for one required motor vehicle parking space, up to a maximum of 25% of required motor vehicle parking spaces. In addition to the substitution permitted, enhanced bicycle parking may be substituted for a maximum of one required motor vehicle parking space.</p> <p>In any case where enhanced bicycle parking facilities are provided, for every two enhanced parking spaces, one regular required motor vehicle space may be eliminated up to a maximum reduction of 10% of the required motor vehicle parking.</p> |
| Hamilton | For certain areas, there can be a reduction of motor vehicle space from the minimum requirements for every 5 long term bicycle spaces is provided and maintained up to a maximum of 10% of the original motor vehicle parking requirement; and one motor vehicle space for every 15m ² of GFA of locker, change room or shower facilities specifically accessible to all users of the secure long term bicycle spaces. |
| Kitchener | The number of <i>parking spaces</i> required for any non-residential <i>use</i> requiring <i>shower and change facilities</i> may be reduced by 1 <i>parking space</i> per required shower. |
| Toronto | In Policy Area 1 (PA1) the total minimum number of vehicle parking spaces required on a lot may be reduced at a rate of 1 vehicle parking space for each 5 bicycle parking spaces provided in excess of the minimum number of bicycle parking spaces required by Chapter 230 if the reduction of vehicle parking space is not greater than 20% of the total minimum vehicle parking spaces required. |
| Vancouver | <p>Supplying excess and higher quality bicycle parking can reduce the minimum vehicle requirements based on the City's TDM strategy.</p> <p>Owners of existing buildings may convert motor vehicle parking spaces to Class A bicycle spaces, at the ratio of 1 motor vehicle parking space to 5 bicycle spaces, to the extent necessary to provide the number of bicycle spaces required under this By-law.</p> |

Recommendations for City of Mississauga

Offsetting motor vehicle parking is a viable approach to promoting active transportation through Transportation Demand Management and is similar to the reduction in motor vehicle parking that can be awarded to developers through the site plan application process for providing Transportation Demand Management initiatives such as car-share programs. If applied, the City may consider limiting this provision to only growth areas where transit and active transportation are viable alternatives to driving. These areas would be consistent with areas that already have higher bicycle parking requirements.

The City is reviewing vehicle parking requirements, and potentially reducing requirements where appropriate, through the City's Parking Master Plan and Implementation Study (PMPIS).

