

To: Bill Laidler, Dulex Sitka House Development Ltd.
From: Victor Ngo, RPP, MCIP and Tim Shah, RPP, MCIP
Re: **148-154 James Road Parking Study: Parking Demand and TDM Plan**

2021-02-18 (Rev 10)
Our File No: 2834.B01

1 INTRODUCTION

This memorandum is a follow-up to the “148-154 James Road Parking Study” memo (dated August 17, 2020) and provides revised information regarding the parking demand forecast and proposed transportation demand management (TDM) plan.

2 PARKING SUPPLY BYLAW REQUIREMENT

2.1 Vehicle Parking

A minimum total of 135 off-street parking spaces are required under the Zoning Bylaw, including 114 resident spaces and 21 visitor spaces (see **Table 1**). The bylaw requirements are currently not satisfied with the proposed parking supply of 84 parking spaces, including 73 resident spaces and 11 visitor spaces (supply rate of 0.74 spaces per dwelling unit). This represents a shortfall of 51 spaces.

Table 1: Off-Street Parking Space Minimum Requirement

Use	Subtype	Quantity	Bylaw Supply Rate	Required Spaces	Proposed Spaces	Difference
Apartment (Market Ownership)	Micro	49 units	1.0 spaces / unit	49		
	1 BR	43 units	1.0 spaces / unit	43		
	2 BR+	5 units	1.5 spaces / unit	7		
	Visitor	97 units	0.2 spaces / unit	19		
Apartment (Below Market Rental)	Micro	17 units	0.9 spaces / unit	15		
	Visitor	17 units	0.1 spaces / unit	2		
Total Parking Spaces (including Accessible Spaces)				135	84	-51
Resident				114	73	-41
Visitor				21	11	-10

2.2 Bicycle Parking

A minimum total of 185 off-street bicycle spaces are required under the Zoning Bylaw, including 171 long-term resident spaces and 14 short-term visitor spaces (see **Table 2**).

The bylaw requirements are currently satisfied with the proposed bicycle parking supply of 232 long-term spaces (additional 36%, or 61 spaces), and 14 short-term spaces, for a total of 246 spaces.

Table 2: Off-Street Bicycle Space Minimum Requirement

Use	Subtype	Quantity	Bylaw Supply Rate	Required Spaces	Proposed Spaces	Difference
Residential Apartment	Long Term	114 units	1.5 spaces / unit	171		
	Short Term	114 units	1.0 spaces / 50 units	14		
Total Bicycle Spaces				185	246	+61
Long Term				171	232	+61
Short Term				14	14	0

3 PARKING DEMAND FORECAST

The baseline parking demand for the proposed development was forecasted using estimated parking demand for comparable sites (also known as proxy or representative sites) with similar land use, size, setting, and access to services and amenities.

3.1 Resident Parking Demand, One- and Two-Bedroom Units

The Metro Vancouver 2018 Apartment Parking Study provides parking demand data adjusted for transit proximity and unit size for sites located outside of the City of Vancouver and University of British Columbia (UBC) area (see **Table 3**).

Table 3: City of Port Moody Off-street Parking Requirements and Metro Vancouver Parking Study Data

Unit Size	Port Moody Base Requirement (Zoning Bylaw, Section 6.3.1)	Port Moody Transit-Oriented Development Requirement (Zoning Bylaw, Section 6.8.2)	Metro Vancouver Demand, 400 m of Frequent Bus Service
Market Ownership			
1 BR	1.00 space / unit	1.00 space / unit	0.92 space / unit
2 BR	1.50 spaces / unit	1.35 spaces / unit	1.32 spaces / unit
Market Rental			
1 BR	1.10 spaces / unit	1.00 space / unit	0.80 spaces / unit
2 BR	1.10 spaces / unit	1.00 space / unit	1.00 space / unit

Resident parking demand for the one- and two-bedroom units was assumed to be equivalent to the City's off-street parking requirements:

- Resident parking demand of 1.0 space per unit for one-bedroom units.
- Resident parking demand of 1.5 spaces per unit for two-bedroom units.

No further parking demand analysis is required for the one- and two-bedroom units.

3.2 Resident Parking Demand, Micro Units

Micro units are purpose-built, small studio or one-bedroom dwelling units with a kitchen and bathroom provided. There is no standard definition for micro units, but they typically range in size from 280 to 450 sq. ft., with an average size of less than 350 sq. ft.¹

Multi-family residential buildings with micro units in the District of Saanich and City of Victoria were reviewed to estimate an appropriate demand rate for the proposed development. WATT has previously completed parking studies for developments in the Greater Victoria area that included micro units. As such, we reached out to the municipalities to obtain information on the approved number of dwelling units, off-street parking supply, TDM measures, and proximity to services and amenities as requested by the City of Port Moody (see **Appendix A** for verification).²

- **Table 4** provides a summary of the approved development application with respect to the total number of approved dwelling units, residential parking supply (excluding non-residential and residential visitor parking), and the approved residential parking supply rate.
- **Table 5** provides a summary of the total number of approved dwelling units by unit size (number of bedrooms). Micro units are listed as zero bedrooms (studios).
- **Table 6** provides a summary of the TDM measures that were secured by the municipality to support the proposed parking supply as part of the application.
- **Table 7** provides a summary of proximity to the nearest bus stop by transit service.
- **Table 8** provides a summary of proximity to services and amenities for the census dissemination block that the site is in, sourced from the national StatsCan-CMHC Proximity Measure Database. The database provides an objective evaluation of proximity to services and amenities for each dissemination block in the country using a gravity model. The data are normalized and classified in quintiles (1 to 5) with a composite amenity index (1 = low; 2 = medium; 3 = high).

