Final Report

Pier 7/8 Parking Study

Prepared for City of Hamilton
by IBI Group

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1 Introduction

The West Harbour (Setting Sail) Secondary Plan was adopted by Hamilton City Council on March 23, 2005 and approved by the OMB in June 2012. Setting Sail provides a comprehensive plan for the West Harbour, with an emphasis on three areas where major change is appropriate and desirable. These include the Waterfront; the area south of the CN rail yard, called Barton-Tiffany; and the former industrial lands along Ferguson Avenue, referred to as the Ferguson-Wellington Corridor. The West Harbour Waterfront Recreation Master Plan (WHWRMP) approved in 2010 builds on Setting Sail policies and is meant to guide development of buildings and the landscapes of the West Harbour from Bayfront Park and extending over to and including Pier 7.

Following the approval of Setting Sail, the City reached an agreement with the Hamilton Port Authority to terminate leases on Pier 6-8 - a 35 acre parcel of land running from MacNab Street to Catharine Street. Consistent with the Secondary Plan and WHRMP for these lands, the City is taking the necessary steps to ready these lands for renewed and expanded marina and new mixed use development consisting of residential, retail, and enhanced recreational facilities.

The next step in the development of these lands is the completion of an Urban Design Study and preparation of a new Zoning By-law and Draft Plan of Subdivision. As part of this work, recommendations are required on the supply and management public and private parking for the development.

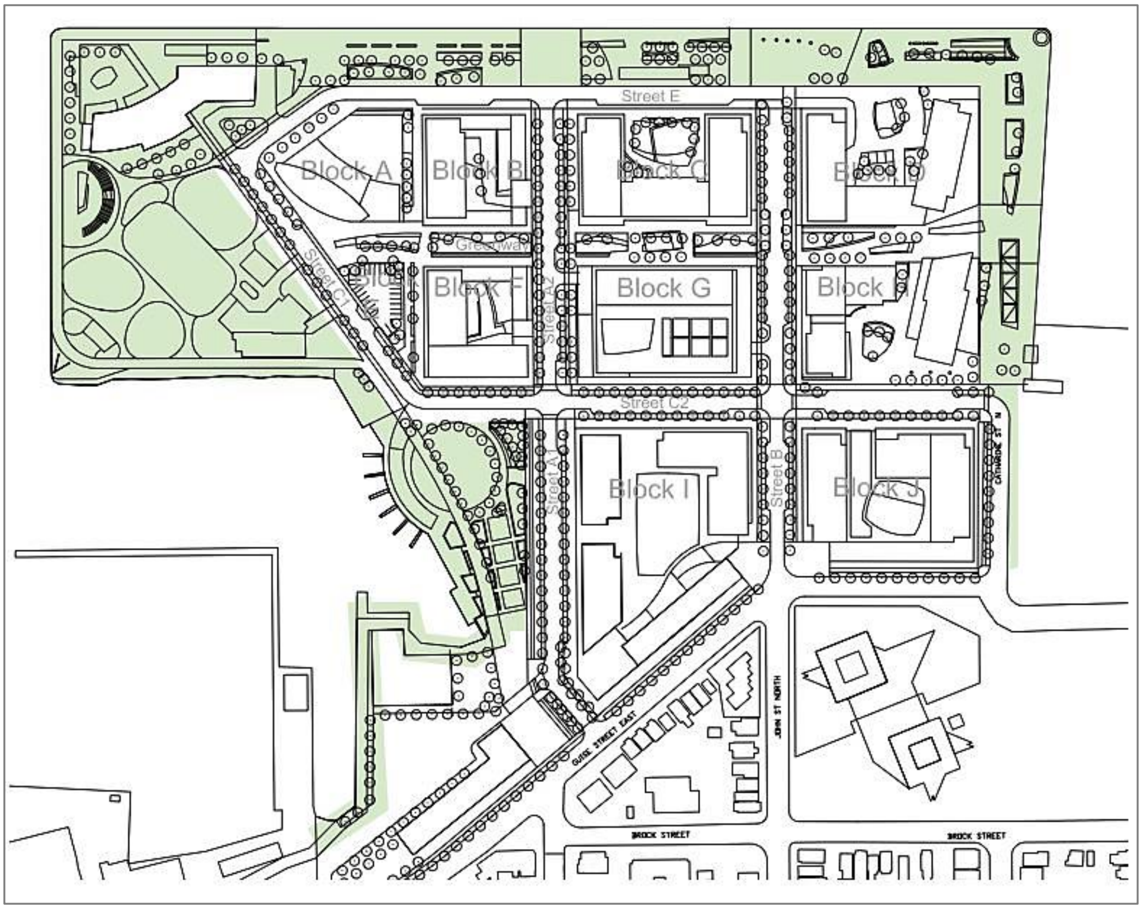
This Report provides an analysis of parking requirements for the Pier 7/8 development. It is a complementary report to the Pier 7/8 Transportation Impact Study and Pier 7/8 Transportation Demand Management (TDM) Report, both under separate cover. It also draws on work undertaken as part of a Parking Study for the entire area including West Harbour Waterfront, also under separate cover.

1.1 Proposed Development

The West Harbour (Setting Sail) Secondary Plan provided the planning framework for a new mixed use development consisting of residential, retail, and institutional facilities for the area defined as Piers 7 and 8.

Preliminary development scenarios have now been developed for Pier 7/8 as part of the on-going Urban Design Study. Exhibit 1-1 illustrates the planned urban structure of the redevelopment with associated Gross Floor Area (GFA) statistics summarized on Exhibit 1-2. For the residential land use, the number of units has not yet been finalized, but is stated as a range between 1,071 to 1,531 units. The range is a result of different assumptions on unit sizes when converting residential GFA to units. For the purpose of this traffic study, it was assumed that the development would include 1,300 dwelling units reflecting an average unit size of approximately 85 m^2 per unit. This is a reasonable assumption since smaller units would generally have lower parking generation due to fewer persons per unit.