Attachment A
Bicycle Parking Rates

| Minimum Bicycle Parking Requirements | | | | | | | |
|---|---------------------|--|---------------------------|------------------------------|------------------------|--|----------------------------|
| Land Use | Mississauga TDM | Halifax Regional Centre Land Use By-Law | Hamilton By-law 05-200 | Kitchener By-law 2019-051 | | Markham Draft Bicycle Parking Rates | |
| | General | General | Intensification Areas | General | Urban Growth Centre | General | City Centre |
| Apartments (long-term) | 0.80 / unit | 0.40 / unit | 0.50 / unit | 0.50 / unit | 1.00 / unit | 0.50 / unit | 0.50 / unit |
| Apartments (short-term) | 6.00 spaces minimum | 0.10 / unit | 5.00 spaces minimum | 2, or 6 for > 20 units | 2, or 6 for > 20 units | 0.10 / unit | 0.20 / unit |
| Retail (long-term) | 0.50 / 500 sm GFA | 0.20 / 300 sm GFA | 0 to 7 spaces minimum* | 0.50 / 500 sm GFA | 1.00 / 500 sm GFA | 0 to 0.10 / 100 sm GFA* | 0 to 0.13 / 100 sm GFA* |
| Retail (short-term) | 1.00 / 500 sm GFA | 0.80 / 300 sm GFA | 5.00 spaces minimum | 1.00 / 333 sm GFA | 2.00 / 333 sm GFA | 0.8 to 0.15 / 100 sm GFA* | 0.10 to 0.20 / 100 sm GFA* |
| Business Office (long-term) | 0.50 / 500 sm GFA | 0.50 / 500 sm GFA | - | 1.00 / 500 sm GFA | 1.00 / 333 sm GFA | 0.08 / 100 sm GFA | 0.13 / 100 sm GFA |
| Business Office (short-term) | 0.50 / 500 sm GFA | 0.50 / 500 sm GFA | - | 1.00 / 750 sm GFA | 1.00 / 500 sm GFA | 0.05 / 100 sm GFA | 0.10 / 100 sm GFA |
| Medical Office (long-term) | 0.50 / 500 sm GFA | 0.50 / 500 sm GFA | - | 0.50 / 500 sm GFA | 1.00 / 500 sm GFA | - | - |
| Medical Office (short-term) | 0.50 / 500 sm GFA | 0.50 / 500 sm GFA | - | 1.00 / 333 sm GFA | 2.00 / 333 sm GFA | - | - |
| Employment Uses (long-term) | 0.50 / 500 sm GFA | - | - | - | - | - | - |
| Employment Uses (short-term) | 2.00 minimum spaces | - | - | - | - | - | - |
| School, Elementary/Secondary (long-term) | 1.00 / 15 students | 0.20 / 150 sm GFA | - | 1.00 / 1000 sm GFA | 1.00 / 500 SM GFA | 0.05 / 100 sm GFA | 0.05 / 100 sm GFA |
| School, Elementary/Secondary (short-term) | 1.00 / 10 students | 0.80 / 150 sm GFA | 2.00 / classroom | 1.00 / 100 sm GFA | 1.00 / 100 sm GFA | 0.40 / 100 sm GFA | 0.40 / 100 sm GFA |
| School, Post-Secondary (long-term) | 1.00 / 15 students | 0.20 / 150 sm GFA | - | 2.00 / 100 sm GFA | 2.00 / 100 sm GFA | 1.00 / 10 students | 1.00 / 10 students |
| School, Post-Secondary (short-term) | 1.00 / 15 students | 0.80 / 150 sm GFA | 2.00 / classroom | 2.00 / 100 sm GFA* | 2.00 / 100 sm GFA* | 1.00 / 10 students | 1.00 / 10 students |
| Institutional (long-term) | 0.50 / 500 sm GFA | 0.50 / 500 sm GFA | - | 1.00 / 1000 sm GFA | 1.00 / 750 sm GFA | 0.05 / 100 sm GFA | 0.05 / 100 sm GFA |
| Institutional (short-term) | 0.50 / 500 sm GFA | 0.50 / 500 sm GFA | - | 1.00 / 2000 sm GFA | 1.00 / 1500 sm GFA | 0.05 / 100 sm GFA | 0.05 / 100 sm GFA |

sm - square metres
GFA - gross floor area
IFA - interior floor area

*Hamilton's retail rate ranges
based on size of development

* or 3 spaces (whichever is greater)

* Markham retail rates based on density
** Markham's retail requires 3 spaces minimum for general areas,
and 6 spaces minimum for City Centre (short-term spaces)

