ATTACHMENT G

WATT Consulting Group

THE HIVE – 736 PRINCESS AVENUE

Parking Study

Prepared for:	**Large & Co Developers**
Prepared by:	**Watt Consulting Group**
Our File:	**2259**
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1.0 INTRODUCTION

Watt Consulting Group ("WATT") was retained by Large & Co to conduct a parking study for the proposed work force rental housing development and café at 736 Princess Avenue in the City of Victoria. The proposed development does not include any resident parking spaces and, as such, the purpose of this study is to determine whether [a] the provision of zero off-street parking spaces is appropriate and [b] outline how on-site parking management and transportation demand management options could meet the transportation needs of residents.

1.1 SUBJECT SITE

The proposed development site is located at 736 Princess Avenue in the City of Victoria. See Figure 1.

FIGURE 1 **SUBJECT SITE**

1.2 SITE CHARACTERISTICS

The following provides details regarding transportation options and services that are located in proximity to the site.

Services

The subject site is located in a light industrial area. Within a 5-minute walk, there are some amenities and services available including a car rental store, a car wash, auto repair shops, a fitness centre, cafés, restaurants, and a veterinary clinic.

Transit

The subject site has excellent access to frequent transit. There are two bus stops—located on Douglas Street between Discovery Street and Pembroke Street—within a 3-minute walk of the subject site. The bus stops are served by 16 bus routes that provide service to key employment hubs and destinations within the region including downtown Victoria, the University of Victoria, Camosun College, Swartz Bay, the West Shore (e.g., Colwood, Langford, and Metchosin), and Sidney. With access to a multiplicity of bus routes serving a variety of destinations, future residents can reliably use transit for both commuting and non-work trips.

Douglas Street also has transit and cycling priority lanes from Fisgard Street to Hillside Avenue Monday through Friday from 6am-9am (southbound) and 3pm-6pm (northbound). The lanes are designed to shorten travel times, increase reliability of public transit, and lower the number of vehicles on the road.[1]

The Victoria Region Transit Future Plan[2] provides guidance on future transit networks in the Victoria Region. The subject site is approximately 100m (2-minute walk) from Douglas Street, which is identified as an exclusive corridor on the Rapid Transit Network (RTN). The RTN is intended to move high volumes of passengers between major regional destinations along key transportation corridors. The RTN will provide service frequency of 15 minutes or better between 7:00am to 10:00pm, 7 days a week. Moreover, to improve travel time and reliability, the RTN will have its own right-of-way to eliminate or significantly reduce the impact of general traffic on transit vehicles.[3]

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[1] City of Victoria. (2014). Douglas Street Priority Transit & Cycling Lanes. Available online at: http://www.victoria.ca/EN/main/residents/transportation/douglas-street-priority-transit-and-cycling-lanes.html

[2] BC Transit. (2011). Transit Future Plan Victoria Region. Executive Summary. Available online at: https://bctransit.com/servlet/documents/1403641054491

[3] Ibid.

Walking

The subject site can be described as very walkable with a walk score of 97, suggesting that daily errands do not require a vehicle.[4] A sidewalk is available on the north side of Princess Avenue, which would directly serve both residents and customers walking to and from Douglas Street / Blanshard Street.

Cycling

As discussed above, Douglas Street has transit and cycling priority lanes from Fisgard Street to Tolmie Avenue Monday through Friday from 6am-9am (southbound) and 3pm-6pm (northbound). These priority lanes provide a viable cycling option for residents of the subject site, who may be looking to commute along the Douglas Street corridor.

According to the City of Victoria's long-term bike network ("Biketoria"), Bay Street / Haultain Street has been identified as an "All Ages and Abilities" bike corridor, which would include protected bike lanes on both sides of Bay / Haultain from Government Street (west) to Richmond Road (east) and connecting to critical north-south corridors including Cook Street.[5] Bay Street is within a 2-minute bike ride from the subject site and the City's long-term bike network will enhance the cycling conditions (and safety) of nearby streets, which will directly benefit future residents / customers of the subject site.

Carsharing

The Modo Car Cooperative ("Modo") is the most popular carsharing service in Greater Victoria. In 2015, there were 23 cars and 800 members; as of August 2017, there were 57 Modo vehicles and 2,629 members across the Greater Victoria region[6], suggesting that Modo is growing in popularity. There are currently two Modo vehicles located within a 5-minute walk of subject site: 1) Chatham Street and Government Street (approx. 530m from subject site), and 2) Fisgard Street and Douglas Street (approx. 650m from subject site).

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[4] More information about the site's walk score is available online at: https://www.walkscore.com/score/736-princess-ave-victoria-bc-canada

[5] City of Victoria. (2016). Committee of the Whole Report: Enhanced Bike Network and Proposed Implementation. Available online at: https://victoria.civicweb.net/FileStorage/BC8ECB37FA4447129938F0D1AF279711-Biketoria%20COTW%20final%20report%20April%2028%20-%20Final%20(Apri.pdf

[6] Email correspondence with Modo Business Development Manager on August 31, 2017.

1.3 CITY PLANNING POLICY

The City of Victoria's Official Community Plan (OCP) provides policies and objectives to guide decisions on planning and land management. Updated in 2012, the OCP contains a number of 30-year goals in 17 distinct topic areas that give expression to Victoria's sustainability commitment and work toward the achievement of long-term sustainability goals.[7]

According to the OCP's 30-year growth management concept (Figure 3 of the OCP), the subject site is located within the "Urban Core" area, which consists of "the highest density and greatest mix of uses in the City, including civic and institutional facilities of regional and provincial importance, primary retail, entertainment, office, and other commercial uses, high-rise multi-unit residential apartment and office buildings, visitor accommodation and services, and intensive employment, marine-oriented industrial and transportation uses".[8] The City's 30-year growth management goals are to concentrate 50% of the overall population growth in the Urban Core, resulting in approximately 10,000 new residents by 2041. Some of the key policy objectives pertaining to the Urban Core are as follows:

- Accommodating and fostering a greater range of housing options throughout the Downtown Core Area including non-market housing (6.10.4).
- Encouraging residential and employment growth to concentrate in the Urban Core, Large Urban Villages, Town Centres and Employment areas along rapid and frequent transit corridors (7.14.1).
- Where possible, locate new seniors' housing, transitional housing and non-market rental housing within close proximity to the Urban Core, Town Centres and Large Urban. Villages to enable easy access to services and facilities necessary for daily living (13.15).
- Encourage job growth in community goods and services by increasing the residential densities in the Urban Core, Town Centres, Large Urban Villages, and along rapid and frequent transit corridors.