Exhibit 1-1: Urban Structure of Proposed Development



Source: Brook McIlroy, Urban Design Study, DRAFT, April 2016

The design plan developed two potential parking supply configurations. One utilizes a central consolidated parking structure for a majority of the parking and the other relies on integrated parking for each block. The consolidated parking structure would be located the centre block, Block G (see Exhibit 1-1), and would be a shared parking structure for residents at all other blocks and for public use. The integrated parking strategy consists of parking levels at each residential building, with the option for public parking on the first level. Each configuration provides a supply of 1,422 spaces. An assessment of the different configurations is provided in Section 4.

Exhibit 1-2: Preliminary Design Plan Gross Floor Areas

Use	GFA (m^2)
Residential	110,000
Institutional	6,800
Commercial	7,740
Total	**124,540**

Source: Brook McIlroy, Pier 7 + 8 Urban Design Study, City of Hamilton, DRAFT, April 2016

1.2 Study Objective

The purpose of this study is to assess the amount of parking required to meet the needs of planned development on Pier 7/8. The study adopts the philosophy that too much parking is as harmful as too little parking, and as such seeks develop a recommended parking strategy that balances the needs of development with the overall vision for the surrounding neighbourhood.

Section 2 provides a parking analysis of the proposed development, including a review of the by-laws, comparable municipalities, and shared parking.

Section 3 presents a preliminary phasing and implementation plan, subject to refinement as part of the overall development phasing plan

Section 4 summarizes the recommended parking supply and also compares different design options for parking.

1.3 Parking Management Best Practices

This study is guided by a number of best practices:

- **Avoiding Excess Parking Supply**: An oversupply of parking could encourage greater levels of automobile ownership and use. Given the high cost to build parking, an oversupply of parking is also cost-inefficient. Conversely, an undersupply of parking can have impacts in terms of spill-over parking or could affect the viability of future land uses on Pier 7/8. *This study considers a range of parking ratios and the factors that influence parking supply needs*.
- **Parking Maximums**: Maximum parking requirements set an upper limit on the amount of parking developers may provide and can specified in land use by-laws. They are a tool to ensure a development does not provide excessive parking. At present, parking maximums do not apply to the development. *This study considered recommending maximum parking rates, but given the land use constraints and the high cost to build parking (likely >40,000 per structured space) it is expected that the Pier 7/8 development will be self-limiting.*
- **Shared Parking**: Shared parking involves the use of one parking facility by more than one land use activity, typically taking advantage of different parking demand patterns by time of day to reduce the total amount of parking that would have been required if facilities were not shared. *This study considers shared parking as critical to the overall parking strategy.*
- **Unbundled Parking**: Unbundled parking separates the cost of housing and parking. Historically, condo developments include the cost of one parking spot in the price of a unit, regardless of whether an owner planned to use it or not. By unbundling parking, buyers only pay for it if they actually need it. In recent years, it has become a common practice. *This study assumes parking will be unbundled and takes this into consideration in recommending parking supply rates.*
- **Incorporating TDM**: Travel Demand Management (TDM) tools can be used in a variety of ways to decrease the demand for parking. The City's Transportation Master Plan sets goals aimed at integrating land use and transportation (including parking), encouraging mode shifts to public transit, walking and cycling, and developing a multi-modal transportation network. TDM tools can help facilitate the mode shift to sustainable modes of travel and help reduce the overall demand for parking. TDM initiatives will reduce the requirement for parking. *This study assumes that TDM will be a key priority for the development, as outlined in a separate report, and therefore will have an impact on parking demand.*

- **On-street parking**: On-street parking has a number of positive impacts. On-street spaces can accommodate short term parking needs and accessible parking. On-street parking also creates a natural traffic calming effect. The Urban Design Plan identifies the location of on-street parking. *This study supports on-street parking, but does not explicitly subtract on-street parking from total supply. Rather, it is treated as a buffer for the parking supply.*
- **Site Design**: Site design has a significant impact on people's decision to walk, cycle or take transit. Attractive pedestrian environments will mean that people will be willing to walk farther and between activities on Pier 7/8 and the West Harbour. *This study references the Urban Design Study which places a high emphasis on good pedestrian design.*

In addition to the above best practices, it is also important to recognize emerging mobility trends. There are a number of new technologies that enable different transportation options. These include carsharing, bike sharing, dynamic transit and at some point on the horizon, driverless vehicles. While it is difficult to predict the impact that these will collectively have on parking need, it is safe to say that they will contribute to reduced needs in the future.

2 Parking Analysis

This section describes the existing conditions of Pier 7/8 and assesses future parking requirements for the study area. Parking requirements are assessed based on applicable City of Hamilton Zoning By-laws. Comparisons to practices in other jurisdictions are also made to illustrate a range for parking supply need.

Two scenarios are developed to bracket the potential parking requirements for Pier 7/8: a scenario using base rates (i.e. prevailing by-law rates) and a reduced rates scenario (reflecting the best practices references in Section 1.3).

Shared parking is also considered for the proposed development at Pier 7/8 due to the mixed use nature of the blocks. By applying shared parking rates to site, supply requirements could be further decreased.