¹ Urban Land Institute. (2015). *The Macro View on Micro Units*. Retrieved from: https://uli.org/wp-content/uploads/ULI-Documents/MicroUnit_full_rev_2015.pdf

² Email correspondence with Chuck Bell, Planner (District of Saanich), September 1, 2020; Leanner Taylor, Senior Planner (City of Victoria), September 28, 2020 and October 21, 2020; and Chloe Tunis, Planner (City of Victoria), September 30, 2020 and October 20, 2020.

Table 4: Comparable Micro Unit Developments, Approved Dwelling Units and Parking Supply

Address	Tenure	Quantity	Bylaw Required Resident Parking Supply	Approved Resident Parking Supply	Approved Resident Parking Supply Rate (spaces per unit)
3185 Tillicum Road, Saanich	Market Rental	104 units	156	62	0.59
626 Gorge Road, Victoria	Market Rental	23 units	30	10	0.43
655 Douglas Street, Victoria	Market Rental	146 units	102	60	0.41

Table 5: Comparable Micro Unit Developments, Approved Unit Size Breakdown

Address	Typical Micro Unit Size	Total	0 BR (Micro Unit)	1 BR	2 BR	3 BR
3185 Tillicum Road, Saanich	325 sq. ft.	104	23	36	36	9
626 Gorge Road East, Victoria	240 sq. ft.	23	18	5	0	0
655 Douglas Street, Victoria	300 sq. ft.	146	129	10	7	0

Table 6: Comparable Micro Unit Developments, Approved TDM Measures

Address	Approved TDM Measure
3185 Tillicum Road, Saanich	<ul style="list-style-type: none"> Transit pass subsidy for the building's first two years (financial contribution of \$15 per month for up to two residents per dwelling unit) Transportation welcome package and communications
626 Gorge Road East, Victoria	<ul style="list-style-type: none"> None
655 Douglas Street, Victoria	<ul style="list-style-type: none"> Two (2) on-site carshare vehicles

Table 7: Comparable Micro Unit Developments, Proximity to Frequent Transit Network

Address	Network Distance to Frequent Transit Network
3185 Tillicum Road, Saanich	170 m (northbound stop on Burnside Road) 100 m (southbound stop on Burnside Road)
626 Gorge Road East, Victoria	100 m (westbound stop on Gorge Road East) 240 m (eastbound stop on Gorge Road East)
655 Douglas Street, Victoria	25 m (northbound stop on Douglas Street)
148-154 James Road, Port Moody (subject site)	370 m (eastbound stop on St. Johns St) 400 m (westbound stop on St. Johns St)

Table 8: Comparable Micro Unit Developments, Proximity to Services and Amenities

Address	Block	Amenity Index	Service and Amenity Proximity Quintiles (Out of 5)									
			Employment	Grocery Stores	Pharmacies	Health Care	Child Care	Primary Education	Secondary Education	Public Transit	Neighbourhood Parks	Libraries
3185 Tillicum Road, Saanich	59 17 0361 001	Medium	3	5	3	2	5	4	4	5	3	5
626 Gorge Road East, Victoria	59 17 0384 013	Low	4	4	4	3	1	0	5	5	5	0
655 Douglas Street, Victoria	59 17 0401 014	Medium	4	5	5	4	3	5	0	5	5	5
Median		Medium	4	5	4	3	3	4	4	5	5	5
148-154 James Road, Port Moody (subject)	59 15 1601 002	Low	3	0	3	3	3	3	5	4	1	0

3.2.1 Comparable Developments, Land Use

For the three comparable developments in Saanich and Victoria, the applications proposed a range of unit sizes from studios to three-bedroom units. The share of micro units relative to the total number of dwelling units ranged from 22% (3185 Tillicum Road) to 78% (626 Gorge Road East) and 88% (655 Douglas Street).

At the time of the development applications, the District of Saanich and City of Victoria did not have a micro unit use defined in their respective zoning bylaws; this is still the case as of today (February 2021). The micro units were classified as a multiple dwelling use by the municipalities.

3.2.2 Comparable Developments, Off-street Parking Requirement and TDM

3185 Tillicum Road, Saanich

The development was classified as an “Apartment” use under the District’s off-street parking requirements at the time of the application, which specified a requirement of 1.5 spaces per dwelling units. The District has a “flat” parking supply rate for the proposed residential use in the zoning bylaw, with the same rate applied to all units regardless of unit size.