The Urban Core consists of six mixed-use sub-designations; according to Map 2 of the OCP, the subject site falls within the "Core Employment" urban place designation. Core Employment allows for buildings up to 10 storeys and specifically encourages residential mixed-use, work / live and commercial located between Douglas Street and Blanshard Street.[9]

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[7] City of Victoria. (2012). Official Community Plan. Available online at: http://www.victoria.ca/assets/Departments/Planning~Development/Community~Planning/OCP/OCP_Book.pdf

[8] City of Victoria. (2012). Official Community Plan, pg. 35. Available online at: http://www.victoria.ca/assets/Departments/Planning~Development/Community~Planning/OCP/OCP_Book.pdf

[9] Ibid, pg. 43.

2.0 PROPOSED DEVELOPMENT

2.1 LAND USE

The proposed development is to rezone 736 Princess Avenue to a site specific zone that would allow for a 6 storey work force rental housing building with 75 units, five of which are wheelchair accessible units. All units will be bachelor / studio with a unit size ranging from 220-290 sq. ft., meeting the Urban Land Institute's[10] definition for a "Micro Unit" - a *small studio apartment, typically less than 350 square feet, with a full functioning kitchen and bathroom.*

The proposed development also includes a 42.2m^2 (42m^2 when rounded, or 452 sq. ft.) café on the ground floor with 10 seats. The lounge area on the ground floor includes 75 seats for customers, residents, and visitors to the building. It is anticipated that the ground-floor lounge area will function as living space for residents, given the limited floor area in each unit.

2.2 PARKING REQUIREMENT

2.2.1 CURRENT REQUIREMENT

Schedule C of the City's Zoning Regulation Bylaw determines the minimum parking supply requirement. Per Schedule C, the 'Rental Attached Dwelling' requirement—a rate of 1.4 spaces per unit—would apply to the multi-family use, resulting in a total of 105 parking spaces. No less than 10% of the total parking spaces (approx. 11 spaces) must be designated for visitors.

The "Eating and Drinking Establishments" use would apply to the proposed café requiring 1 space per 5 seats. With 10 seats proposed for the café, 2 spaces would be required per the Schedule C regulations. The total requirement for the site is 107 parking spaces.

2.2.2 REQUIREMENT UNDER REVISED SCHEDULE C

WATT has been working with the City of Victoria to review and update its off-street parking requirements (Schedule C) to align regulations with actual parking demand, current trends, and community planning objectives.[11] At the time of writing this parking study, the Schedule C off-street parking regulations are in draft stage.

According to the parking demand analysis that was completed as part of the review, average vehicle ownership among apartments in the Downtown Area was found to be approximately 40% less than the non-Downtown Area.[12] These findings support the draft parking supply rates for the "Core Area" in Schedule C, which is the area surrounding the downtown. Moreover, the

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[10] The Macro View on Micro Units, Urban Land Institute Multifamily Housing Council, 2015, pg. 4. Available online at: http://uli.org/wp-content/uploads/ULI-Documents/MicroUnit_full_rev_2015.pdf

[11] A full draft of Schedule C is available online at: http://www.victoria.ca/EN/main/residents/planning-development/off-street-parking-review.html

[12] WATT Consulting Group. (2016). Review of Zoning Regulation Bylaw Off-Street Parking Requirements (Schedule C). Working Paper no.3: Parking Demand Assessment. Available online at: http://www.victoria.ca/assets/Departments/Planning~Development/Community~Planning/Documents/Victoria%20Schedule%20C%20Parking%20Review_Working%20Paper%20no3_FINAL_Sept23-16.pdf

findings are generally consistent with OCP policy direction, which looks to [a] consider reductions in the parking requirements to account for factors such as geographic location and [b] manage transportation infrastructure and services to give priority to the pedestrian, cycling, and transit modes and link the Urban Core with high capacity and frequent public transit service.[13]

As the subject site is located in the "Core Area", the proposed residential units would constitute as "multi-dwelling, apartment", and be required to provide 0.50 spaces per unit, based on their unit size and location in the Core Area. Therefore, the updated off-street parking regulations would require the site to provide 38 resident parking spaces, and 8 visitor parking spaces.[14]

The proposed café would constitute as a "restaurant", which will require 1 space per 40m^2, or about 1 parking space. The total required parking spaces based on the updated Schedule C requirement is 47 spaces, about 56% less than the existing Schedule C requirements.

2.3 PROPOSED PARKING SUPPLY

The proposed development does not include off-street parking supply. As discussed in Section 1.2, the site's transportation context is unique with access to multiple modes of transportation. Moreover, the proponent is proposing to operate an on-site electric Vehicle Share Program (eVSP) where a combination of electric cars, electric scooters and electric bicycles will be available to residents. Residents will have priority over the eVSP but members of the larger community will also be permitted to participate in the program. The proposal also includes 70 long-term ("Class 1") bicycle parking spaces—one space per unit—along with 6 short-term ("Class 2") visitor parking spaces.

3.0 PARKING REQUIREMENTS IN OTHER MUNICIPALITIES

3.1 REDUCED REQUIREMENTS BY UNIT SIZE

Both primary and secondary research have confirmed that smaller unit configurations (in terms of number of bedrooms) have lower parking demand.[15,16] To confirm whether this is reflected in regulation, the off-street parking regulations from several BC municipalities were reviewed.

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[13] City of Victoria. (2012). Official Community Plan, pg. 51-56. Available online at: http://www.victoria.ca/assets/Departments/Planning-Development/Community-Planning/OCP/OCP_Book.pdf

[14] The updated Schedule C off-street parking regulations will require 0.1 visitor parking spaces per unit for all multiple dwelling uses.