2.1 Existing Conditions

The existing area features of Pier 8 includes a skating rink, the Hamilton Waterfront Trust Centre, and William's Coffee Pub. An on-site parking survey was conducted to review the existing utilization of Pier 7/8. Surveys were conducted on Wednesday August 26, Thursday August 27, and Saturday August 29, 2015. The dates represent existing demand for a regular weekday (Wednesday), an event weekday (Thursday), and a regular Saturday. Thursday was chosen as the peak event day due to the occurrence of a trip generating events within the study area, the Music on the Waterfront concert on Pier 8. As the surveys were carried out in August with favourable weather, it can be expected that the results represent typical summer volumes.

Exhibit 2-1 summarizes the existing parking lot capacity and utilization during the survey periods. The regular weekday evening demand for the Parks Canada Discovery lot is 183 vehicles (55% utilization). For an event weekday, the Music on the Waterfront concert on Pier 8, demand is at a maximum of 80% of the capacity.

The existing needs of Pier 8 were considered further in Section 4.1.

Exhibit 2-1: Summary of Survey Results

Parking Lot	Existing Capacity	Existing Demand Regular Weekday 4 - 10 pm		Existing Demand Event Weekday 4 - 10 pm		Existing Demand Saturday 12 - 8 pm	
		No. of Cars	% Utilization	No. of Cars	% Utilization	No. of Cars	% Utilization
Parks Canada Discovery	330	183	55%	264	80%	240	73%

2.2 Zoning By-law

2.2.1 By-law No. 6593

The City of Hamilton Zoning By-law No. 6593 is the current in force By-law for Pier 7/8 and contains the on-site parking requirements for all residential and non-residential developments within the City. Since the Urban Design Plan includes broad categories of land uses (i.e. residential, institutional, commercial) as shown on Exhibit 1-2, a secondary process was used to further categorized into potential uses that aligned with the Hamilton Zoning By-law No. 6593. The potential uses were given an expected allocation for the area for the purpose of evaluating preliminary parking supply requirements. Exhibit 2-2 shows the land use allocation for the potential uses for Pier 7/8.

Exhibit 2-2: Allocation of Land Uses to Detailed Categories (For Analysis Purposes Only)

Use	Potential Uses	Land Use Allocation
Residential	Multiple Dwelling	100%
Institutional	Public Office	20%
	Art Gallery, Museum, Observatory, Library, Church	50%
	Place of Assembly	30%
Commercial	Medical Office (including Doctor, Dentist, Drugless Practitioner)	5%
	General Office	5%
	Banks and Other Similar Financial Institutions	5%
	Tavern, Public House, Beverage Room, Restaurant, Theatre, Cinema(1)	50%
	Sales Establishment (Service Shop, Retail Store) (2)	35%

(1) Or any place of assembly for commercial use

(2) Includes leasing establishment, service shop, retail store, shopping centre, or any other commercial use not otherwise mentioned

Exhibit 2-3 summarizes the parking requirement based on the existing Zoning By-law for the proposed development and potential uses. Under this By-law, a total of 2,002 parking spaces would be required for Pier 7/8. Under this by-law, the preliminary Urban Design Plans would be deficient by 580 parking spaces.

Exhibit 2-3: Pier 7/8 Zoning By-law No. 06-6593 Parking Requirements

Potential Uses	Hamilton By-Law (per 100 m^2)	GFA (m^2)	Required Parking
Multiple Dwelling	1.25(1)	110,000 (1,300 Dwelling Units)	1,625
Public Office	3.2(2)	1,360	44
Art Gallery, Museum, Observatory, Library, Church	Nil	3,400	0
Place of Assembly(5)	3.4(3)	2,040	69
Medical Office (including Doctor, Dentist, Drugless Practitioner)	5.3	387	21
General Office	3.2(3)	387	12
Banks and Other Similar Financial Institutions	3.2	387	12
Tavern, Public House, Beverage Room, Restaurant, Theatre, Cinema	3.4(3)	3,870	132
Sales Establishment (Service Shop, Retail Store)	3.2(4)	2,709	87
Total	**-**	**124,540**	**2,002**

(1) Per Dwelling Unit and includes visitor parking at a rate of 0.2 spaces per Dwelling Unit

(2) Applies to floor areas in excess of 450 m^2

(3) Converted from '1space per 6 persons who may be lawfully accommodated' using 0.17 space per person, based on a previous study for the City of Hamilton and assuming a rate of 0.2 persons per m^2

(4) Applies to floor areas between 450 m^2 and 3,700 m^2

(5) Used instead of Recreation Centre as this use is not mentioned in the Hamilton By-law

2.2.2 By-law No. 05-200

On May 25, 2005, the City of Hamilton Zoning By-law No. 05-200 came into effect and is currently being implemented in stages. Although By-law No. 6593 is the currently applicable By-law for the study area (see Section 2.1.1), by the time the Pier 7/8 development is underway it is expected that By-law No. 05-200 will be in effect. As a result, the parking requirements for Pier 7/8 are also analyzed for By-law No. 05-200 and used as the "base rate" scenario.

Exhibit 2-4 summarizes the parking requirement based on the Zoning By-law for the proposed development and potential uses. A total of 2,193 parking spaces are required for Pier 7/8 based on the parking rates outside of the downtown zone. Based on the Zoning By-law and the supplied parking spaces for each design plan, there is a shortage of 771 parking spaces.

There is a difference of 191 spaces between the two Zoning By-laws. Generally, the By-laws have very similar parking space allocations apart from the residential and restaurant land uses. For the multiple dwelling use, the parking space allocation has changed from 1.25 spaces per 100m^2 to only 1 space per 100m^2, resulting in a savings of 325 spaces. However, for the restaurant land use, the requirement has changed from 3.2 spaces to 12.5 spaces per 100m^2, resulting in a difference of 352 spaces. The high requirement for the restaurant use is due to the nature of the area covered by the By-law (i.e. it is not based on the 'Downtown Zone').