| Minimum Bicycle Parking Requirements | | | | | | | |
|--|-----------------------------|------------------------------|--|----------------------------|-----------------------|---|-------------------------------------|
| Land Use | Newmarket By-law 2010-40 | Oakville By-law 2014-014 | Richmond Hill By-law 111-17 / 30-18 | Toronto By-law 569-2013 | | Vancouver By-law 6059 | Vaughan Draft By-Law (Jan. 2020) |
| | General | General | KDA | General (Zone 2) | Urban (Zone 1) | General | General |
| Apartments (long-term) | 0.50 / unit | 0.75 / unit | 0.60 / unit | 0.68 / unit | 0.90 / unit | 2.33 / unit* | 0.90 / unit |
| Apartments (short-term) | 0.10 / unit | 0.25 / unit | 0.03 / unit | 0.07 / unit | 0.10 / unit | 2 spaces minimum + 1 for every additional 20 units** | 0.10 / unit |
| Retail (long-term) | 2.00 spaces minimum | - | 0.13 / 100 sm GFA | 0.13 / 100 sm IFA | 0.20 / 100 sm IFA | 0.29 / 100 sm GFA | 0.20 / 100 sm GFA |
| Retail (short-term) | 0.50 / 100 sm GFA | 0.10 / 100 sm NFA** | 0.15 / 100 sm GFA | 3 + 0.25 / 100 sm IFA | 3 + 0.30 / 100 sm IFA | 6.00 spaces minimum | 3 + 0.3 / 100 sm GFA |
| Business Office (long-term) | 2.00 spaces minimum | - | 0.13 / 100 sm GFA | 0.13 / 100 sm IFA | 0.20 / 100 sm IFA | 0.59 / 100 sm GFA | 3 + 0.2 / 100 sm GFA |
| Business Office (short-term) | 0.50 / 100 sm GFA | 0.10 / 100 sm NFA** | 0.15 / 100 sm GFA | 3 + 0.15 / 100 sm IFA | 3 + 0.20 / 100 sm IFA | 6.00 spaces minimum | 0.20 / 100 sm GFA |
| Medical Office (long-term) | - | - | 0.13 / 100 sm GFA | 0.10 / 100 sm IFA | 0.15 / 100 sm IFA | - | 0.15 / 100 sm GFA |
| Medical Office (short-term) | - | 0.10 / 100 sm NFA | 0.15 / 100 sm GFA | 3 + 0.10 / 100 sm IFA | 3 + 0.15 / 100 sm IFA | - | 3 + 0.15 / 100 sm GFA |
| Employment Uses (long-term) | - | - | 0.13 / 100 sm GFA | - | - | - | - |
| Employment Uses (short-term) | - | 0.10 / 100 sm NFA | 0.15 / 100 sm GFA | - | - | - | - |
| School, Elementary/Secondary (long-term) | 0.06 / 100 sm GFA | - | 0.13 / 100 sm GFA | 0.06 / 100 sm IFA | 0.10 / 100 sm IFA | 1.00 / 17 employees*** | 0.10 / 100 sm GFA |
| School, Elementary/Secondary (short-term) | 0.06 / 100 sm GFA | 0.25 to 0.50 / classroom**** | 0.15 / 100 sm GFA | 3 + 0.06 / 100 sm IFA | 3 + 0.10 / 100 sm IFA | 1.00 / 20 students*** | 3 + 0.1 / 100 sm GFA |
| School, Post-Secondary (long-term) | 0.06 / 100 sm GFA | - | 0.13 / 100 sm GFA | 0.60 / 100 sm IFA | 2.00 / 100 sm IFA | 0.40 / 10 students | 0.10 / 100 sm GFA |
| School, Post-Secondary (short-term) | 0.06 / 100 sm GFA | 2.00 / 100 SM NFA*** | 0.15 / 100 sm GFA | 3 + 2 / 100 sm IFA | 3 + 2 / 100 sm IFA | 0.60 / 10 students | 3 + 0.1 / 100 sm GFA |
| Institutional (long-term) | 2.00 spaces minimum | - | 0.13 / 100 sm GFA | 0.06 / 100 sm IFA | 0.10 / 100 sm IFA | 1.00 / 17 employees | 2.00 / 100 sm GFA |
| Institutional (short-term) | 0.50 / 100 sm GFA | 1.00 / 500 SM NFA** | 0.15 / 100 sm GFA | 3 + 0.06 / 100 sm IFA | 3 + 0.10 / 100 sm IFA | 6.00 spaces minimum | 3 + 1 / 100 sm GFA |

sm - square metres
GFA - gross floor area
IFA - interior floor area

*Oakville does not differentiate between long-term and short-term parking
**or 2 spaces (whichever is greater
***or 3 spaces (whichever is greater
****0.25 rate is for elementary; 0.50 rate is for secondary

*Richmond Hill provides a general rate for all non-residential uses

* Vancouver apartment rates range from 1.5 to 3.0 spaces / unit based on size of dwelling unit (average provided)
** Vancouver apartment rates require a minimum 20 units
***Elementary school rate shown; Secondary school rate is the same as the post-secondary rate