[15] The 'Right Size Parking' Study conducted by King County Metro, is available online at: http://metro.kingcounty.gov/programs-projects/right-size-parking/

[16] WATT Consulting Group. (2016). Review of Zoning Regulation Bylaw Off-Street Parking Requirements (Schedule C). Working Paper no.5: Preliminary Recommendations. Available online at: http://www.victoria.ca/assets/Departments/Planning-Development/Community-Planning/Documents/Victoria%20Schedule%20C_Working%20Paper%20no5_Oct25-16_FINAL.pdf

Communities are now recognizing the need to set parking supply requirement rates for multi-family dwellings based on unit size because of the reduced parking demand associated with smaller units. Sample communities are as follows:

- The City of Hamilton requires 0.3 parking spaces for units less than 50m² GFA (538 sq. ft.).
- The City of Kitchener requires 0.165 spaces per unit for any unit under 51m² GFA (549 sq. ft.) in its downtown zone.[17]

3.2 NO PARKING REQUIREMENTS

Some Canadian municipalities do not have parking requirements for multi-family dwellings within their downtown areas or central business districts (CBDs). The planning rationale for waiving the parking requirements in these areas is because of reduced parking demand, land scarcity, and a desire to increase population growth, density, and sustainable modes of transportation.

Communities that do not have a parking requirement for multi-family uses in their downtowns / CBDs are as follows:

- **City of Ottawa's Central Area**[18] – if a site is within 600m of a rapid transit station and West of the Rideau Canal, no parking is required.
- **City of Windsor's Central Business District**[19] – no parking is required for the first six dwelling units and 1 is required for each additional dwelling unit.
- **City of Regina's Downtown (D) Zone**[20] – no parking required.

4.0 EXPECTED PARKING DEMAND

This section provides a summary of local data and secondary research that explore case studies where similar multi-family developments have been constructed without providing any resident parking. Where possible, examples from Greater Victoria have been included. The expected parking demand for residential visitors and the café is also discussed in this section.

[17] The City of Kitchener's requirement of 0.165 spaces per unit only applies to multi-family buildings that have 100 or more units. In addition, this rate can only be applied to 40% of the building's dwelling units.

[18] City of Ottawa. (2015). Part 4 – Parking, Queuing and Loading Provisions (Sections 100-114). Available online at: http://documents.ottawa.ca/sites/documents.ottawa.ca/files/documents/pt_04_en.pdf

[19] City of Windsor. (2016). Zoning Bylaw. Available online at: http://www.citywindsor.ca/cityhall/By-laws-Online/Documents/BL%208600%20REVISED%20AUG%2028%202017.pdf

[20] City of Regina. (2016). Section 14: Parking and Loading Regulations. Available online at: http://www.regina.ca/opencms/export/sites/regina.ca/_media/pdf/misc/chapter-14.pdf

4.1 THE IMPACT OF PROVIDING NO PARKING

4.1.1 CANADIAN EXAMPLES

This section reviews three multi-family buildings in Canada that were constructed without any resident parking supply. All three buildings are located in different cities and have distinct characteristics. Table 1 presents three criteria to compare these sites. Contacts were identified for each respective building and follow-up interviews were held to learn more about the buildings and to specifically understand the impacts of providing no resident parking. To ensure a rigorous and consistent methodological approach, the following three questions were asked to the interviewees:

1. What has been the impact of not providing any resident parking on site?
2. What kinds of transportation demand management programs / strategies[21] are in place that encourage residents to use sustainable transportation (e.g., bike parking, carsharing etc.)?
3. Are there carsharing vehicle(s) on-site?
    a. If so, how many?
    b. How does the carshare system work / how is it being managed?

TABLE 1 BUILDING / SITE CHARACTERISTICS OF CASE STUDY LOCATIONS

Site	Housing Tenure	Unit Type	WalkScore	On-Site Carshare
The Janion 456 Pandora Avenue, Victoria	Condominium	Mix 250 to 1,000 sq.ft	99	No
The N3 431 8 Ave SE, Calgary	Condominium	Studio – 445 sq. ft.	98	Yes
The Residences at RCMI 436 University Avenue, Toronto	Condominium	Mix 473 to 762 sq. ft.	99	Yes

Case Study no.1:
The Janion 2013

The most local example of a building that was developed without any resident parking is the *Janion*, a condominium building in downtown Victoria with 122 micro-loft units ranging from 250 sq.ft to over 1,000 sq.ft.[22] With no resident parking on site, the Janion markets itself as "quality of location is quality of life", highlighting its walkable surrounding with access to all the amenities an urban resident would need including grocery stores / farmer's markets, cafés, restaurants,

[21] The Federation of Canadian Municipalities defines transportation demand management (TDM) as policies, programs and services that influence whether, why, when, where and how people travel.[21] TDM initiatives typically aim to reduce single-occupant vehicle ("SOV") trips and encourage alternative travel options such as walking, cycling, public transit and shared rides. More information is available online at: https://fcm.ca/Documents/tools/GMF/Improving_Travel_Options_with_Transportation_Demand_Management_EN.pdf

[22] More information about the Janion is available online at: http://www.janion2013.com/neighbourhood.html

and more. Being located in the heart of downtown Victoria, both work and recreational trips are accessible by foot, bike, or transit.

When the building was first constructed, 11 parking spaces were available to the buyers of the larger two-bedroom units. The majority of the residents, however, do not have access to a parking space. Some residents use monthly parking at nearby lots while others purchased their units knowing that parking was not provided on-site. Overall, the impacts of no resident parking have been minimal as some residents already had a lifestyle that was conducive to not owning a vehicle, while others have adjusted using more sustainable forms of transportation including walking, cycling, and transit.[23]

The Janion is limited in its TDM options. There are no carsharing vehicles available on-site and no immediate plans to bring about a carsharing program for residents. However, there is cycling infrastructure and amenities including a bike kitchen and a common room for bicycle parking with about 1 long-term bicycle space per unit.

Case Study no.2:
The N3 in Calgary's East Village

The N3 is a recently constructed 167 unit condominium building in Calgary's East Village neighbourhood with no resident parking.[24] Average unit size is approximately 445 sq. ft., which is larger than the proposed units at the subject site. The building was strongly supported by City of Calgary Council as it offered a viable homeownership option in the heart of the city for younger Calgarians. When the building was first proposed, the average cost of underground parking in downtown Calgary was $70,000 per space. This high price point allowed the developer to articulate the benefits and cost savings associated with providing no resident parking.[25]

The building is a 5-minute walk from Calgary's light-trail transit network and benefits from high walkability and proximity to a number of commercial amenities.
As part of purchasing a condo unit, residents obtain the following transportation benefits:

- Free Car2Go membership
- $500 in Car2Go minute credits
- A Biria bicycle
- $500 gift card from Bow Cycle – a bicycle store in downtown Calgary

[23] Ibid.