An examination of the parking rates for the 'Downtown Zone' is also useful as Pier 7/8 will ultimately have high transit service levels and walking environments similar to a downtown environment. One key difference between 'Downtown Zone' versus 'Except the Downtown Zone' is the parking requirements for the land uses of Medical Office, General Office (and Public Office), and Financial Institutions, all which have a rate of 2 spaces per 100m^2 vs. 6.3 and 3.3 for the wider area. If these rates were used instead of the rates below, the parking requirements based on the By-law would be reduced to a total of 2,143 spaces, resulting in a savings of 50 spaces.

Exhibit 2-4: Pier 7/8 Zoning By-law No. 02-500 Parking Requirements (Not Downtown Zone)

Potential Uses	Hamilton By-Law (per 100 m^2)	GFA (m^2)	Required Parking
Multiple Dwelling	1[6]	110,000 (1,300 Dwelling Units)	1,300
Public Office[1]	3.3	1,360	45
Art Gallery, Museum, Observatory, Library, Church[2]	3.3	3,400	112
Place of Assembly[3]	3.3	2,040	67
Medical Office	6.3	387	24
General Office	3.3	387	13
Banks and Other Similar Financial Institutions	3.3	387	13
Tavern, Public House, Beverage Room, Restaurant, Theatre, Cinema[4]	12.5	3,870	484
Sales Establishment (Service Shop, Retail Store)[5]	5	2,709	135
Total	**-**	**124,540**	**2,193**

(1) Associated category from the By-law No. 05-200 is ‘Office’

(2) Associated category from the By-law No. 05-200 is ‘Place of Assembly’

(3) Associated category from the By-law No. 05-200 is ‘Commercial Recreation’ from the Draft Commercial and Mixed Use Zones

(4) Associated category from the By-law No. 05-200 is ‘Restaurant’

(5) Associated category from the By-law No. 05-200 is ‘Retail’

(6) Per Dwelling Unit

2.3 Comparison of Parking Requirements to Other Jurisdictions

This section provides a comparison of parking rates from other jurisdictions to those in the Hamilton By-laws. The intent of this comparison is to help establish potential reductions in parking rates that are more in line with the urban conditions of Pier 7/8.

In addition to comparable municipalities, the Institute of Transportation Engineers (ITE) Parking Generation Manual (4th Edition) was used to illustrate a range for parking supply needs.

Exhibit 2-5 shows the parking rates from the ITE manual and other jurisdictions. The ITE parking rates are higher than Hamilton’s Zoning By-law as they are biased by the high number of auto dependent cities from the US which are included in the samples.

The rates among the municipalities vary, with the City of Toronto having the lowest parking rates. As shown, many municipalities are gravitating towards lower standards for both residential and office uses. For example, Markham is using new draft standards which include rate as low as 0.8 spaces per unit for multi-residential in key development areas. Markham applies even lower rates for Regional Centres. These trends reflect a recognition that sustainable travel options are having an impact on parking rates, as are changes in demographics.

Exhibit 2-5: ITE and Comparable Municipality Parking Rates (Based on Land Use)

Potential Uses	ITE Parking Generation (per 100m²) (1)	Other Jurisdictions (per 100m²)				
		City of Toronto (2)	Mississauga	Vaughan (VMC)	Markham (key dev area)	Burlington
Multiple Dwelling	1.38	0.7 - 1.1(3)	1.0 - 2.3	0.7 – 1.7(4)	0.8 – 1.0	1.25 - 1.75
+ Visitor Parking		0.15	0.25	0.25	0.20	0.35
Public Office	4.5	1 - 2	-	-	1.5 - 3	3.5
Art Gallery, Museum, Observatory, Library, Church	2.1	0.5	-	3.5	-	1.5
Place of Assembly (Recreation)	3.4	0.5 - 1.3	4.5	-	3.5	3.4
Medical Office (including Doctor, Dentist, Drugless Practitioner)	3.4	1.5 - 6	6.5	5 spaces / practitioner	2 - 4	6
General Office	3.1	1 - 2	3.2	3.5	1.5 - 3	3.5
Banks and Other Similar Financial Institutions	4.3	2 - 4.5	6.5	6.0	2.5 - 4.5	6
Tavern, Public House, Beverage Room, Restaurant, Theatre, Cinema	16.3	0 - 5	16.0	12.0	8.0	25
Sales Establishment (Service Shop, Retail Store)	6.8	1 - 4	4.9	5.5 - 6.0	2 - 4	4

(1) For residential uses, the unit is per Dwelling Unit
(2) Rate based on "Other Avenues" Jurisdiction
(3) Range varies dependent on number of bedrooms per unit
(4) Range varies dependent on number of bedrooms per unit and is for the Vaughan Metropolitan Centre

While it is recognized that Hamilton's North End is not the same as Toronto, it is illustrative to observe trends in similar areas such as Liberty Village (a vibrant urban area just west of Downtown). This area is much denser than the planned Pier 7/8 development, but may have similar characteristics in that it is mixed use and a place where new millennials are choosing to locate.

IBI Group conducted a parking study for three proposed residential condominium building with some small ancillary retail uses in King Liberty Village in January 2015. Exhibit 2-6 shows the residential parking rates for several developments in Liberty Village. The residential total for the developments fall between 0.70 to 0.78 spaces per dwelling unit.

