900 ESQUIMALT ROAD & 900 CARLTON TERRACE

Parking Study

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1.0 INTRODUCTION

WATT Consulting Group Ltd. was retained by Carlton Living Inc to conduct a parking study for the proposed mixed-use development at 900 Esquimalt Road and 900 Carlton Terrace in the Township of Esquimalt, BC. The purpose of this study is to determine the expected parking demand for the subject site and whether the proposed supply is sufficient to meet demand.

1.1 Subject site

The proposed development is located at 900 Esquimalt Road and 900 Carlton Terrace in the Township of Esquimalt, BC (See **Figure 1**). The site is currently zoned C-2 (Neighbourhood Commercial).

Figure 1 - Subject Site

1.2 Site Characteristics & Policy Considerations

The following provides information regarding relevant community policies, services and transportation options in proximity to the subject site. In addition, the Township of Esquimalt's Official Community Plan (OCP) and other community policies pertaining to sustainable transportation and parking management are summarized.

COMMUNITY POLICIES

The Esquimalt Official Community Plan (OCP) contains policies that provide direction on future planning and land use management within the Township.[1]

Per Schedule B of the OCP (Proposed Land Use Designations), the subject site is designated as "Commercial/Commercial Mixed-Use"

According to Section 5.3 of the OCP (Medium/High Density Residential Development), the Township supports compact, efficient medium density residential development that integrates with existing and proposed adjacent land uses. Additionally, section 5.3 states that the Township will "prioritize medium density and high density residential development in proposed land use designated areas that:

- Reduce single occupancy vehicle use;
- Support transit service;
- Are located in proximity to employment centres; and
- Accommodate young families."

Section 11 of the OCP (Transportation) and Section 13.3 (Reduction of Greenhouse Gas Emissions) contain a series of policies focused on promoting multi-modal and low-carbon transportation. The most relevant policies for the subject site are as follows:

- Prioritize walking, cycling and public transit as preferred modes of transportation in infrastructure improvements.
- Consider prioritizing transit along frequent and regional transit corridors.

[1] Township of Esquimalt (2018). Corporation of the Township of Esquimalt Official Community Plan. Available online at: https://www.esquimalt.ca/sites/default/files/docs/business-development/OCP/Esquimalt_OCP_2020-01-09.pdf

- Where feasible, improve the continuity of the bike network by linking existing and future bikeways and trails.

SERVICES

Located in area central part of Esquimalt, the subject site is within a 15-minute walk of a wide range of destinations:

- Recreation/Civic
  - Esquimalt Recreation Centre
  - Rock Water Aikikai
  - Archie Browning Sports Centre
- Commercial
  - Place Valentine (grocery store, liquor store, salon & spa, pharmacy, restaurants, medical laboratory)
  - Shoppers Drug Mart/ Canada Post
  - Primary care centre
- Schools
  - École Victor-Brodeur School
  - École Macaulay Elementary School
  - Lampson School
- Parks
  - Bullen Park
  - Paradise Park
  - Captain Jacobson Park
  - Matson Conservation Area (Ecological Park)

TRANSIT

The site has access to transit within walking distance. There are stops along Esquimalt Road (servicing Route 15) and Dunsmuir Road (servicing Route 25) that are within 200 m walking distance from site.

- **Route 15 | Esquimalt/UVic** travels west to HMC Dockyard and east to Downtown Victoria and Oak Bay Junction, then north to the University of Victoria (UVic). This route is classified as a Regional Transit Route. Weekday service starts at about 5:45am and continues until midnight, except on Fridays when the service runs later. Service runs at a 10- to 15-minute frequency between 6:00am and 10:00pm, after which it runs at a 20-minute

frequency. It should be noted that the Route 15 is one of the most frequent and popular routes in Greater Victoria; during the weekday peak hour it has approximately 8,276 daily boardings and 53.3 riders per service hours.[2]

- **Route 25 | Maplewood/Admirals Walk** travels north to Admirals Walk Shopping Centre (with limited service to Shoreline Middle School on weekdays) and east to Downtown Victoria, then north to Saanich Centre and Reynolds Secondary School. Weekday service runs from about 6:30am to 10:00pm with frequency of approximately 30 to 60 minutes.