The proposed residential parking supply of 62 spaces (104 unit building) was accepted by the municipality with after considering that: (1) actual parking demand was estimated to be 0.66 spaces per dwelling unit based on comparable developments, lower than the District’s off-street requirement; and (2) the provision of TDM measures by the applicant would close the gap between the baseline parking demand (104 units × 0.66 spaces per unit = 69 spaces) versus the proposed supply of 62 spaces.

The TDM measures consisted of a transit pass subsidy for the building’s first two years (financial contribution of \$15 per month for up to two residents per dwelling unit), and a transportation welcome package and communications to building residents.

626 Gorge Road, Victoria

The application proposed a conversion from an existing motel use to multi-family residential and retail. The development was classified as a “Multiple Dwelling” use under the City’s off-street parking requirements at the time of the application, which specified a requirement of 1.3 spaces per dwelling units. The City had a “flat” parking supply rate for the proposed residential use in the zoning bylaw, with the same rate applied to all units regardless of unit size.

The proposed residential parking supply of 10 spaces (23 unit building) was accepted by the municipality with no additional TDM requirements.

655 Douglas Street, Victoria

The application proposed a conversion from an existing hotel use to multi-family residential. The development was classified as a “Residential” use in a “Central Area Zone” under the City’s off-street parking requirements at the time of the application, which specified a requirement of 0.7 spaces per dwelling units. The City had a “flat” parking supply rate for the proposed residential use in the zoning bylaw, with the same rate applied to all units regardless of unit size.

The proposed residential parking supply of 60 spaces (146 unit building) was accepted by the municipality with a condition that two carshare spaces be provided on-site.

3.2.3 Comparable Developments, Proximity to Transit

The Metro Vancouver 2018 Apartment Parking Study found a relationship between parking demand and proximity to frequent bus service using a threshold of 400 m.³

All comparable developments and the subject site are within 400 m of frequent bus service. Furthermore, the subject site is in proximity (less than 1 km) to rapid rail transit (higher order of transit service), unlike the comparable sites in Saanich and Victoria.

3.2.4 Comparable Developments, Proximity to Services and Amenities

The comparable sites were, on average, located within census dissemination blocks classified as a medium amenity dense area. The subject site is in a dissemination block classified as a low amenity dense area.

Of the ten proximity measures:

- Seven measures had a median score higher than the subject site (employment, grocery store, pharmacies, primary education, public transit, and neighbourhood parks).
- Two measures had a median score that was equal (health care and child care).
- One measure had a median score that was less (secondary education).

Four measures warrant further discussion:

- The employment and transit scores for the subject and comparable sites are similar. They are both in the third and fourth quintile respectively, meaning it ranks average or above average across the country. Future residents of the subject site will have access to employment opportunities within the area, and/or easy access to frequent transit to

³ Metro Vancouver. (2019). 2018 Regional Parking Study: Technical Report, p. 20. Retrieved from: <http://www.metrovancouver.org/services/regional-planning/PlanningPublications/RegionalParkingStudy-TechnicalReport.pdf>

access employment farther away. This can support residents living at the site without a vehicle (or be less reliant on a vehicle).

- There are a number of green spaces within proximity of the subject site, including James Park (650 m away; 8-minute walk) and Inlet Park (800 m away; 10-minute walk). These spaces are not classified as a “neighbourhood park”, and thus not reflected in the “neighbourhood park” measure.
- The subject site had a score of zero for grocery stores compared to the median score of five. The closest grocery stores to the subject site include the following:
 - Thrifty Foods (170 Brew Street; 1.2 km away).
 - Confetti’s European Meat Market & Grocery (1.2 km away).

While Thrifty Foods and Confetti’s are outside of a comfortable 800 m walking distance, they are still within reach by non-auto modes such as transit and cycling.

3.2.5 Baseline Parking Demand

To estimate an appropriate baseline parking demand rate for subject site’s proposed micro units, two sets of demand rates were calculated using the comparable developments. First, the approved residential parking supply rate was assumed to be equivalent to the comparable development’s parking demand as directed by the City of Port Moody. Second, vehicle ownership (measured as the number of insured vehicles) associated with the comparable sites were obtained from the Insurance Corporation of British Columbia (ICBC).