Exhibit 2-6: Residential Parking Rates for Liberty Village (Spaces per Dwelling Unit)

Building	Bachelor	1 Bedroom	2 Bedroom	3 Bedroom	Residential Total	Visitor
19 Western Battery Rd, 39 East Liberty St, 49 East Liberty St	0.15	0.6	1	1.2	0.70	0.10/0.12
55/59 East Liberty St By-law	0.30	0.70	1	1.2	0.78	0.12
1030 King St W	0.30	0.70	1	1.2	-	0.06

Source: IBI Group, King Liberty Village – Parking Study – Blocks 1A, 2A East and 2A East/East, January 2015

It is also insightful to observe trends in Downtown Hamilton. MMM Group conducted a Parking Study for the City of Hamilton in March of 2013 that assessed the downtown parking supply and the parking demand. The study analyzed municipal parking lots/garages, privately owned public parking lots/garages, privately operated private parking lots/garages, and on-street parking spaces to determine the total downtown supply. Parking utilization surveys were conducted in the downtown to calculate the overall parking utilization. The result of this study found that there was a large surplus of capacity in the downtown area as the peak parking utilization was only 68%. It also found that the utilization of the downtown parking infrastructure decreased by 8%

over a 9 year period. This trend could be attributed to transportation demand management (TDM) strategies (i.e. CarShare, cycling) and improved transit services in the City of Hamilton.

It suggests caution in selecting parking rates for Pier 7/8 so as to avoid future over-supply.

2.4 Base and Reduced Scenarios

Drawing on the above comparisons, a reduced rate scenario was developed for testing purposes. Reduced rates were developed by IBI Group based on experience in other jurisdictions and taking account the future vision for Pier 7/8 and the waterfront as a whole.

Exhibit 2-7 shows the base and reduced scenarios for the parking rates for Pier 7/8. The base scenario represents the Hamilton Zoning By-law and the reduced scenario represents a higher emphasis on transit and transportation demand management. The multiple dwelling reduced rates are only 0.15 space per dwelling unit less than the base rate as the reduced rate does account for visitor parking whereas the base rate does not.

Exhibit 2-7: Base and Reduced Parking Rate Scenarios

Potential Uses	Base	Reduced
Multiple Dwelling	1 space per Dwelling Unit	0.70 spaces per Dwelling Unit
+ Visitor Parking	Nil	0.15 spaces per Dwelling Unit
Public Office	3.3 spaces per 100 m²	2 spaces per 100 m²
Art Gallery, Museum, Observatory, Library, Church	3.3 spaces per 100 m²	0
Place of Assembly	3.3 spaces per 100 m²	3 spaces per 100 m²
Medical Office (including Doctor, Dentist, Drugless Practitioner)	6.3 spaces per 100 m²	3 spaces per 100 m²
General Office	3.3 spaces per 100 m²	2 spaces per 100 m²
Banks and Other Similar Financial Institutions	3.3 spaces per 100 m²	4 spaces per 100 m²
Tavern, Public House, Beverage Room, Restaurant, Theatre, Cinema	12.5 spaces per 100 m2	3 spaces per 100 m²
Sales Establishment (Service Shop, Retail Store)	5 spaces per 100 m²	1.5 spaces per 100 m²

Exhibit 2-8 shows the corresponding parking supply scenario for the Pier 7/8 development based on the base and reduced rates. With the reduced rate, required supply decreases from the base rate (By-law rate) of 2,193 to 1,385 spaces, resulting in a difference of 808 parking spaces.

Exhibit 2-8: Base and Reduced Parking Supply

Potential Uses	GFA (m^2)	Base	Reduced
Multiple Dwelling	110,000 (1,300 DU)	1,300	910
+ Visitor Parking		0	195
Public Office	1,360	45	27
Art Gallery, Museum, Observatory, Library, Church	3,400	112	0
Place of Assembly	2,040	67	61
Medical Office (including Doctor, Dentist, Drugless Practitioner)	387	24	12
General Office	387	13	8
Banks and Other Similar Financial Institutions	387	13	15
Tavern, Public House, Beverage Room, Restaurant, Theatre, Cinema	3,870	484	116
Sales Establishment (Service Shop, Retail Store)	2,709	135	41
Total	**124,540**	**2,193**	**1,385**

2.5 Shared Parking

Peak demand periods will vary depending on land use. For example, the peak parking demand period for office and other employment based land uses typically fall on a weekday. Whereas restaurants, theatres, recreational facilities, and shops tend to be busier during evenings and weekends. A shared parking strategy considers these discrepancies in peak demand to maximize the utilization of parking facilities and ultimately reduce the parking supply requirement in a given area.

The high density and mix of land uses that are proposed for the Pier 8 development site, present an opportunity to apply a shared parking management strategy. Exhibit 2-9 below identifies the shared parking multipliers that can be applied to the proposed parking supply based on time of day and land use.

Exhibit 2-9: Potential Parking Occupancy Rates for Proposed Pier 7/8 Development

Land Use	Weekday Occupancy Rate				Weekend Occupancy Rate			
	Morning	Noon	Afternoon	Evening	Morning	Noon	Afternoon	Evening
Residential	10%	35%	35%	100%	20%	70%	70%	100%
Office	100%	90%	100%	10%	10%	10%	10%	0%
Restaurant	20%	100%	30%	100%	20%	100%	50%	100%
Retail	60%	80%	100%	100%	80%	90%	100%	30%

Source: Citywide and Downtown Parking and Loading Study (2005) MMM for City of Hamilton

Exhibit 2-10 shows the impact of shared parking when applied to the base and reduced parking rates. As shown, with a combination of reduced parking supply and shared parking, there is an opportunity to reduce the parking supply for Pier 7/8 from that which would be required under straight application of the Zoning By-law rates.