[24] More information about the N3 condo building is available online at:
http://www.n3condo.ca/
http://www.evexperience.com/n-3/

[25] Phone conservation held with Senior Vice-President of Strategy & Business Development at the Calgary Land and Municipal Corporation on September 15, 2017.

The building also contains a generous supply of long-term bicycle parking with 334 stalls in the underground parking area, or about 2 spaces per unit.[26] There are also two designated Car2Go parking spaces in the surface parking area on the ground level (Note: Car2Go does not currently operate in Greater Victoria).

When asked about the impact of no resident parking on-site, it was explained how there has not been any additional on-street parking pressure on surrounding streets since residents moved in on April 3rd, 2017.[27] There are about 20 parking spaces immediately adjacent the site; these spaces were close to 100% occupancy before the building was constructed and have remained full since, suggesting that on-street parking demand is being generated from retail customers in the area. Overall, residents are coping without access to parking and taking advantage of the sustainable transportation options available to them.

Case Study no.3:

The Residences at RCMI in the City of Toronto

The Residence at RCMI is a 318 unit condominium with no resident parking located in the heart of downtown Toronto.[28] Unit range from 473 sq. ft. to 762 sq. ft., which is larger than the units provided at the subject site. The building is within a 5-minute walk to transit including several bus routes and heavy rail transit (subway), helping reduce the need to own a vehicle. Many of the building's tenants are students who benefit from these alternative modes of transportation.[29]

One of the TDM measures in place is the availability of on-site carsharing where nine vehicles can be used by residents. Furthermore, being located in the downtown core offers residents a multiplicity of carsharing options with access to hundreds of vehicles managed by Car2go, Zipcar, and other carsharing organizations. The building also provides long-term bicycle parking with 300 spaces, or about one space for each unit.

[26] Email correspondence with a Partner at Knightsbridge Architecture and Construction on Friday September 15, 2017.

[27] Phone conservation held with Senior Vice-President of Strategy & Business Development at the Calgary Land and Municipal Corporation on September 15, 2017.

[28] More information about the Residences at RCMI is available online at: https://condos.ca/toronto/residences-at-rcmi-426-university-ave .

[29] Email correspondence with a Sales Representative at Property.ca Realty Inc. on October 25, 2017.

4.1.2 US EXAMPLES

City of Seattle

Since 2009, the City of Seattle has witnessed a declining number of parking spaces in new apartment buildings. In 2007, the City updated its parking regulations to lower the parking supply requirement for new apartments in the core part of the City with better access to frequent transit service. In 2004, apartments in Seattle had an average of 1.6 parking spaces per unit; in 2016, the number dropped to 0.6 spaces per unit.[30] The City of Seattle's data on apartments built near frequent transit service from 2012 to early 2016 show the following[31]:

- 386 buildings were constructed totaling 37,141 units
- 30 percent of the buildings have no parking
- Approximately 5,570 units (15%) of the apartment units are in buildings with no parking
- The median parking supply was 0.5 parking spaces per unit

Historically, parking requirements were higher in the city to accommodate tenant driving needs. However, in more recent years, parking has been oversupplied in some apartment buildings in the city. This trend has also been observed by WATT Consulting Group on a handful of parking studies completed in the City of Victoria. With changing travel behaviour and an increasing trend of decreased vehicle ownership, developers have had a stronger rationale to provide less parking in new apartment developments.[32] Correspondence with a Seattle-based apartment research group confirmed that many new buildings in the city with small efficiency dwelling units (SEDUs)[33] contain little or no parking and this trend will continue as vehicle ownership continues to decline.

4.2 VISITOR PARKING DEMAND

Visitor parking demand rates have been demonstrated in the range of 0.05 to 0.07 vehicles per unit for multi-family sites in Victoria and Metro Vancouver. [34] More recent research recommends a visitor parking demand rate of 0.1 spaces per unit, based on observations conducted at 16 multi-family residential sites in proximity to downtown Victoria.[35] In addition, the proposed visitor parking supply rate for the updated Schedule C off-street parking regulations is 0.1 spaces per unit. A rate of 0.1 vehicles per unit results in a peak visitor parking demand of 8 vehicles.

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[30] Rosenberg, M. (2016). Seattle builds lots of new apartments, but not so many parking spots. *The Seattle Times*, available online at: http://www.seattletimes.com/business/real-estate/seattle-builds-lots-of-new-apartments-but-not-so-many-parking-spots/

[31] Ibid.

[32] Ibid.

[33] According to the City of Seattle, a SEDU is a micro-housing unit that is a minimum of 150 square feet with a full kitchen or kitchenette. More information is available online at: http://www.seattle.gov/dpd/codesrules/codes/efficiencydwellings/default.htm

[34] Based on observations of visitor parking conducted in 2015 for two studies of multi-family residential sites (one adjacent to downtown Victoria, the other in Langford) and findings from the 2012 Metro Vancouver Apartment Parking Study (Table 31, pg50) available at: www.metrovancouver.org/services/regionalplanning/PlanningPublications/Apartment_Parking_Study_TechnicalReport.pdf

[35] More information about the study is available online at: http://www.victoria.ca/assets/Departments/Planning-Development/Community-Planning/Documents/Victoria%20Schedule%20C_Working%20Paper%20no5_Oct25-16_FINAL.pdf

In order to understand how visitor parking demand will function over the course of a typical weekday and weekend, a time-of-day assessment was completed using the Urban Land Institute's Shared Parking textbook.[36] The analysis found that, on average, visitor parking demand remains low for the majority of a weekday and weekend day at 20% of peak demand from 6am to 5pm. Demand increases slightly from 5-6pm and reaches 100% peak demand from 7-11pm. Therefore, from 6am to 4pm, about two visitors are expected to visit the subject site; however, from 5-6pm, this gradually increases to 5 visitors and reaches the peak (8 vehicles) by 7pm.