Four adjustments were made to both of the estimated demand rates to account for differences in terms of TDM, location, unit size, and housing tenure:

1. **TDM Adjustment:** The parking demand rate was adjusted to remove the influence of TDM from parking demand (i.e., parking demand would be higher without the provision of the TDM measures).
2. **Location Adjustment:** Greater access to services and amenities is assumed to reduce vehicle parking demand. The parking demand rate was adjusted to remove the influence of location to be comparable with the subject site (i.e., parking demand would be higher for the comparable sites if they were located in the same location as the subject site). This was estimated by using the difference in the sum of the proximity measure scores for each comparable site to the subject site.
3. **Unit Size Adjustment:** Research has found a relationship between unit size and parking demand, with vehicle ownership increasing as household and unit size increases.⁴ Bedroom factors obtained from the Metro Vancouver 2018 Apartment Parking Study

⁴ Metro Vancouver. (2019). 2018 Regional Parking Study: Technical Report, p. 18.

were used to break down the parking demand by unit size. Parking demand for micro units were estimated using the following factors:

- a. One-bedroom rental units are 117% higher than studio rental units.
 - b. Two-bedroom rental units are 24% higher than one-bedroom rental units.
 - c. Three-bedroom rental units are 23% higher than two-bedroom rental units.⁵
4. **Tenure Adjustment:** The parking demand rate was adjusted to remove the influence of different residential tenures. Demand was adjusted by 15% to reflect the difference in parking demand for a rental versus strata studio and one-bedroom unit based on sites outside of the City of Vancouver (e.g., Port Moody) as described in the Metro Vancouver 2018 Apartment Parking Study.

Using the approved parking supply approach, a strata micro-unit parking demand of 0.56 spaces per unit and a rental micro-unit demand of 0.48 spaces per unit was estimated (see **Appendix B** for details).

Using the ICBC vehicle ownership approach, a strata micro-unit parking demand of 0.45 spaces per unit and a rental micro-unit demand of 0.39 spaces per unit was estimated (see **Appendix C** for details and **Appendix D** for a copy of the ICBC report).⁶ These demand rates were based on the maximum number of insured vehicles associated with each site over the course of a year, with a snapshot at three time periods (December 31, 2018; August 31, 2019; and December 31, 2019).⁷ If the demand rates were calculated using an average of the three snapshots, a strata micro-unit parking demand of 0.40 spaces per unit and a rental micro-unit demand of 0.34 spaces per unit was estimated.

The parking demand rates from the vehicle ownership approach using the maximum number of insured vehicles reported is recommended for a conservative approach.

⁵ Unit size factor for three-bedroom rental units versus two-bedroom rental units were assumed to be the same strata residential due to limited sample size in the Metro Vancouver Apartment Parking Study.

⁶ Demand rates calculated under the “approved parking supply” approach are based on the approved dwelling unit count and mix; refer to **Table 5**. Demand rates calculated under the “ICBC vehicle ownership” approach are based on the actual constructed dwelling unit count and mix based on BC Assessment data (retrieved from the 2018 Building Information Report); refer to **Appendix C, Table C-3**. This ensures demand rates are calculated consistently between the two approaches.

⁷ Five vehicle categories are provided by ICBC: (1) passenger; (2) commercial; (3) motorcycle/moped; (4) motorhome; and (5) utility trailers. Only passenger and commercial vehicles are considered in the analysis.

3.3 Visitor Parking Demand

The Metro Vancouver 2012 Apartment Parking Study found that visitor parking was oversupplied across the region, and the standard municipal visitor parking requirement of 0.20 spaces per dwelling unit was excessive. Observed visitor parking demand was found to be below 0.10 spaces per unit, with a peak of 0.06 spaces per unit.

An average visitor parking demand of 0.10 spaces per unit has also been observed in other communities. For example, WATT found an average peak visitor parking demand of below 0.10 at multi-family residential strata sites in Langford, BC, a suburban community similar to Port Moody (see **Table 9**). Parking occupancy was collected between 9:00 p.m. and 10:30 p.m. at night, which corresponds with the peak period identified for visitor parking during the weekday and weekend as recommended by the Urban Land Institute (ULI).⁸

ULI's *Shared Parking* also provides monthly adjustment factors for visitor parking. September to June represent 100% of peak demand, with a modest reduction in July and August with a recommended monthly factor of 95%. Sizing visitor parking for a design day outside the typical weekday and weekend for infrequent peaks such as holidays is not recommended, as this would result, on average, unused parking for most of the year.

A visitor parking demand of 0.10 spaces per unit is recommended.

Table 9: Representative Parking Demand Rates, Residential Visitor

Address	Number of Units					Visitor Parking Supply	Peak Visitor Occupancy	Parking Demand Rate
	0 BR	1 BR	2 BR	3 BR	Total			
3240 Jacklin Rd, Langford	0	21	9	0	30	6	6	0.20
2711 Jacklin Rd, Langford	0	0	8	10	18	6	2	0.11
2731 Jacklin Rd, Langford	0	4	0	6	10	3	1	0.10
2747 Jacklin Rd, Langford	0	9	19	0	28	2	2	0.07
2871 Jacklin Rd, Langford	0	3	95	1	99	13	4	0.04
769 Arncote Ave, Langford	0	1	20	0	21	2	0	0
908 Brock Ave, Langford	1	13	0	0	14	3	0	0

Notes: Parking observations conducted between 9:00 p.m. and 10:30 p.m. on January 9, 10, 15, and 23, 2019.

⁸ Smith, M. (2020). *Shared Parking* (3rd ed.). Urban Land Institute. Parking utilization for residential visitor peaks at 100% from 7:00 pm to 11:00 pm inclusive for the weekday and weekend period.