WALKING

According to Walk Score, the subject site can be described as "very walkable" with a walk score of 73 and 76, suggesting that most errands may be accomplished on foot.[3] Even though Walk Score provides an indication of overall walkability, it has limitations including [a] it is not always updated and may not reflect the latest commercial amenities in the area and [b] the distance thresholds are short and do not reflect the longer walking distances some people may be willing to make to get to a destination such as a grocery store, for example.

Esquimalt Road and Head Street has wide sidewalks along both sides of the roadway with curb extensions. Additionally, pedestrian crossings across both Esquimalt Road and Head Street are located near the site and are clearly marked and signalized across Esquimalt Road. Pedestrian comfort is also prioritized in the Township's policy to "Improve existing sidewalks, street furniture, crosswalks and other street amenities to make walking a safer and more enjoyable choice for people of all ages and abilities."4. In addition, the Township's Active Transportation Network Plan (ATNP) recommends higher quality or more separated pedestrian facilities for areas designated as

[2] WATT Consulting Group. (2021). Esquimalt Active Transportation Network Plan Baseline Conditions Report. Available online at: https://engagingesquimalt.ca/20966/widgets/84269/documents/52653

[3] More information about the site's walk score is available online at: https://www.walkscore.com/score/900-carlton-terrace-victoria-bc-canada

"Commercial / Commercial Mixed Use". Many of the parcels surrounding and in proximity to subject site have this land use designation. Therefore, over time, the walkability of the site is anticipated to improve significantly.

CYCLING

The site has a Bike Score of 69, indicating that there is some biking infrastructure available. Adjacent to the site, bike lanes and shared used lanes are available on Esquimalt Road. These roads connect with the E&N Rail Trail, which provides further connections to downtown Victoria and the Galloping Goose Regional Trail. Additionally, Township's ATNP identifies Esquimalt Road and Head Street under Esquimalt's 'quick-build' cycling network, which indicates that both corridors will see short-term cycling improvements over the next one to five years. In addition, the ATNP recommends protected cycling facilities on Lampson Street north of Esquimalt Road and continuing along Tillicum Road until the Gorge Bridge.

CARSHARING

The Modo Car Cooperative (Modo) is a popular carsharing service with over 800 cars, SUVs, trucks, mini vans, hybrids, EVs and more serving the Lower Mainland, Vancouver Island, Okanagan and Squamish. As of 2023, there were over 110 Modo vehicles in Greater Victoria. There are two Modo vehicles located within 400 meters of the proposed development, one located at 826 Esquimalt Road and another at Esquimalt Road and Carlton Terrace.[4]

[4] The Modo vehicles could be view on the Car Map available online at: https://modo.coop/car-map

2.0 PROPOSED DEVELOPMENT

2.1 Land Use

The proposed mixed-use development will include 176 multi-family condo units, 96 multi-family market rental units and six commercial retail units comprising a total of 730m^2. At the time of writing this report, the exact uses of the six commercial units were not yet determined. For the purposes of this parking study, the commercial units were treated as "café/restaurant" and "retail", which typically has a high parking demand generation rate and reflects a more conservative scenario. See Table 1.

Table 1: Breakdown of Proposed Development

Land Use	Type	Units/Area
Residential		
Multi-Family Residential (Condominium)	Jr. 1 Bed	22 units
	1 Bed	36 units
	1 Bed + Den	22 units
	Jr. 2 Bed	22 units
	2 Bed + Den / 2 Bath	38 units
	2 Bed / 2 Bath	22 units
	3 Bed / 2 Bath	6 units
	2 Bed- Penthouse / 2 Bath	4 units
	3 Bed- Penthouse	4 units
	Total Condo	**176**
Multi-Family Residential (Rental)	Jr. 1 Bed	36 units
	1 Bed	12 units
	1 Bed + Den	18 units
	2 Bed	18 units
	2 Bed / 2 Bath	12 units
	Total Rental	**96**

Land Use	Type	Units/Area
Commercial		
General Retail		480 m^2
Café/Restaurants		250 m^2

2.2 Proposed Parking Supply

2.2.1 Vehicle Parking

The proposed development includes a total of 231 vehicle parking spaces comprising 204 residential spaces and 27 commercial spaces.