The results suggest that for most of the day, visitors to the subject site will be limited to a 2-hour parking time restriction on Princess Avenue. The 2-hour parking time restriction is no longer in effect at 6pm when visitor parking demand peaks. Therefore, it is anticipated that when the site experiences peak visitor parking demand, approximately 8 vehicles will seek parking on-street.

4.3 CAFÉ

The proposed development includes a 42m² (452 sq. ft.) café on the ground floor with 10 seats. Parking demand research has shown that café parking demand is similar to that of a restaurant.

Based on parking demand observations that occurred in March 2016 as part of WATT's review of the City of Victoria's off-street parking requirements (Schedule C), an appropriate demand rate for a restaurant / café use in the downtown area is 1 vehicle per 40m². Even though a café is expected to generate higher parking demand than other commercial / retail uses, the location of the subject site – within the downtown core – and its high walkability suggest that most customers could access the site without a vehicle. A rate of 1 vehicle per 40m² will result in 1 vehicle. It is anticipated that all café parking can be accommodated on-street.

4.4 SUMMARY OF EXPECTED PARKING DEMAND

Based on the research and data from three other buildings in Canada without any resident parking, there is a possibility that residents of the subject site can cope without a parking space, provided that they have other viable transportation options available to them. Data from the City of Seattle illustrates a growing trend of multi-family apartment buildings being constructed without any resident parking, especially among micro-unit buildings with good access to public transit. Moreover, evidence from three multi-family buildings in Canada that were constructed without any resident parking supply suggest residents are managing without a vehicle.

Local data and a time-of-day analysis found that all visitors to the subject site can be accommodated on-street, especially after 6pm when the parking restriction is no longer in effect. Customers of the café can similarly be accommodated on-street and therefore no parking spaces are required for these uses.

[36] Peak demand factors (%) based on recommended time-of-day factors from Urban Land Institute, Shared Parking, 2nd Edition, 2005, Page 16-19, Table 2-5 and 2-6.

5.0 ON-STREET PARKING

5.1 PARKING CONDITIONS, STUDY AREA

An on-street parking assessment was completed on several streets surrounding the site to determine overall parking supply and availability. Further, the on-street parking assessment was undertaken to understand the overall employment patterns of the area, which is predominately functioning as a light industrial and small scale business hub, mixed with hotel and residential.

Observations were conducted at two distinct time periods: [a] an weekday evening count (9:00pm, Thursday September 7th) to determine overall parking supply at the end of the work day; and [b] a weekday afternoon count (2pm, Monday September 11th) to observe parking during a typical workday.

Full results of the on-street parking assessment is included in **Appendix A.** A summary of key findings is provided below.

The weekday afternoon observation represents the busier of the two observation periods, when 48% of all on-street parking spaces (289 spaces) were observed occupied.

Parking occupancy for the streets immediately adjacent the subject site - Princess St, Blanshard St, Queens Ave, Douglas St, Pembroke St – was observed to be 55% during the weekday afternoon, with 66 parking spaces unoccupied. The majority of these streets are restricted to two-hour parking from 9:00am to 6:00pm, Monday to Saturday. **Appendix A** includes a map showing the on-street parking supply and restrictions.

5.2 PARKING CONDITIONS, PRINCESS AVENUE

On-street parking conditions have been considered specifically for the block of Princess Avenue between Douglas Street and Blanshard Street. There are 23 parking spaces available for public parking contained with the right-of-way. Peak occupancy of these spaces was observed during the weekday afternoon observation, when 78% of all spaces were occupied (18 vehicles). This suggests that during the peak period, the two vehicles expected from the café will be able to find a parking space. No vehicles were observed during the weekday evening count, suggesting that the 8 expected visitor vehicles will easily find a parking space on Princess Avenue.

It should be noted, however, that a large number of vehicles were observed parked perpendicularly adjacent private properties on the south side of Princess Avenue. Refer to the photos below. These spaces are not available to the public as they are primarily on private property, but they satisfy parking demand that would otherwise need to be recouped elsewhere. An estimated 15 to 20 additional vehicles park in these areas. Vehicles associated with adjacent automobile detailing businesses were also observed occupying the travel lanes (i.e., "double-parked") while moving vehicles in/out of their facilities or while cleaning customer vehicles.

Conditions were much different during the evening observation, when 20% of available parking spaces were occupied and 28 spaces left unoccupied, suggesting that the evening on-street parking conditions are far less busy.

5.3 PARKING MANAGEMENT ON SITE FRONTAGE

The proposed development will include up to two on-street parking spaces on the site frontage. These spaces should be restricted to 2-hour (9am-6pm, Monday to Saturday) to accommodate café customer and visitor vehicles, deter resident parking, and for consistency with other on-street parking on the north side of Princess Avenue.

Loading zones have been identified on certain other blocks nearby to accommodate the need for loading associated with adjacent businesses. These are often located at the end of a block immediately adjacent a major road (i.e., Douglas Street, Government Street) where loading from the primary street is not practical. It is suggested that a dedicated loading zone is not necessary to serve the subject site and that this would not be the best use of the parking spaces on the site frontage.

5.4 OPTIONS FOR PRINCESS / BLANSHARD

The end of Princess Avenue at Blanshard Street was reviewed to determine if additional public parking could be accommodated. The right-of-way width is 18.0m the entire length of Princess Avenue, which is insufficient to replicate the current parking arrangement on the south side and provide sufficient turnaround space.

In considering redesign options and in conversations with the applicant, it was identified that allowing for right-in, right-out turn movements at Princess Avenue / Blanshard Street may benefit the subject site and the rest of the Princess Avenue properties, as follows:

- Reduce traffic volumes at the Douglas Street / Princess Avenue intersection, particularly beneficial to reduce the instance of westbound and southbound left turns;
- Create a consistent intersection function as other minor streets in the vicinity (i.e., Queens Avenue, Pembroke Street); and
- Provide cyclist access between the bike lanes on Blanshard Street and Princess Avenue, where currently cyclists must mount the barrier curb.

Detailed study and design options for this location are beyond the scope of this study, and should be undertaken if the proponent, adjacent property owners, and the City elect to pursue this option.