3.4 Summary of Parking Demand

A peak parking demand of 90 spaces is forecast for the proposed development, a difference of 45 spaces from the minimum bylaw requirement of 135 spaces (see **Table 10**). This represents an overall parking demand rate of 0.79 spaces per dwelling unit.

The estimated parking demand of 90 spaces is higher than the proposed parking supply of 84 spaces, resulting in a shortfall of six spaces. Transportation demand management (TDM) measures would be required to reduce the on-site parking demand until it can be accommodated by the proposed parking supply.

Table 10: Summary of Baseline Parking Demand

Use	Subtype	Quantity	Baseline Parking Demand Rate	Baseline Parking Demand	Proposed Spaces	Difference
Apartment (Market Ownership)	Micro	49 units	0.45 spaces / unit	22	84	-6
	1 BR	43 units	1.00 spaces / unit	43		
	2 BR+	5 units	1.50 spaces / unit	7		
Apartment (Below Market Rental)	Micro	17 units	0.39 spaces / unit	7		
Apartment	Visitor	114 units	0.10 spaces / unit	11		
Total				90	84	-6
Resident				79	73	-6
Visitor				11	11	0

If the average demand rates for the micro units (0.40 spaces per unit for strata and 0.34 spaces per unit for rental) were applied instead of the maximum demand rates calculated from the ICBC data (see **Section 3.2.5**), the overall total demand would be 87 parking spaces, a reduction of three spaces.

4 TRANSPORTATION DEMAND MANAGEMENT

An overview of TDM measures that the applicant has indicated interest to secure for the proposed development is provided below based on recommendations by WATT.

4.1 Carshare Vehicle

Carsharing allows individuals to access and rent a vehicle on a short-term basis. Two-way carshare systems require the user to return the vehicle to a station, and one-way carshare allows the user to begin and end their trip at any location within a specified boundary. A number of studies have found that carsharing programs can have a significant impact in reducing vehicle ownership and thereby lower parking demand.

In the Metro Vancouver region, one study found that households that joined Modo reduced their vehicle ownership from an average of 0.68 to 0.36 vehicles.⁹ A study by Metro Vancouver found that on average, up to three private personal vehicles were shed per car share vehicle. When the avoidance of acquiring a private vehicle was included, each carshare vehicle removed between 5 to 11 private vehicles from households.¹⁰ Currently, there is one private one-way carshare provider, Modo, that is operating in Port Moody.

A publicly accessible carshare vehicle should be located on the surface level, either on-site or off-street as an on-street parking space (i.e., public right-of-way) directly in front of the building to ensure high visibility with consideration to the site context. Alternatively, the carshare vehicle can be located in the underground parking if it's reserved only for building residents.

The City supports a reduction of six (6) vehicle parking spaces for every one (1) electric carshare vehicle provided by the applicant.

4.2 Off-site Active Transportation Infrastructure Improvement

Contributions towards off-site pedestrian and cycling infrastructure that completes gaps in the active transportation can support walking and cycling. A 170 m off-street multi-use pathway is proposed adjacent the site that would run parallel to James Road and terminate at St. Johns Street. The multi-use pathway would provide cycling connectivity for residents by connecting to the City's proposed cycle path/buffered bike lane on St. Johns Street as identified in Map 3

⁹ Namazu, M. & Dowlatabadi, H. (2018). Vehicle ownership reduction: A comparison of one-way and two-way carsharing systems. *Transport Policy*, 64: 38-50.

¹⁰ Metro Vancouver. (2014). *The Metro Vancouver Car Share Study*. Retrieved from: http://www.metrovancouver.org/services/regional-planning/PlanningPublications/Apartment_Parking_Study_TechnicalReport.pdf

(Long Term Bicycle Network) of TransPort Moody.¹¹ It would also provide pedestrians with an improved and more direct connection to access frequent transit on St. Johns Street.

The City of San Francisco's Transportation Demand Management Technical Justification Report estimated a 2% reduction in vehicle miles travelled as a result of pedestrian improvements in the adjacent road network.¹² In addition, a detailed transportation demand management study prepared for the City of Hamilton identifies off-site cycling infrastructure connections as the most effective walking & cycling TDM measure.¹³

A reduction of eight (8) vehicle parking space is supported if the applicant commits to providing contributions towards off-site active transportation infrastructure, such as a multi-use pathway to St. Johns Street from the site.

4.3 Additional Long-term Bicycle Parking Spaces

The provision of additional bicycle parking spaces can support residents in order to satisfy potential bicycle demand in the current and future. Insufficient bicycle parking is considered a key barrier to promoting cycling, with additional bicycle parking associated with an increase of cycling by 10 to 40%.¹⁴

A reduction of two (2) vehicle parking spaces is supported for every additional 10% of long-term bicycle spaces provided.