Exhibit 2-11 shows the parking demand for the proposed development over a weekday and weekend. The maximum demand occurs during the weekday evening, with the weekend evening following closely behind. With shared parking, the base scenario maximum parking demand is 2,007, approximately 585 spaces over the proposed supply of 1,422 spaces. With the reduced parking rates, the maximum demand is 1,329 with shared parking, which is lower than proposed supply.

Exhibit 2-10: Parking Provision Scenarios

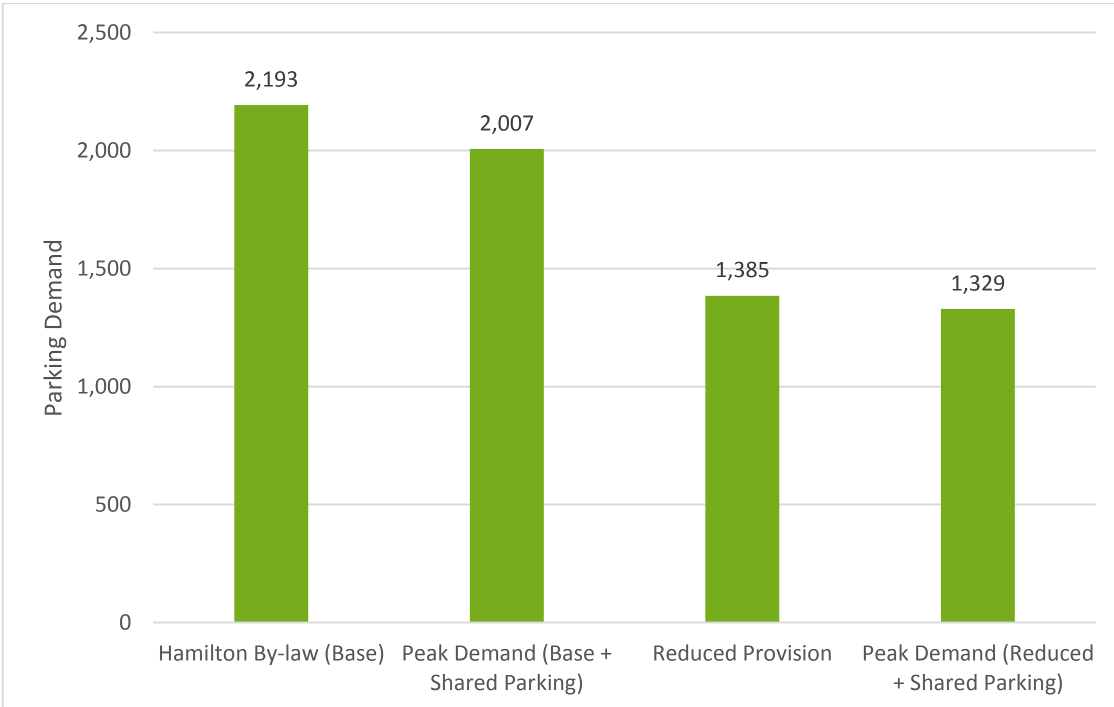
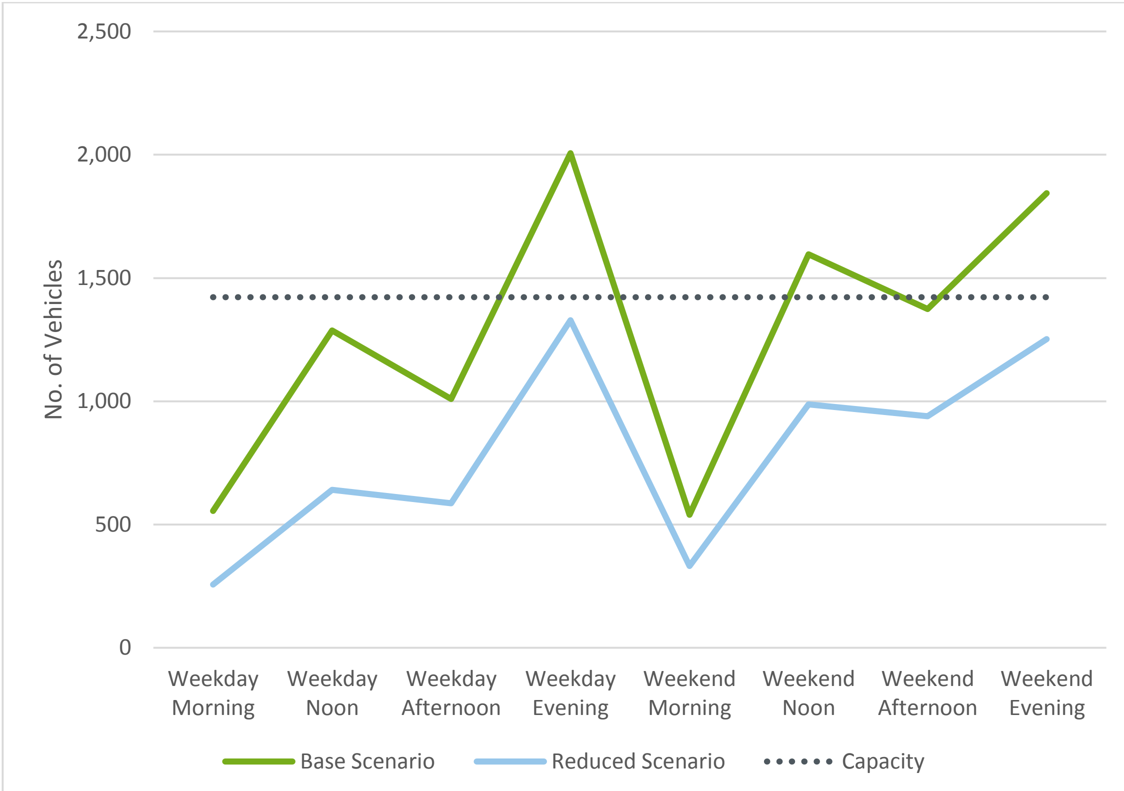


Exhibit 2-11: Required Parking by Time Period (with Shared Parking)



3 Phasing and Implementation

The Pier 7/8 Urban Design Guide (April 2016) recommended a three phase development plan for the study area. The phasing plan starts development furthest from the waterfront. The parking supply and demand for each Phase was calculated to determine the parking surplus or deficiency for Pier 7/8.