Attachment B
Transportation Tomorrow Survey Findings

Zones with a Cycling Mode Share greater than 1%



Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of household - gta06_hhld

Column: Primary travel mode of trip -
mode_prime

Filters:

Planning district of household - pd_hhld In 36,

Trip 2016

ROW : gta06_hhld

COLUMN : mode_prime

| gta06_hhld | Cycling | Total | Cycling Mode Split | gta06_hhld | Cycling | Total | Cycling Mode Split |
|-------------|------------|--------------|-----------------------|-------------|------------|--------------|-----------------------|
| 3601 | 0 | 912 | 0.0% | 3641 | 168 | 12976 | 1.3% |
| 3602 | 237 | 15930 | 1.5% | 3642 | 65 | 9471 | 0.7% |
| 3603 | 0 | 10417 | 0.0% | 3643 | 0 | 9754 | 0.0% |
| 3604 | 265 | 15509 | 1.7% | 3644 | 125 | 8448 | 1.5% |
| 3606 | 122 | 23483 | 0.5% | 3645 | 27 | 7903 | 0.3% |
| 3607 | 50 | 20825 | 0.2% | 3646 | 62 | 17611 | 0.4% |
| 3610 | 20 | 7362 | 0.3% | 3647 | 95 | 7063 | 1.3% |
| 3614 | 77 | 15353 | 0.5% | 3648 | 95 | 13549 | 0.7% |
| 3615 | 146 | 31842 | 0.5% | 3649 | 75 | 17881 | 0.4% |
| 3616 | 50 | 24875 | 0.2% | 3650 | 371 | 18931 | 2.0% |
| 3617 | 53 | 11436 | 0.5% | 3651 | 97 | 11526 | 0.8% |
| 3618 | 0 | 5719 | 0.0% | 3652 | 0 | 3856 | 0.0% |
| 3619 | 0 | 21861 | 0.0% | 3653 | 311 | 23202 | 1.3% |
| 3620 | 0 | 27468 | 0.0% | 3654 | 96 | 12078 | 0.8% |
| 3622 | 24 | 6463 | 0.4% | 3655 | 132 | 12019 | 1.1% |
| 3623 | 192 | 4622 | 4.2% | 3656 | 224 | 7684 | 2.9% |
| 3627 | 0 | 1783 | 0.0% | 3657 | 0 | 11277 | 0.0% |
| 3628 | 44 | 10446 | 0.4% | 3658 | 0 | 3904 | 0.0% |
| 3629 | 0 | 11442 | 0.0% | 3659 | 61 | 5813 | 1.0% |
| 3630 | 0 | 10984 | 0.0% | 3661 | 0 | 122 | 0.0% |
| 3631 | 0 | 1924 | 0.0% | 3662 | 89 | 12370 | 0.7% |
| 3632 | 0 | 329 | 0.0% | 3663 | 0 | 8994 | 0.0% |
| 3633 | 0 | 1059 | 0.0% | 3664 | 44 | 20437 | 0.2% |
| 3635 | 101 | 9790 | 1.0% | 3665 | 9 | 7190 | 0.1% |
| 3636 | 24 | 12172 | 0.2% | 3666 | 0 | 971 | 0.0% |
| 3637 | 76 | 9429 | 0.8% | 3667 | 0 | 2710 | 0.0% |
| 3638 | 0 | 9214 | 0.0% | 3668 | 164 | 13803 | 1.2% |
| 3640 | 178 | 13089 | 1.4% | 3669 | 0 | 21790 | 0.0% |