6.0 ON-SITE VEHICLE SHARE PROGRAM

The proponent is proposing to operate and manage an on-site electric Vehicle Share Program (eVSP) where a combination of electric cars, electric scooters and electric bicycles would be available to residents, who would have priority, and then to the community at large. An electric Vehicle Sharing Program is a transportation demand management initiative. The Federation of Canadian Municipalities defines transportation demand management as policies, programs and services that influence whether, why, when, where and how people travel. TDM initiatives typically aim to reduce single-occupant vehicle trips and encourage alternative travel options such as walking, cycling, public transit and shared rides.[37]

As discussed in Section 4.0, TDM programs / strategies are commonplace in multi-family residential buildings, especially those where limited or no resident parking is provided.

6.1 CARSHARE IMPACT ON VEHICLE OWNERSHIP

Research has shown that carsharing programs have a significant impact on reducing vehicle ownership and thereby lowering parking demand. Below is a summary of key findings:

- One of the most comprehensive North American studies to date surveyed 6,281 households in carsharing organizations across the continent. The study found a statistically significant decrease in average vehicle ownership from 0.47 to 0.24 vehicles per household among households that joined carshare services, an approximately 50% reduction in vehicle ownership.[38]
- A study of carshare programs in the City of Toronto found that vehicle ownership rates at condominium sites without carshare vehicles was 1.07 vehicles per unit, whereas buildings with one or more carshare vehicles had significantly lower rates at 0.53 vehicles per unit, which represents a 50% reduction in vehicle ownership rates.[39]
- A 2013 study from the City of Toronto looked at the relationship between the presence of carsharing in a residential building and its impact on vehicle ownership. This was one of the first studies to examine this relationship at the building level as previous research explored impacts at the neighbourhood or city level. The study surveyed residents of buildings with and without dedicated carshare vehicles. According to the author's regression model, the presence of dedicated carshare vehicles had a statistically significant impact on reduced vehicle ownership and parking demand.[40]

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[37] Federation of Canadian Municipalities. (2008). Improving Travel Options with Transportation Demand Management (TDM). Available online at: https://fcm.ca/Documents/tools/GMF/Improving_Travel_Options_with_Transportation_Demand_Management_EN.pdf

[38] Martin & Shaheen. (2011). The Impact of Carsharing on Household Vehicle Ownership. Access Magazine, Spring 2011. Available online at: http://sfpark.org/wp-content/uploads/carshare/access38_carsharing_ownership.pdf

[39] City of Toronto. (2009). Parking Standards Review: Examination of Potential Options and Impacts of Car Share Programs on Parking Standards. Available online at: https://www1.toronto.ca/city_of_toronto/city_planning/zoning__environment/files/pdf/car_share_2009-04-02.pdf

[40] Engel-Yan, D., & D. Passmore. (2013). Carsharing and Car Ownership at the Building Scale. *Journal of the American Planning Association*, 79(1), 82-91.

- Two studies from Metro Vancouver explored the impact of carsharing on vehicle ownership. Over 3,400 carshare households participated in the study. The key findings are as follows:
    - On average, up to 3 private personal vehicles were shed per carshare vehicle.
    - A regression analysis found that those living in rental housing and in a smaller household size are statistically more likely to give up vehicle ownership compared to the reference case.[41]
    - The number of carshare vehicles within walking distance has a small but statistically significant relationship with apartment household vehicle holdings.[42]

Overall, the research cited above confirms that immediate access to carsharing vehicles significantly reduces vehicle ownership and parking demand, and is therefore appropriate as a TDM measure for the subject site.

6.2 CARSHARE MANAGEMENT PROGRAM

The following section presents the electric Vehicle Sharing Program including direction on the number of vehicles that should be provided.

6.2.1 HOW MANY VEHICLES SHOULD BE PROVIDED?

Research Findings

Available research is unclear on what the appropriate ratio is for the provision of carshare vehicles to residential units / residents. Moreover, there could be many contextual factors – from urban density, transit access, and walkability to socio-economic status – that may impact the ratio. As discussed, research from Toronto has found a correlation between on-site carsharing availability and vehicle ownership reduction[43]; however, it is unclear how *many* vehicles are appropriate to have a measurable impact.

Research from Toronto and Vancouver suggests that each carshare vehicle on the road can replace between 6-12 individual vehicles, providing insight into the number of vehicles that could be realistically shared at the subject site.[44,45] Applying this research to the 75 proposed units at the subject site, the proposed eVSP would require **6 – 12** vehicles on-site.

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[41] Ibid, pg. 54.

[42] Metro Vancouver. (2014). The Metro Vancouver Car Share Study: Technical Report. Available online at: http://www.metrovancouver.org/services/regional-planning/PlanningPublications/MetroVancouverCarShareStudyTechnicalReport.pdf

[43] Engel-Yan, D., & D. Passmore. (2013). Carsharing and Car Ownership at the Building Scale. *Journal of the American Planning Association*, 79(1), 82-91.

[44] IBI Group. (2009). Parking Standards Review: Examination of Potential Options and Impacts of Car Share Programs on Parking Standards. Available online at: https://www1.toronto.ca/city_of_toronto/city_planning/zoning__environment/files/pdf/car_share_2009-04-02.pdf

[45] Phone conversation held with Modo Business Development Manager on July 21, 2016.

CRD Origin-Destination Travel Survey

As discussed in Section 1.2, the subject site's transportation characteristics can be described as diverse with good transit access and high walkability. With the site's proximity to the downtown, many residents will have access to jobs with walking distance. Further, the available transit options could allow residents to access almost all of the region's major employment hubs including the downtown, Saanich Peninsula, the University of Victoria, and the West Shore.

The 2011 CRD Origin-Destination Household Travel Survey provides insight into the travel characteristics of residents living in all parts of Greater Victoria.[46] For the survey's "Downtown Victoria" district, the data show that in 2011, there were 2.97 daily trips per person. Of these trips, approximately 47% were non-work trips including shopping and errands, visiting friends / family, going to a restaurant, and medical appointments, etc. With 75 proposed units, we can assume that there will be approximately 225 daily trips generated at the subject site of which 105 (47%) will be non-work trips where residents may use a carshare vehicle. If we assume that one carshare vehicle will be used up to 10 times for non-work trips over the course of the day, then 10 carshare vehicles at the site, or 1 vehicle per 7.5 units, should be a sufficient ratio to accommodate the estimated 105 daily trips from the subject site.