Exhibit 3-1 shows the block-by-block statistics for Pier 7/8 that was used for the phasing plan.

Exhibit 3-1: Block by Block Statistics for Pier 7/8 (Centralized Parking Scenario)

Block	Land Use	Residential GFA (m^2)	Avg. Unit	Commercial GFA (m^2)	Institutional GFA (m^2)	Parking Supply
A	Institutional				6,800	22
B	Residential	9,000	106			90
C	Residential	20,800	243			
D	Mixed-Use	16,900	199	600		
E	Parking Lot					18
F	Mixed-Use	9,000	110	340		88
G	Garage	3,300	40	500		640
H	Mixed-Use	13,000	154	1,500		
I	Mixed-Use	18,000	213	4,800		344
J	Residential	20,000	237			220
Total		**110,000**	**1,302**	**7,740**	**6,800**	**1,422**

3.1 Phase 1

Exhibit 3-2 shows the plan for the Phase 1 plan and includes the development of Blocks I and J. These blocks contain 35% and 62% of the total residential and commercial GFA of Pier 7/8, respectively. The total parking supply from the two blocks result in a provision of 564 spaces. However, the Phase 1 plan allows for the continued existing of the Parks Canada Discovery Lot, a surface lot across from the roller rink that has a capacity of approximately 330 spaces. As a result, the total parking provision across Pier 7/8 is 894 spaces.

Exhibit 3-3 shows the site statistics for the Phase 1 development and the parking supply and demand. For Phase 1, to be conservative, base parking rates (e.g. zoning by-law rates) were used to determine requirements. The reasons for this are twofold. First, it can be expected that TDM, improved transit and TDM will take some time to fully take effect. Second, it allows the market to be tested, without the risk of shorting parking supply in the long term. Once the first phase is built, it is difficult to add additional parking except in the Central parking structure.

By applying the base rate and including shared parking, the total parking requirements for Phase 1 is 836 spaces, resulting in a surplus of 58 spaces.

Exhibit 3-2: Phase 1 Development

Source: Brook McIlroy, Urban Design Study, DRAFT, April 2016

Exhibit 3-3: Parking Supply and Demand for Phase 1

Phases	Cumulative Build out GFA (m^2)	Required Parking	Cumulative Parking Supplied	Surplus / Deficiency
Phase 1				
Residential	38,000	449	**894**	**58**
Institutional	-	-		
Commercial	4,800	387		
Total	**42,800**	**836**		

3.2 Phase 2

Exhibit 3-4 shows the plan for the Phase 2 plan and includes the development of Blocks F, G and H. With the development of these blocks, the cumulative residential and commercial GFA is now 58% and 92% of the site provision, respectively. The total parking supply from the additional blocks result in a provision of 1,310 spaces. The significant increase in the parking provision is due to the development of Block G, which contains the central parking garage (640 spaces). The Parks Canada Discovery Lot is still available, however a small portion at the southeast of the lot was taken away for the development of Block F, reducing the capacity to an estimated 275 spaces. As a result, the total parking provision for Pier 7/8 is 1,567 spaces.

Exhibit 3-5 shows the site statistics for the Phase 2 development and the parking supply and demand. For a conservative parking demand estimate, base rates were still maintained for Phase 2. The total parking demand with the development of Phase 2 is 1,323, resulting in a surplus of 244 spaces.

Exhibit 3-4: Phase 2 Development

Source: Brook McIlroy, Urban Design Study, DRAFT, April 2016

Exhibit 3-5: Parking Supply and Demand for Phase 2

Phases	Cumulative Build out GFA (m^2)	Parking Demand	Cumulative Parking Supply	Surplus / Deficiency
Phase 2				
Residential	63,300	748	**1,567**	**244**
Institutional	-	-		
Commercial	7,140	575		
Total	**70,440**	**1,323**		

3.3 Phase 3

Exhibit 3-6 illustrates the Phase 3 development and includes Blocks A through E, resulting in the total development of Pier 7/8. With the development of Blocks A and E, the Parks Canada Discovery Lot is no longer available for parking use. The parking provision for Pier 7/8 is 1,422 spaces and is distributed throughout the blocks, with the majority located at Block G (central parking structure).

Exhibit 3-7 shows the site statistics for the Phase 3 development and the parking supply and demand. With the full development, it is expected that due to the nature of the high level of mixed use, the close proximity to downtown Hamilton and transit (West Harbour GO), and with active transportation infrastructure (i.e. bike lanes), the reduced rate with shared parking rates are appropriate to represent the parking demand. The total parking demand for Pier 7/8 is 1,329, resulting in a surplus of 93 spaces. This assumes that the reduced rate would be applicable to all phases. In other words, existing residents/employees/visitors in Phase 1 and 2 will reduce their parking needs over time, or new residents will have even lower parking needs than the reduced rate.

Due to the nature of the Phasing Plan, there should be no parking deficiency on Pier 7/8 during any phase.