4.4 Shared Electric Bicycles and Electric Bicycle Parking Charging

E-bikes are electric bicycles with an electric motor of 500 watts or less and functioning pedals that are limited to a top speed of 32 km/h without pedalling. E-bikes are an emerging form of mobility and have the potential to displace and/or substitute vehicle trips and reduce vehicle ownership. Research has found that prospective e-bike users would feel more comfortable if they could park their bicycle in a locked or supervised area. The provision of energized outlets for long-term bicycle parking spaces can facilitate charging opportunities for future e-bike users

¹¹ City of Port Moody. (2017). Port Moody Master Transportation Plan, Map 3 Long Term Bicycle Network. Retrieved from: <https://www.portmoody.ca/en/city-hall/resources/Documents/Map-3-Long-Term-Bicycle-Network.pdf>

¹² City of San Francisco. (2016). Transportation Demand Management Technical Justification. Retrieved from: https://default.sfplanning.org/plans-and-programs/emerging_issues/tsp/TDM_Technical_Justification.pdf

¹³ IBI Group. (2016). Pier 7/8 Transportation Demand Management Detailed Report. Retrieved from: <https://www.hamilton.ca/sites/default/files/media/browser/2016-06-08/west-harbour-pier6-7-8-transportation-demand-management-report.pdf>

¹⁴ Hein, E. & Buehler, R. (2019). Bicycle parking: a systematic review of scientific literature on parking behaviour, parking preferences, and their influence on cycling and travel behaviour. *Transport Reviews*, 39(5).

at the site.¹⁵ Furthermore, e-bikes are particularly popular among older adults, consistent with the target demographic of the building.¹⁶

A minimum of 25% of bicycle parking spaces should be energized to increase e-bike ownership, with priority for installation of plugs given to the horizontal bicycle parking. Furthermore, assignment of bicycle parking spaces with energized outlets should be considered to ensure e-bike users do not compete for these spaces with non-e-bikes.

A reduction of four (4) vehicle parking spaces is supported for the proposed development if nine (9) shared e-bikes are provided for exclusive use of building residents.

A reduction of four (4) vehicle parking spaces is supported for the proposed development if 25% of the long-term bicycle parking spaces (57 spaces) have access to a 110V outlet.

4.5 Bicycle Maintenance Facility

Residential developments can provide dedicated on-site bicycle maintenance facilities, such as bicycle repair tools, pumps, wash stations, etc., to support ongoing bicycle use among building users.¹⁷ This is particularly beneficial for residents living in smaller dwelling units where space is at a premium and/or access to a bicycle repair service may be inaccessible or present a financial barrier.

A reduction of two (2) vehicle parking spaces if a bicycle maintenance facility is provided for use of building residents.

4.6 Passenger Loading Space

The provision of a dedicated passenger loading zone can meet the expected demand for pick-up and drop-off activity, and reduce parking demand for the following users of the building:

- Seniors and people with disabilities who use specialized transit services such as HandyDART and other services (e.g., TaxiSaver, Hospital Transfers).

¹⁵ WATT Consulting Group. (2018). *Capital Region Local Government Electric Vehicle + Electric Bike Infrastructure Backgrounder*. Retrieved from: 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

¹⁶ Cauwenberg, J.V., de Bourdeaudhuij, I., Clarys, P., de Geus, B., & Deforche, B. (2018). "E-bikes among older adults: benefits, disadvantages, usage and crash characteristics." *Transportation*, 46: 2151–2172.

¹⁷ Victoria Transport Policy Institute. (2015). *Parking Management: Strategies for More Efficient Use of Parking Resources*. Retrieved from: www.vtpi.org/tdm/tdm28.htm#_Toc128220491

- Students and young professional who use ride-hailing services. Reductions in vehicle ownership of 9% have been reported among ride-hailing users.¹⁸

The proposed on-street passenger loading zone located on James Rd directly in front of the building entrance can help ensure passenger loading activities can be conveniently accommodated for the future tenants. Furthermore, if approved, the applicant should formally designate the space on ride-hailing applications (e.g., Uber, Lyft) for pick-up/drop-off purposes. In the City of Vancouver, a parking reduction of 4 to 7% can be achieved through the provision of a loading space for transit vehicles (e.g., HandyDART) for strata and rental housing developments.¹⁹

A reduction of three (3) vehicle parking spaces is supported if a dedicated passenger loading zone is provided on James Rd.

4.7 Transportation Welcome Package

An information package on local sustainable transportation options specific to the site should be provided to new residents as part of the move-in process. Other transportation collateral, such as up-to-date bus schedules in print, should also be considered to be provided at key locations in the building, including the residential lobby entrance.

As part of the information package, the following information should be included:

- Bus schedules and route maps for nearby transit service (Route 160, 183, 184, and N9).
- Map showing best walking and cycling routes to nearest bus stop on St. Johns Street and Inlet Centre and Moody Centre SkyTrain stations.
- Registration information for HandyDART, including a copy of the application form.

The US Federal Highway Administration identifies a parking demand reduction ranging from 1 to 5% for information and promotion-based strategies.

A reduction of one (1) vehicle parking space is supported if a transportation welcome package is provided to building residents.