2.2.2 Bicycle Parking

The applicant is proposing a total of 290 bicycle parking spaces. This includes 272 secure long-term bicycle parking spaces—a rate of 1 space per residential dwelling unit. A total of 28 oversized bicycle parking spaces are included in the long-term bicycle parking. A total of 18 short-term bicycle parking spaces are proposed.

3.0 PARKING REQUIREMENT

3.1 Vehicle Parking

Table 2 summarizes the vehicle parking requirements for the proposed development based on Part 5 – Table 1 of the Esquimalt Parking Bylaw, a RM-4 and RM-5 class building (Medium and High-Density Apartment). Further, Section 11 of the Parking Bylaw indicates that in a mixed residential/commercial development, required visitor parking spaces may be assigned to commercial use but shall not comprise more than 15% of the spaces required for the commercial use component. The intention of this regulation is to allow for shared parking between visitor and commercial spaces. This results in a reduction in the parking requirement of 13 spaces. Based on the below calculation, the proposed development is 147 parking spaces short of the Township's requirement of 378 parking spaces.

The authors of this study acknowledge that the Township is currently in the process of updating its parking bylaw and that parking requirements are subject to change in the near term.

Table 2. Parking Requirement

Land Use	Quantity/Area	Bylaw Requirement	Requirement
Residential			
Medium and High-Density Apartment	272	1.3 Parking Spaces Per Dwelling Unit	**354**
Residential Visitor	1 for every 4 required parking spaces		(89)
Accessible Parking space	1 for every 50 required parking spaces		(7)
Commercial			
Café/ Restaurant*	250 m^2	1 space per 14 sq. m. of gross floor area	**18**
General Retail	480 m^2	1 space per 25 sq. m. of gross floor area	**19**
		Total Parking Requirement	**391**
		Revised Total (subtract 13 for visitor)	**378**
		Proposed Parking Supply	**231**
		Parking Deficit	**- 147**

Note: At the time of writing this report, the exact commercial-retail use was not known. A restaurant / café and general retail uses were assumed to reflect a more conservative scenario.

3.2 Bicycle Parking

The Township's current parking bylaw does not require any bicycle parking.

4.0 EXPECTED PARKING DEMAND

Expected parking demand for the site is estimated in the following sections to determine if the proposed supply will adequately accommodate demand. Demand is calculated for both the multi-family residential and commercial uses.

4.1 Residential Parking Demand

4.1.1 Representative Sites

ICBC vehicle ownership data[5] were obtained for 18 representative multi-family residential sites comprising 8 market rental buildings and 10 condo (strata) buildings. All of the representative sites are within Esquimalt and comprise a total of 614 units. A breakdown of each representative site can be found in Table 3 and Table 4. All sites have comparable walkability and access to transit as the subject site.

Table 3: Parking Demand at Representative Sites (Market Rental)

Address	Number of units	Walk Score	Vehicles	Parking Demand (vehicles/unit)
1357 Esquimalt Road	50	68	39	0.78
628 Head Street	22	63	16	0.73
734 Lampson Street	35	58	26	0.74
630 Head Street	30	75	26	0.87
801 Esquimalt Road	32	80	20	0.63
899 Craigflower Road	49	55	42	0.86
831 Ellery Street	30	61	33	1.10
837 Ellery Street	40	78	37	0.93
			Average	**0.83**

[5] ICBC vehicle ownership data are more robust and reliable than parking observations because they account for vehicles that park on-street, which is common in urban areas such as Esquimalt. The data is current as of December 31, 2022.

Parking demand for the representative market rental sites ranged from 0.63 vehicles per unit to 1.10 vehicles per unit with an average parking demand of 0.83 vehicles per unit.

Table 4: Parking Demand at Representative Sites (Strata Condo)

Address	Number of units	Walk Score	Vehicles	Parking Demand (vehicles/unit)
885 Ellery Street	20	78	23	1.15
614 Fernhill Place	21	80	21	1.00
830 Esquimalt Road	21	79	18	0.86
1000 Esquimalt Road	30	74	32	1.07
835 Dunsmuir Road	32	73	29	0.91
840 Craigflower Road	58	71	72	1.24
726 Lampson Street	33	75	25	0.76
826 Esquimalt Road	30	79	29	0.97
929 Esquimalt Road	31	73	33	1.06
848 Esquimalt Road	50	78	40	0.80
			Average	**0.98**

Note: vehicle ownership data are from December 31, 2022.