6.2.2 ELECTRIC VEHICLE SHARE PROGRAM

The proponent is proposing to own and operate the on-site electric Vehicle Share Program as a service to its residents. To maximize vehicle utilization and ensure program success, the vehicles would also be available to the surrounding community. Building residents would have priority, but during times when residents may not require a vehicle (i.e. during weekday work hours), utilization could be maximized by expanding the program offering to those living in the community. This would expand the potential for reduced car ownership in the neighbourhood.

Initially, a combination of 20 electric vehicles will be provided to offer diversity of trip purposes and to suit all budgets. Vehicle units at the outset are proposed to be:

- 6 electric cars
- 8 electric scooters
- 4 electric covered carts / scooters
- 2 electric bikes

The proponent has noted that the combination and number of vehicle units will be adjusted as necessary to meet demand, with a goal to provide the appropriate mix based on need. There is sufficient space in the building to add vehicle units should the need arise.

[46] Capital Regional District. (2011). 2011 CRD Origin-Destination Household Travel Survey Daily Travel Characteristics Report. Available online at: https://www.crd.bc.ca/docs/default-source/regional-planning-pdf/transportation/crd-od-survey-dailytravelcharacteristicsreportfinal.pdf?sfvrsn=2

To provide the municipality with certainty, the proponent will guarantee a minimum 10 vehicles in the program for the first 5 years. The provision of 10 vehicles is supported by the analysis that was completed using the 2011 CRD Origin-Destination Household Travel Survey data.

7.0 DRIVE AISLE REVIEW

The proponent is proposing a drive aisle to the underground parking that is 5.2m wide and intended to accommodate one direction vehicle traffic. One-way drive aisles are seen in some instances in the City of Victoria. A couple of examples are provided as follows:

1. A surface parking lot at 721 Fisgard Street next to the Golden City Restaurant. The lot has similar characteristics to the subject site as it is a small one-way lot with one access point with about nine parking spaces.
2. A surface parking lot at 211 Menzies Street in James Bay (James Bay Fish & Chips). There is a small one-way drive aisle to the surface parking lot behind the building where five parking spaces are available.

As discussed earlier, it is anticipated that approximately 105 non-work trips will be made daily using the eVSP. The ITE Trip Generation Manual[47] provides data on the PM peak hour for a variety of land uses. For the apartment use (land use 220), the peak hour rate is 10% of total daily trips, with 61% of vehicles entering the apartment and 39% exiting. Therefore, with 105 daily trips, about 11 trips will occur during the busiest hour (6 entering, 5 exiting) resulting in about 5 occurrences where there may be conflict. This amount to one vehicle every 12 minutes (on average), which results in low volume of vehicles that would meet in opposing directions.

In addition, as the subject site is a resident building, residents could quickly learn about the possibility of a conflict while entering / exiting a building and adjust their driving behaviour accordingly.

8.0 SUMMARY

The proposed development at 736 Princess Avenue includes 75 work force rental housing units and a small café on the ground floor. The proposed development does not include any resident parking spaces. To accommodate the site's transportation needs, the proponent is committing to an electric Vehicle Sharing Program that include a combination of electric vehicles, electric scooters, and e-bicycles along with space to accommodate 70 long-term bicycle parking spaces, about one space per unit.

This study provided examples of other buildings in Canada that have not included any resident parking. Interviews were conducted to learn about the impacts of no resident parking and the TDM programs available to residents. The results from the interviews and secondary research

[47] Institute of Transportation Engineers. (2012). Trip Generation, 9th Edition. Washington, D.C.

from Seattle suggest that providing no resident parking does not have an adverse impact on on-street parking conditions. Moreover, there is an increasing trend, especially in the City of Seattle, for micro-unit buildings to not provide any parking at all.

An on-street parking assessment was also conducted on streets surrounding the site and on Princess Avenue. The results showed that Princess Avenue experiences peak parking utilization on weekday afternoons at 78%, suggesting that the café patrons will be able to find a parking space on-street. No vehicles were observed during the weekday evening count, suggesting that the 8 expected visitor vehicles will find a parking space on Princess Avenue.

An electric Vehicle Sharing Program was also discussed in Section 6 outlining the appropriate number of vehicles for the site. The subject site's diverse transportation options, coupled with an on-site eVSP is expected to significantly reduce the need for a vehicle.