¹⁸ Henao, A. & Marshall, W.E. (2019). "The impact of ride hailing on parking (and vice versa)." *The Journal of Transport & Land Use*, 12(1): 127–147; Clewlow, R.R., & Mishra, G.S. (2017). *Disruptive Transportation: The Adoption, Utilization, and Impacts of Ride-Hailing in the United States*. Retrieved from: https://itspubs.ucdavis.edu/wp-content/themes/ucdavis/pubs/download_pdf.php?id=2752

¹⁹ City of Vancouver. (2019). *Transportation Demand Management for Developments in Vancouver*. Retrieved from: <https://vancouver.ca/files/cov/transportation-demand-management-for-developments-in-vancouver.pdf>

4.8 Mobility Scooter Parking

11 of the 114 dwelling units proposed will be designed to accommodate people with disabilities (four of the two-bedroom units and six of the micro units). Dedicated mobility scooter parking is proposed to be provided to supplement the accessible vehicle parking spaces. Research has highlighted the importance of mobility scooters as a travel option:

- One study reported that mobility scooters enabled users to travel distances they previously would have made by foot (or short distance vehicle trips) without any physical effort. Furthermore, for some older people, a mobility scooter can be a replacement for a car and for the types of trips they would have made with a car.
- Another study surveyed 480 mobility scooter users of all ages in the United Kingdom. It found that most respondents used a scooter instead of a wheelchair because they are easier to use and more comfortable. It also reported that that users relied on their scooter to get around, with 74% of respondents saying they would not make the same trips without their scooter. Another study found a similar result reporting that scooters allowed users to travel to more destinations, achieve more daily tasks, maintain independence, and increased their sense of wellbeing.²⁰
- Lastly, a study from the US looked at the 2017 National Household Travel Survey to understand the travel patterns of American adults with disabilities.²¹ It found that regardless of age, people with disabilities make fewer trips per day on average than people without disabilities. It also reported that workers with disabilities age 18 to 64 make fewer trips compared for workers without disabilities. Mode share data reported that people with disabilities travel by personal vehicles—as drivers or as passengers—for a smaller share of trips than people without disabilities. And people with disabilities age 18 to 64 travel as passengers for a greater share of personal vehicle trips.

The last two statistics confirm that people with disabilities are less reliant on personal vehicles and more likely to be transported as a passenger or utilize a personal mobility device.

A reduction of ten (10) vehicle parking spaces is supported if dedicated mobility scooter parking is provided in the 11 units intended for persons with disabilities. The reduction is calculated based on the equivalent vehicle parking demand substituted by scooter parking.

- **Four (4) accessible 2-BR units × 1.5 parking spaces per unit = six (6) vehicle spaces**
- **Six (6) accessible micro units × 0.56 parking spaces per unit = three (3) vehicle spaces**

²⁰ Thoreau, R. (2015). "The impact of mobility scooters on their users. Does their usage help or hinder?: A state of the art review." *Journal of Transport & Health*, 2(2): 269-275;

²¹ Brumbaugh, S. (2018). Travel Patterns of American Adults with Disabilities. Issue Brief. Retrieved from: <https://www.bts.gov/sites/bts.dot.gov/files/docs/explore-topics-and-geography/topics/passenger-travel/222466/travel-patterns-american-adults-disabilities-11-26-19.pdf>

4.9 Summary of TDM Plan

The proposed TDM plan represents a parking demand reduction of up to 43 spaces for the proposed residential uses, including the micro, one-bedroom, and two-bedroom units (see **Table 10**). This would reduce the estimated baseline demand from 91 spaces to 48 spaces.

The reduction of 43 spaces were distributed equally across the residential units, except for the mobility scooter parking measure with a reduction of six spaces to the four proposed accessible two-bedroom units, and three spaces to the six proposed accessible micro units. As a result, the proposed parking supply of 84 spaces would accommodate the peak demand of 47 spaces.

Table 11: Summary of TDM Plan and Parking Demand Reductions

TDM Measure	Provision	Parking Spaces
Baseline Parking Demand		90 spaces
Resident		79 spaces
Visitor		11 spaces
TDM Demand Reduction (Resident Only)		-43 spaces
Carshare Vehicle	One (1) vehicle	-6 spaces
Off-site AT Improvement	Multi-use path	-8 spaces
Additional Long-term Bicycle Parking	31% additional	-6 spaces
Shared E-Bikes	Nine (9) bicycles	-4 spaces
Long-term E-Bike Charging	57 bicycle spaces	-4 spaces
Bicycle Maintenance Facility	One (1) facility	-2 spaces
Passenger Loading Space	One (1) space	-3 spaces
Transportation Welcome Package	Welcome package	-1 space
Mobility Scooter Parking	11 spaces	-9 spaces
TDM-Adjusted Parking Demand		47 spaces
Resident		36 spaces
Visitor		11 spaces
Proposed Parking Supply		84 spaces
Resident		73 spaces
Visitor		11 spaces
Bylaw Requirement		135 spaces
Resident		114 spaces
Visitor		21 spaces

The City of Port Moody has indicated a maximum permitted reduction of 12 spaces associated with TDM, with the following conditions:

- The building is not eligible for the Port Moody Multifamily Permit Parking program;
- The parking must be unbundled and rented to individual units based upon availability;
- Owners must be made aware of the parking availability at time of rental or sale;
- The multiuse pathway must be extended to St. Johns Street;
- Provision of shared e-bikes; and
- An ICBC ownership survey be provided for the example properties to confirm if on-street parking is supporting the project.