| gta06_hhld | Cycling | Total | Cycling Mode Split | gta06_hhld | Cycling | Total | Cycling Mode Split |
|-------------|------------|--------------|-----------------------|-------------|------------|-------------|-----------------------|
| 3670 | 53 | 13899 | 0.4% | 3820 | 114 | 8852 | 1.3% |
| 3671 | 0 | 11871 | 0.0% | 3829 | 0 | 4251 | 0.0% |
| 3672 | 0 | 6711 | 0.0% | 3830 | 0 | 11515 | 0.0% |
| 3673 | 0 | 4470 | 0.0% | 3832 | 99 | 2556 | 3.9% |
| 3674 | 24 | 14589 | 0.2% | 3833 | 0 | 2433 | 0.0% |
| 3675 | 146 | 16801 | 0.9% | 3836 | 0 | 3276 | 0.0% |
| 3676 | 176 | 7927 | 2.2% | 3837 | 0 | 1535 | 0.0% |
| 3677 | 37 | 7386 | 0.5% | 3838 | 0 | 4569 | 0.0% |
| 3678 | 0 | 16950 | 0.0% | 3840 | 0 | 3791 | 0.0% |
| 3679 | 9 | 7267 | 0.1% | 3841 | 0 | 11097 | 0.0% |
| 3680 | 96 | 14256 | 0.7% | 3842 | 0 | 7291 | 0.0% |
| 3681 | 0 | 9169 | 0.0% | 3843 | 0 | 48 | 0.0% |
| 3682 | 0 | 11708 | 0.0% | 3847 | 0 | 452 | 0.0% |
| 3683 | 48 | 8607 | 0.6% | 3852 | 0 | 5193 | 0.0% |
| 3684 | 96 | 7145 | 1.3% | 3853 | 0 | 1917 | 0.0% |
| 3685 | 8 | 25300 | 0.0% | 3854 | 0 | 2592 | 0.0% |
| 3686 | 30 | 16581 | 0.2% | 3855 | 85 | 4359 | 1.9% |
| 3687 | 0 | 8937 | 0.0% | 3856 | 0 | 3109 | 0.0% |
| 3688 | 0 | 15475 | 0.0% | 3857 | 0 | 2280 | 0.0% |
| 3689 | 132 | 13381 | 1.0% | 3858 | 0 | 961 | 0.0% |
| 3690 | 82 | 30502 | 0.3% | 3859 | 0 | 1103 | 0.0% |
| 3691 | 204 | 29533 | 0.7% | 3861 | 0 | 3045 | 0.0% |
| 3692 | 0 | 1919 | 0.0% | 3862 | 0 | 3416 | 0.0% |
| 3694 | 127 | 18065 | 0.7% | 3863 | 0 | 21700 | 0.0% |
| 3707 | 22 | 1474 | 1.5% | 3864 | 55 | 13968 | 0.4% |
| 3711 | 0 | 894 | 0.0% | 3865 | 0 | 4725 | 0.0% |
| 3712 | 170 | 4854 | 3.5% | 3866 | 82 | 6375 | 1.3% |
| 3714 | 190 | 16543 | 1.1% | 3867 | 31 | 11086 | 0.3% |
| 3715 | 93 | 9916 | 0.9% | 3868 | 12 | 4889 | 0.2% |
| 3716 | 115 | 20453 | 0.6% | 3870 | 0 | 4946 | 0.0% |
| 3718 | 21 | 8697 | 0.2% | 3872 | 0 | 2482 | 0.0% |
| 3719 | 129 | 24351 | 0.5% | 3875 | 0 | 450 | 0.0% |
| 3720 | 0 | 3554 | 0.0% | 3876 | 0 | 265 | 0.0% |
| 3722 | 122 | 6804 | 1.8% | 3877 | 41 | 10342 | 0.4% |
| 3723 | 0 | 3445 | 0.0% | 3878 | 0 | 2406 | 0.0% |
| 3724 | 0 | 6517 | 0.0% | 3879 | 0 | 4807 | 0.0% |
| 3809 | 206 | 25189 | 0.8% | | | | |
| 3810 | 635 | 37031 | 1.7% | | | | |
| 3811 | 183 | 17567 | 1.0% | | | | |
| 3812 | 0 | 19994 | 0.0% | | | | |
| 3813 | 42 | 9091 | 0.5% | | | | |
| 3814 | 213 | 7509 | 2.8% | | | | |
| 3815 | 0 | 929 | 0.0% | | | | |

***Bolded** zones have a cycling mode share greater than 1%