Table 4 illustrates the parking demand at condo representative sites during the peak period. Parking demand ranged from 0.76 vehicles per unit to 1.24 vehicles per unit with an average parking demand of 0.98 vehicles per unit.

4.1.2 Parking Demand by Unit Type

Unit size type refers to the number of bedrooms provided within a residential unit. Research has shown that larger units will generally have more occupants or a family, therefore increasing the likelihood of additional vehicles owned by occupants and growing the parking demand.[6] Parking data received from ICBC for this study was assessed to reflect unit type using the following steps:

- Existing breakdown of bedrooms per unit at each strata condo site was acquired from BC Assessment[7] whereas the unit breakdown for the market rental sites was acquired from CMHC; and
- The assumed "ratio differences" in parking demand between each unit type was based on the 2013 King County Metro Right Size Parking Model, which recommends that one-bedroom units have a 20% higher parking demand than studio units; two-bedroom units have a 60% higher parking demand than one-bedroom units; and three plus-bedroom units have a 15% higher parking demand than two-bedroom units.[8] This approach is also consistent with Working Paper no.1 of the Township's Integrated Parking Strategy and Regulatory Framework project.[9]

Table 5 and **Table 6** illustrates the relevant unit size adjusted average parking demand.

[6] Potoglou, D., & Kanaroglou, P.S. (2008). Modelling car ownership in urban areas: a case study of Hamilton, Canada. *Journal of Transport Geography*, 16(1): 42–54.
[7] Unit breakdown was obtained by BC Assessment. Available online at: https://www.bcassessment.ca/
[8] Metro Vancouver. (2018). Regional Parking Study – Technical Report, pg. 18. Available online at: http://www.metrovancouver.org/services/regional-planning/PlanningPublications/RegionalParkingStudy-TechnicalReport.pdf
[9] More information about the project is available online at: https://engagingesquimalt.ca/parking

Table 5. Parking Demand by Unit Size at Representative Sites (Market Rental)

Address	Total Parking Demand	1-Bedroom Units	2-Bedroom Units
1357 Esquimalt Road	0.78	0.58	0.93
628 Head Street	0.73	0.67	1.08
734 Lampson Street	0.74	0.74	-
630 Head Street	0.87	0.73	1.18
801 Esquimalt Road	0.63	0.58	0.93
899 Craigflower Road	0.86	0.65	1.04
831 Ellery Street	1.10	-	1.10
837 Ellery Street	0.93	0.71	1.14
Average	**0.83**	**0.67**	**1.06**

As summarized in Table 5, the results indicate a total of 76 spaces for proposed 96 rental residential units based on the following average parking demand by unit type:

- One-Bedroom Units (66) = 0.67 spaces per unit
- Two-Bedroom Units (30) = 1.06 spaces per unit

Table 6. Parking Demand by Unit Size at Representative Sites (Strata Condo)

Address	Total Parking Demand	1-Bedroom Units	2-Bedroom Units	3-Bedroom Units
885 Ellery Street	1.15	0.78	1.24	-
614 Fernhill Place	1.00	-	1.00	-
830 Esquimalt Road	0.86	0.59	0.94	-
1000 Esquimalt Road	1.07	0.69	1.11	-
835 Dunsmuir Road	0.91	0.71	1.14	1.31
840 Craigflower Road	1.24	-	1.09	1.25
726 Lampson Street	0.76	0.53	0.84	-
826 Esquimalt Road	0.97	0.77	1.23	-
929 Esquimalt Road	1.06	-	1.06	-
848 Esquimalt Road	0.80	0.64	1.02	-
Average	**0.98**	**0.67**	**1.07**	**1.28**

As summarized in **Table 6**, the results indicate a total of 158 spaces for proposed 176 residential units based on the following average parking demand by unit type:

- One-Bedroom Units (80) = 0.67 spaces per unit
- Two-Bedroom Units (86) = 1.07 spaces per unit
- Three-Bedroom Units (10) = 1.28 spaces per unit

4.2 Visitor Parking

Several comprehensive studies such as the 2012 Metro Vancouver Apartment Parking Study have reported that visitor parking typically has a demand of less than 0.1 vehicles per unit.[10] Additional findings from similar studies conducted by WATT in the Township of Esquimalt, the City of Victoria, and City of Langford also support these findings, and suggest that visitor parking is not strongly linked to location.[11] Based on the available research, a rate of 0.1 is recommended for the 272 residential units.