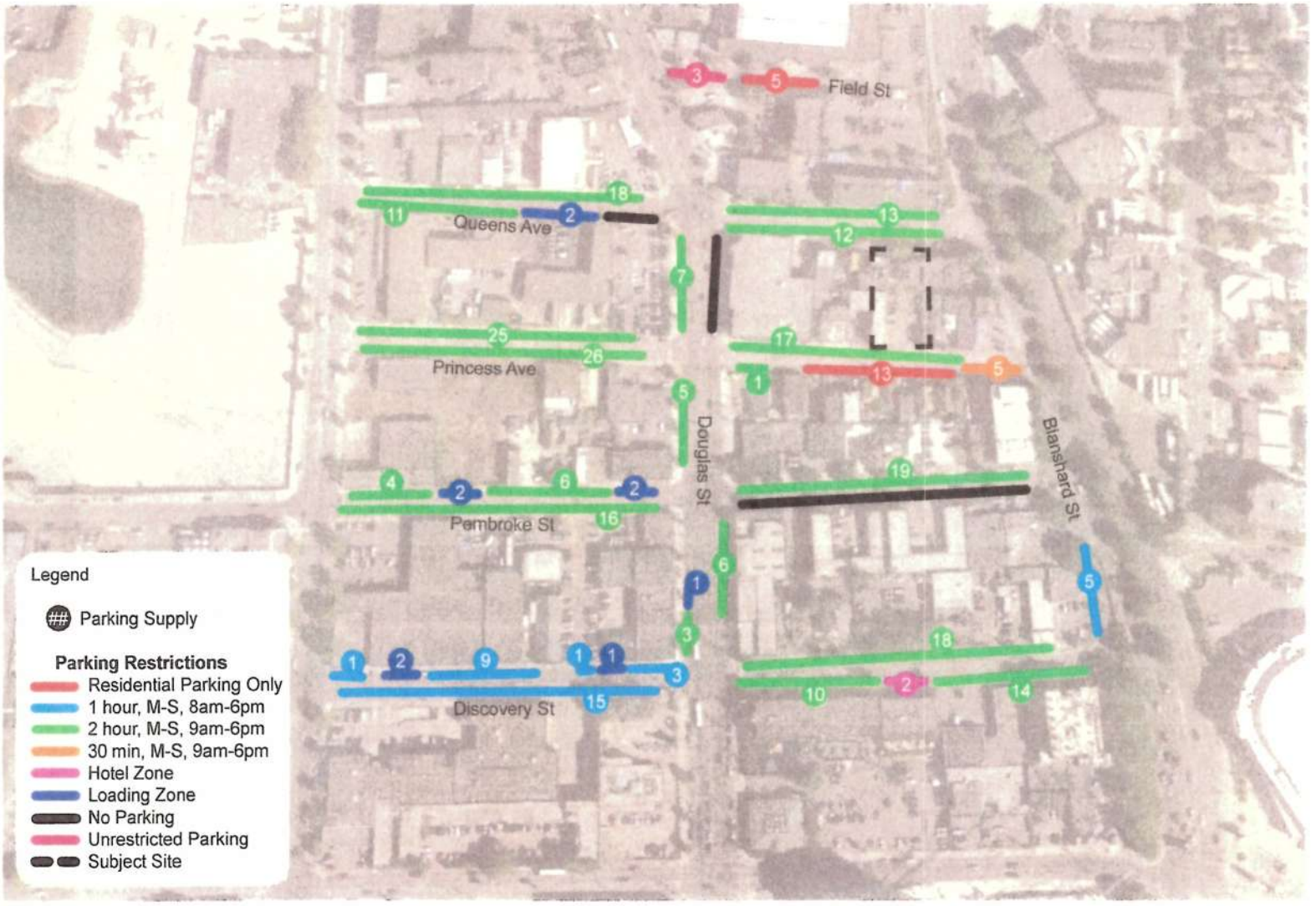
In summary, the site's transportation characteristics and proximity to downtown coupled with the electric Vehicle Sharing Program could allow the proponent to manage the building without any parking supply. There are risks associated with providing no parking; however, this study illustrated through research, observation, and analysis that actions could be taken to significantly reduce the need for owning a vehicle at 736 Princess Avenue. The specific actions are highlighted below.

8.1 RECOMMENDATIONS

The provision of zero off-street parking spaces is supported provided that:

1. Up to 10 shared vehicles are provided on-site and guaranteed for a minimum period of five years.
2. The shared vehicles are accessible to both building residents and non-building residents.
3. Vehicle utilization is monitored and new vehicles are provided as demand warrants.

APPENDIX A. ON-STREET PARKING ASSESSMENT


Field St
Queens Ave
Princess Ave
Douglas St
Blanshard St
Pembroke St
Discovery St
Legend
Parking Supply
Parking Restrictions
Residential Parking Only
1 hour, M-S, 8am-6pm
2 hour, M-S, 9am-6pm
30 min, M-S, 9am-6pm
Hotel Zone
Loading Zone
No Parking
Unrestricted Parking
Subject Site

Summary of On-Street Parking Observations - 736 Princess Avenue

Block	Side	Supply	Notes, Restrictions	Thursday September 7, 2017 @ 9:30pm		Monday, September 11, 2017 @ 1:30pm	
Field St Douglas St to Pat Bay Hwy	N			No Parking Allowed			
	S	3	Unrestricted	3	100%	2	67%
		5	RPO	3	60%	5	100%
Queens Ave Douglas St to Pat Bay Hwy	N	13	2 HR 9am-6pm, Mon-Sat	4	31%	3	23%
		1	Hotel Zone	0	0%	0	0%
	S	12	2 HR 9am-6pm, Mon-Sat	1	8%	3	25%
Queens Ave Government St to Douglas St	N	18	2 HR 8am-6pm, Mon-Sat	2	11%	10	56%
	S	11	2 HR 8am-6pm, Mon-Sat	4	36%	2	18%
Douglas St Queens Ave to Princess Ave	E			No Parking Allowed			
	W	7	2 HR 9am-6pm, Mon-Sat	0	0%	4	57%
Princess Ave Douglas St to Pat Bay Hwy	N	17	2 HR 9am-6pm, Mon-Sat	0	0%	12	71%
		5	30 MIN 9am-6pm, Mon-Sat	0	0%	5	100%
	S	13	RPO	7	54%	6	46%
		1	2 HR 8am-6pm, Mon-Sat	0	n/a	FULL	n/a
Princess Ave Government St to Douglas St	N	25	2 HR 9am-6pm, Mon-Sat	1	4%	2	8%
	S	26		0	0%	5	19%
Douglas St Princess Ave to Pembroke St	E			No Parking Allowed			
	W	5	2 HR 9am-6pm, Mon-Sat	0	0%	1	20%
Pembroke St Douglas St to Pat Bay Hwy	N	19	2 HR 9am-6pm, Mon-Sat	10	53%	16	84%
	S			No Parking Allowed			
Pembroke St Government St to Douglas St	N	10	2 HR 8am-6pm, Mon-Sat	1	10%	5	50%
	S	16		1	6%	8	50%
Douglas St Discovery to Pembroke St	E	6	2 HR 9am-6pm, Mon-Sat	1	17%	4	67%
	W	3		1	33%	2	67%
Discovery St Douglas St to Pat Bay Hwy	N	18	2 HR 8am-6pm, Mon-Sat	10	56%	10	56%
	S	24	2 HR 8am-6pm, Mon-Sat	11	46%	9	38%
		2	Hotel Zone	1	50%	0	0%
Discovery St Government St to Douglas St	N	14	1 HR 8am-6pm, Mon-Sat	0	0%	9	64%
	S	15		7	47%	10	67%
Blanshard St Discovery St to Pembroke St	W	5	1 HR 8am-6pm, Mon-Sat	0	0%	5	100%
	E			No Parking Allowed			
Total		**289**		**68**	**24%**	**138**	**48%**

* Note: Parking supply does not include Loading Zones. Loading Zones in the study area are generally restricted to loading from 7:00am to 6:00pm from Monday to Saturday, after which time they are available as general parking. The overall parking supply increases by approximately 19 parking spaces (6 loading zones) after 7:00pm.