Exhibit 3-6: Phase 3 Development

Source: Brook McIlroy, Urban Design Study, DRAFT, April 2016

Exhibit 3-7: Parking Supply and Demand for Phase 3

Phases	Cumulative Build out GFA (m^2)	Parking Required	Cumulative Parking Supply	Surplus / Deficiency
Phase 3				
Residential	110,000	1,105		
Institutional	6,800	64	**1,422**	**93**
Commercial	7,740	160		
Total	**124,540**	**1,329**		

4 Summary and Recommendations

4.1 Recommended Parking Supply

Exhibit 4-1 summarizes the results of the parking analysis for the proposed development located at Pier 7/8.

With a preliminary provision of 1,422 spaces (proposed Urban Design Plan), there would be a deficiency of parking compared to the required supply using the Hamilton By-law. Without the application of shared parking, this deficiency would be 771 spaces. With shared parking (which is not currently provided for under the Zoning By-law) the deficiency would be 585 spaces.

Exhibit 4-1: Summary of Parking Scenarios

Context	Parking Demand	Surplus/Deficiency to Supply
Supply	1,422	-
Base Scenario (Hamilton By-law)	2,193	(771)
Base Scenario (Hamilton By-law) with Shared Parking	2,007	(585)
Reduced Scenario	1,385	37
Reduced Scenario with Shared Parking	1,329	93

However, as discussed in this report, there are many factors that would suggest that the Pier 7/8 development will require less parking than the current zoning by-law in the longer term. These factors include:

- High level of mixed use
- Close proximity to downtown Hamilton and West Harbour GO station
- Potential for significantly improved transit access if LRT is extended along James Street to the GO station or ultimately the waterfront.
- High potential for active transportation and TDM (see separate TDM Report for proposed strategies)

Accordingly, it is recommended that reduced rates adopted for the Pier 7/8 development. Exhibit 4-2 outlines the reduced rates recommended for Pier 7/8 and Exhibit 4-3 illustrates the shared parking rates that were applied to the reduced rates, resulting in a recommended parking provision of 1,329 spaces. Based on the reduced rates, the proposed parking supply will result in a small projected surplus of parking. This surplus is approximately 37 spaces without applying shared parking rates and 93 spaces with shared parking applied.

The projected parking surplus provides for greater flexibility to accommodate parking needs from the wider Waterfront Area, including the existing uses of Pier 8 (Section 2.1). The surplus from the proposed development on Pier 7/8 could be used by the parking demand of the existing area features. The rest of the parking demand for these features is expected to be absorbed throughout the development and through on-street parking in the study area.

As noted in the previous section, the City and/or developer, may choose to adopt higher parking rates in the shorter term for Phase 1 and potentially Phase 2. The rates shown in the tables below represent the recommended <u>minimum</u> parking rates that could be adopted.

Although the Pier 7/8 design plans accommodate up to 1,422 spaces, it should be recognized that parking supply can be monitored and phased as the development proceeds. Thus, 1,422 spaces could be considered the maximum parking that is required for the development in the longer term.

Exhibit 4-2: Proposed Reduced Parking Ratios

Potential Uses	Reduced
Multiple Dwelling	0.70 spaces per Dwelling Unit
+ Visitor Parking	0.15 spaces per Dwelling Unit
Public Office	2 spaces per 100 m²
Art Gallery, Museum, Observatory, Library, Church	0
Place of Assembly	3 spaces per 100 m²
Medical Office (including Doctor, Dentist, Drugless Practitioner)	3 spaces per 100 m²
General Office	2 spaces per 100 m²
Banks and Other Similar Financial Institutions	4 spaces per 100 m²
Tavern, Public House, Beverage Room, Restaurant, Theatre, Cinema	3 spaces per 100 m²
Sales Establishment, service shop, retail store)	1.5 spaces per 100 m²

Exhibit 4-3: Sharked Parking Occupancy Rates

Land Use	Weekday Occupancy Rate				Weekend Occupancy Rate			
	Morning	Noon	Afternoon	Evening	Morning	Noon	Afternoon	Evening
Residential	10%	35%	35%	100%	20%	70%	70%	100%
Office	100%	90%	100%	10%	10%	10%	10%	0%
Restaurant	20%	100%	30%	100%	20%	100%	50%	100%
Retail	60%	80%	100%	100%	80%	90%	100%	30%

4.2 Comparing the Design Options

As noted previously, there are two potential parking design options for the Pier 7/8 development. Design Option 1 includes a 640 space parking structure in the centre of the development while Design Option 2 has parking integrated into the developments. There are advantages and disadvantages to each of these options as outlined below.

Design Option 1 – Central Parking Structure with Integrated parking

Advantages:

- Parking structure can be built in phases with levels being added over time to match the pace of development
- Parking structure facilitates shared public parking and can provide for wider area parking needs
- Parking structure can act as a central hub accommodating bike share, car share and other mobility options
- Parking structure can accommodate parking for special events, with easier way-finding
- Centralized parking would be easier to separate public (i.e. City owned) parking from private parking
- Central parking allows for more flexibility to design parking structures close to waterfront to benefit pedestrian areas

Disadvantages:

- Centralized parking is uncommon for residential developments. Given that the majority of parking demand are for residential uses (640 out of 1,124 spaces without shared parking), a large majority of residents would be required to park away from their building.
- Large centralized parking structure is less appealing from an urban design perspective.

Design Option 2 – Integrated Parking

Advantages:

- Residential parking is tied to buildings
- First level of parking could be publically accessible
- Parking supply can be adjusted on a building-by-building basis over time, with initial buildings relying on surface parking on undeveloped parking parcels as buffer
- Disperses traffic patterns

Disadvantages:

- Accommodating wider public parking needs is more difficult and requires agreements with building owners
- Higher cost per space than a central parking structure