4.3 Commercial Parking Demand

A total of six commercial-retail units are proposed that are a combined 730m^2. The applicant has not finalized the specific uses at this time; however, it was indicated that the spaces will likely be occupied for general retail and cafés/restaurants.

Observations of commercial sites were undertaken in Esquimalt. Observations were conducted at four retail sites and seven cafes/restaurants/grocery stores on Tuesday June 06, 2023, between 11:00am and 6:00pm, which represents the peak period for retail and café/restaurant uses on weekdays. Each location has its own dedicated off-street parking supply and limited on-street parking, which allowed the project team to estimate the vehicle parking demand more accurately. The sites included:

Retail:

- Shopper's Drug Mart (870 Esquimalt Road)
- Thrift Store (1010 Craigflower Road)
- Convenience Store (612 Head Street)
- Rexall Pharmacy (1511 Admirals Road)

[10] Metro Vancouver. (2012). The Metro Vancouver Apartment Parking Study. Available online at: http://www.metrovancouver.org/services/regional-planning/PlanningPublications/Apartment_Parking_Study_TechnicalReport.pdf

[11] Other recent developments within Esquimalt has also reflected visitor parking demand trends that tend to be lower than that outlined in the Township's existing bylaw, including a recently constructed development in Esquimalt (826 Esquimalt Road) that supplied a 30 unit condo building with four visitor parking spaces, a rate of 0.13 spaces per unit. More information about 826 Esquimalt Road is available online at: https://victoria.citified.ca/condos/verde-living/

Cafés/Restaurants:

- Papa Ji Pizza (939 Esquimalt Road)
- Blue Nile African Restaurant / Sushi Story / Parthenon Pizza (612 Head Street)
- A & W (860 Esquimalt Road)
- McDonald's (1149 Esquimalt Road)
- Multiple restaurant sites (1205 Esquimalt Road)
- Thai Green Elephant Restaurant (809 Craigflower Road)
- Red Barn Market (1310 Esquimalt Road)

To determine parking demand, the floor area of each site was first estimated using Google Maps and validated by BC Assessment. Subsequently, the sites' parking lots were observed to determine the number of vehicles attributed to each site. Based on observations from the count period, the peak parking demand for retail is 1 vehicle per 50 m² and for cafes/restaurants is 1 vehicle per 44 m², which is recommended for the subject site.

4.4 Summary of Expected Parking Demand

As shown in Table 7, the expected parking demand for the proposed development is 278 parking spaces, which is 47 parking spaces higher than the proposed supply.

Table 7. Summary of Expected Parking Demand

Land Use	Unit Type	Quantity	Expected Parking Demand Rate	Total Parking Spaces
Market Rental				
Rental Mid-rise	One-Bedroom	66 units	0.67 per unit	**44**
	Two-Bedroom	30 units	1.06 per unit	**32**
Condominium				
Condominium Tower	One-Bedroom	80 units	0.67 per unit	**54**
	Two-Bedroom	86 units	1.07 per unit	**92**
	Three-Bedroom	10 units	1.28 per unit	**13**
Residential – Visitor Parking				
Visitor		272 units	0.1 per unit	**27**
Commercial				
Retail		480 m^2	1 per 50 m^2	**10**
Café/Restaurant		250 m^2	1 per 44 m^2	**6**
			Total Expected Parking Demand	**278**
			Proposed Parking Supply	**231**
			Parking deficit	**-47**

5.0 SHARED PARKING

According to the Urban Land Institute, residential visitor parking demand typically peaks after 7:00pm. Therefore, from 6:00am to 6:00pm, few visitor vehicles are expected to visit the subject site. Commercial demand typically peaks in the late morning to the early afternoon / evening (depending on the specific commercial / retail use), which indicates that the peak demand for these uses occurs at different times of the day. Therefore, it is recommended that the applicant share the commercial and visitor parking, which would eliminate the need for approximately 16 parking spaces. Table 8 shows the revised expected parking demand with visitor and commercial parking shared. Even with shared parking, however, the site is still short 31 parking spaces.

Table 8. Adjusted Parking Demand with Shared/Commercial Parking

Land Use	Units / Quantity	Expected Parking Demand
Multi-Family Residential (Rental)	96	76
Multi-Family Residential (Strata)	176	159
Commercial/Visitor (Shared Parking)		27
	Total	**262**

6.0 TRANSPORTATION DEMAND MANAGEMENT

Transportation demand management (TDM) is the application of strategies and policies to influence individual travel choice, most commonly to reduce single-occupant vehicle travel. TDM measures typically aim to encourage sustainable travel, enhance travel options, and decrease parking demand. The following section presents the most appropriate TDM measures that the applicant has agreed to commit to, which will help reduce the residential vehicle parking demand. The TDM measures are anticipated to reduce the amount of vehicle parking required for the development. An approximate reduction in parking demand is provided for each TDM measure.

6.1 Carsharing

6.1.1 Overview

As indicated in **Section 1.2**, there are two Modo vehicles within 400m of the subject site.[12] This provides the area with some carsharing coverage and availability. Part of the reason why carsharing is expanding locally and being supported by municipalities is because of its ability to reduce household vehicle ownership and parking demand.

A 2018 study from Metro Vancouver analyzed 3,405 survey respondents from carsharing users in the region and found that the users of Car2go and Modo reported reduced vehicle ownership after joining a carsharing service. The impact was larger for Modo users; households joining Modo reduced their ownership from an average of 0.68 to 0.36 vehicles. Further, Modo members were close to five times more likely to reduce car ownership compared to Car2go users.

Additional research has found the following:

- A 2016 study in San Francisco reported that the potential for carsharing to reduce vehicle ownership is strongly tied to the built environment, housing density, transit accessibility, and the availability of parking.[13]
- 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. The study surveyed residents of buildings with and without carshare vehicles. The study found that the presence of dedicated carshare vehicles has a statistically significant impact on reduced vehicle ownership and parking demand. Specifically, 29% of carshare users gave up a vehicle after becoming a member and 55% of carshare users decided against purchasing a car because of carsharing participation.[14]
- The Modo carshare coop has supported research that has explored the impact of carsharing on vehicle ownership. According to their research, for every Modo

[12] The location of Modo vehicles is shown on the Modo car map, which is available online at: https://modo.coop/car-map

[13] Clewlow, R.R. (2016). Carsharing and sustainable travel behaviour: Results from the San Francisco Bay Area Transport Policy, 51, 158-164.

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

vehicle, 9-13 private cars are removed from the streets.[15] Applying these findings to the subject site, where 235 resident vehicles are expected based on the ICBC data, a reduction of 9-13 vehicles translates into a 4-6% decrease in residential parking demand.

While a study has not yet been completed in Greater Victoria to understand the impacts of carsharing on vehicle ownership or the specific placement of the vehicle, the results would likely be similar especially for households living in more urban areas of the region where there is greater access to multiple transportation options.

6.1.2 Recommendations

Based on the research above, it is recommended that the applicant locate a carshare vehicle directly at the subject site (either on Esquimalt Road or Carlton Terrace). The applicant should pursue an agreement with Modo to confirm their support for locating a vehicle at this location. Based on past correspondence with Modo, the following conditions typically apply to the provision of a carshare vehicle in new developments:

- The applicant would arrange, at no cost to Modo, the provision of one (1) designated parking stall at the proposed development, equipped with a Level 2 electric vehicle charging station, and accessible to all Modo members on a 24/7/365 basis;
- Modo would review the final parking drawings and visit the development site to ensure that the stall to be designated for Modo complies with Modo Construction Standards For Shared Vehicle Parking Space (enclosed);
- Assuming occupancy of the proposed development in 2027-2028, the applicant would provide Modo with a total financial contribution of $32,000 excl. taxes (the “Project Fee”) to be used by Modo towards the purchase of one (1) new shared vehicle with electric motorization to be located in the parking stall designated for carsharing;

[15] More information about Modo’s research on car shedding is available online at: https://modo.coop/why-modo/our-impact

- Modo would provide the applicant with a multi-user membership in Modo with a public value equivalent to the Project Fee, valid for the lifetime of the proposed development and allowing up to a minimum of 67[16] occupants of the proposed development to simultaneously benefit from Modo membership privileges and lowest usage rates without the need to themselves pay a $500 membership fee. The applicant would be responsible for providing membership to all of the remaining units (205 units); and
- Modo would provide a promotional incentive worth $100 of driving credits to each occupant joining Modo for the first time.

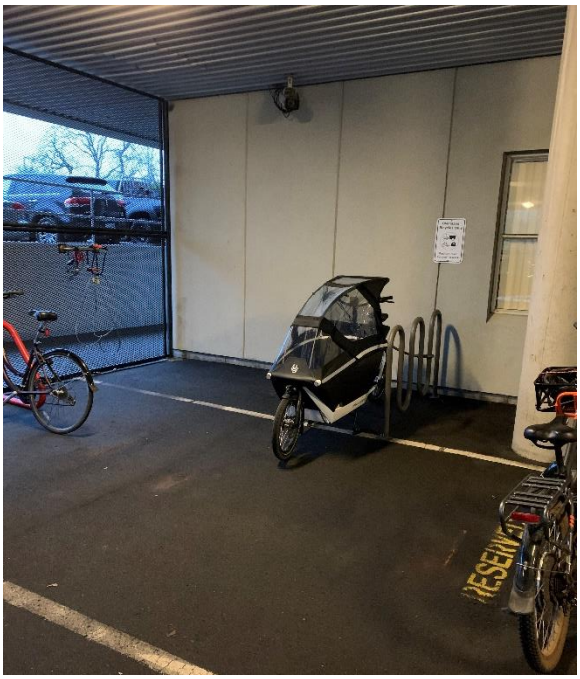
If the applicant can purchase a Modo vehicle, a parking demand **reduction of 5%** is supported. Further, if the applicant provides Modo memberships for all units, an additional parking demand **reduction of 5%** is supported.

[16] $33,600 (assuming 5% GST) divided by $500, rounded down to the closest whole number.

6.2 Bicycle Facilities

6.2.1 Oversized Bicycle Parking

Oversized bicycles are longer, wider, and heavier than a typical bicycle, which makes them more challenging to park than a regular bike. Non-standard bikes include tricycles, electric cargo bikes, or a bike with a trailer, for example. Because of their size, they require different parking configurations. As electric bicycles and other non-standard bikes become more commonplace, it will be important that new developments provide the right parking to allow users to park their bicycles securely and conveniently.



Example of a non-standard bike parking space at Royal Jubilee Hospital.

There is the opportunity to design the long-term bicycle parking to accommodate oversized bicycles. This could further reduce vehicle parking demand at the site. According to research completed in Greater Victoria, one of the top barriers facing prospective e-bike users is the fear that their bicycle might be stolen.[17] Further this research showed that users would feel more comfortable if they could park their bicycle in a locked or supervised area.

The Capital Region Local Government Electric Vehicle + Electric Bike Infrastructure Planning Guide[18] includes e-bike parking design guidelines to help address the concerns of current and prospective e-bike owners as well as to increase overall e-bike ownership in the Capital Region. The e-bike parking design guidelines include three key recommendations: (1) that all e-bike parking spaces be in a secure location (2) that 50%

[17] WATT Consulting Group. (2018). Capital Region Local Government Electric Vehicle + Electric Bike Infrastructure Backgrounder. Available online at: https://www.crd.bc.ca/docs/default-source/climate-action-pdf/reports/electric-vehicle-and-e-bike-infrastructure-backgrounder-sept-2018.pdf?sfvrsn=a067c5ca_2

[18] WATT Consulting Group. (2018). Capital Region Local Government Electric Vehicle + Electric Bike Infrastructure Planning Guide. Available online at: https://www.crd.bc.ca/docs/default-source/climate-action-pdf/reports/infrastructure-planning-guide_capital-region-ev-ebike-infrastructure-project-nov-2018.pdf?sfvrsn=d767c5ca_2

of the long-term bike parking spaces have access to an 110V wall outlet and (3) 10% of the spaces be designed for non-standard bicycles.

Oversized bicycles are typically electric-assist (e-bikes) that are longer than regular bicycles because they are capable of carrying cargo and/or multiple passengers with the assistance of the battery. These types of bikes can be a popular option for young families. They can be as long as 3.0 m and as wide as 0.9 m and require significant space as shown in the diagram below.

6.2.2 Recommendation

It is recommended that the applicant:

1. Provide at least 10% of the long-term bicycle parking as oversized bicycle parking spaces (27-28 spaces). Oversized bicycle parking spaces should be designed to a length of up to 3.0m (where space permits) and 0.9m in width and be provided as ground anchored racks as they are heavy, long, and challenging to park in a vertical bike rack. This design would be consistent with the BC Active Transportation Design Guide along with the oversized bike parking requirements of the City of Colwood and City of Vancouver.
2. Provide a certain percentage of the long-term bicycle parking spaces with access to a 110V wall outlet.
3. Ensure that all long-term bicycle parking spaces—especially the oversized bicycle spaces—are located in a secure facility to minimize bike theft.

By committing to these measures, a **5% reduction** in resident parking demand will be supported.

6.3 Transit Stop Contribution

6.3.1 Overview

The applicant is proposing to include a Type 4 transit shelter on Esquimalt Road. According to BC Transit's Transit Shelter Program, a Type 4 (or T4) shelter is typically intended for park and ride facilities, small transit exchanges, or stops with high levels of passenger boardings per weekday (400+). The provision of a high-quality transit shelter

is an important part of the overall transit experience.[19] Transit passengers often cite bus stops as a barrier to transit use due to poor quality shelters, inadequate lighting or other design and infrastructure characteristics. Further, research has reported that shelters and improvements at bus stops were among the top five enhancements needed to encourage new riders to transit who are currently using other modes of travel.[20]

6.3.2 Recommendation

It is recommended that the applicant commit to providing a T4 shelter, which will help increase the appeal for residents, employees, customers, and visitors of the subject site along with others in the neighbourhood. A T4 shelter is anticipated to help support transit use at the site, which will help reduce vehicle parking demand.

Due to limited research on this topic, no parking reduction has been estimated.

[19] BC Transit. (2020). Transit Shelter Program. Available online at: https://www.bctransit.com/documents/1529710350967
[20] Ibid.

6.3 TDM Summary

Table 9 is a summary of the recommended TDM measures and their potential impact on parking demand. The TDM measures only apply to the residential parking demand. It is estimated that the resident parking demand at the proposed development could be reduced by 35 spaces if the applicant committed to the recommended TDM measures.

Table 9. Summary of TDM Measures + Parking Demand Reductions

TDM Option	Parking Reduction	
	Approx. Reduction (Percentage)	**Approx. Reduction** (Number of resident spaces)
Carsharing (vehicle)	5%	**35**
Carsharing (memberships)	5%	
Oversized Bicycle Parking + Bicycle Maintenance Facility	5%	
Transit Stop Contribution	N/A	
Total	**15%**	
Expected Resident Parking Demand		**235**
Approx. Reduction with TDM Measures		**-35**
Adjusted Resident Parking Demand		**200** (235 – 35)
Commercial / Residential Visitor Parking Demand		**27**
Total Parking Demand		**227** (200 + 27)
Proposed Supply		**231**[21]
Difference		**+4**

[21] Note: if the applicant can secure a Modo vehicle, it will require a parking stall and therefore one of the 231 proposed parking stalls will need to be dedicated to the vehicle.

7.0 CONCLUSIONS

This study found that the total expected parking demand for the site is 278 off-street parking spaces. The total demand exceeds the proposed supply by 47 spaces. However, the applicant can reduce the total demand by sharing all of the residential visitor parking and commercial parking spaces. Further, by committing to the two recommended TDM measures, the applicant could reduce the residential parking demand. With shared parking and TDM, the total expected parking demand for the site is 227 parking spaces, which is four less than the proposed supply (231).

7.1 Recommendations

The provision of 231 parking spaces is supported if the applicant commits to the following:

1. Sharing all of the residential visitor and commercial parking spaces
2. Committing to the three TDM measures, which include:
    a. Carsharing program (one vehicle + memberships for all units)
    b. Oversized bicycle parking whereby 10% of the total long-term bicycle parking spaces are designed as oversized; a certain percentage of the total long-term spaces have access to a 110V outlet; and all long-term spaces are in a secure facility.
    c. The provision of a T4 transit shelter on Esquimalt Road.