5 CONCLUSION

A peak parking demand of 47 spaces (36 residents and 11 visitors) is forecast for the proposed development with the implementation of TDM, a difference of 88 spaces from the minimum bylaw requirement of 135 spaces. This represents an overall parking demand rate of 0.42 spaces per dwelling unit based on 114 proposed dwelling units.

The proposed parking supply for the site is 84 spaces (parking supply rate of 0.74 spaces) and is expected to accommodate the peak parking demand of 47 spaces, contingent on the provision of the TDM plan. **Table 11** provides an overview of the baseline versus TDM-adjusted parking demand and the proposed parking supply breakdown.

Table 12: Summary of TDM-Adjusted Parking Demand

Use	Subtype	Quantity	Baseline Parking Demand Rate	Bylaw Req.	Baseline Parking Demand	TDM-Adjusted Parking Demand	Proposed Spaces	Diff. from TDM
Apartment (Market Ownership)	Micro	49 units	0.45 spaces / unit	49	22			
	1 BR	43 units	1.00 spaces / unit	43	43			
	2 BR+	5 units	1.50 spaces / unit	7	7			
Apartment (Below Market Rental)	Micro	17 units	0.39 spaces / unit	15	7			
Apartment	Visitor	114 units	0.10 spaces / unit	21	11			
Total				135	90	47	84	+37
Resident				114	79	36	73	+37
Visitor				21	11	11	11	0

Note: The TDM-adjusted parking demand is calculated by subtracting the parking demand reduction of 43 spaces attributed to the TDM plan from the baseline demand attributed to residents.

5.1 Recommendation

City of Port Moody:

1. Support the proposed parking supply of 84 spaces (73 resident spaces and 11 visitor spaces), with a condition of implementation of a TDM plan.

Applicant:

1. Commit to a TDM plan to support the proposed parking variance.

Sincerely,

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#WEAREWATT

WATT CONSULTING GROUP

To: Bill Laidler

RE: 148-154 James Road Parking Study: Parking Demand and TDM Plan

2021-02-18

Our File No: 2834.B01

Page 22

APPENDIX A: VERIFICATION FOR COMPARABLE SITE

APPENDIX B: BASELINE PARKING DEMAND ESTIMATION FOR MICRO UNITS (APPROVED PARKING SUPPLY APPROACH)

Table B-1: Baseline Parking Demand Estimation for Micro Units

Address	Approved Resident Parking Supply Rate	TDM Adjustment Factor ¹	Overall Parking Demand Rate Less TDM	Location Adjustment ²	Overall Parking Demand Rate Less Location	Parking Demand Rate for Micro Units (Rental) ³	Tenure Adjustment ⁴	Parking Demand Rate for Micro Units (Strata)
3185 Tillicum Road, Saanich	0.59 spaces per unit	11%	0.65 spaces per unit	36%	0.89 spaces per unit	0.41 spaces per unit	15%	0.47 spaces per unit
626 Gorge Road, Victoria	0.43 spaces per unit	0%	0.43 spaces per unit	19%	0.51 spaces per unit	0.41 spaces per unit	15%	0.47 spaces per unit
655 Douglas Street, Victoria	0.41 spaces per unit	30%	0.53 spaces per unit	39%	0.74 spaces per unit	0.64 spaces per unit	15%	0.73 spaces per unit
Average						0.48 spaces per unit		0.56 spaces per unit

¹ 3185 Tillicum Road (10% from transit pass + 1% from transportation welcome package = 11%); 626 Gorge Road (No TDM = 0%); 655 Douglas Street (15% from carshare vehicle × 2 vehicles = 30%)

² Refer to Table B-2 for calculations for location adjustment factors.

³ Refer to Table B-3 for calculations for unit size factors.

⁴ Metro Vancouver. (2019). 2018 Regional Parking Study: Technical Report, p. 18.

Table B-2: Baseline Parking Demand Estimation for Micro Units, Location Adjustment Factors

Address	Service and Amenity Proximity Quintiles (Out of 5)										Sum	Percentage Difference with Subject Site
	Employ	Grocery Stores	Pharmacies	Health Care	Child Care	Primary Education	Secondary Education	Public Transit	Parks	Libraries		
3185 Tillicum Road, Saanich	3	5	3	2	5	4	4	5	3	5	39	36%
626 Gorge Road East, Victoria	4	4	4	3	1	0	5	5	5	0	31	19%
655 Douglas Street, Victoria	4	5	5	4	3	5	0	5	5	5	41	39%
148-154 James Road, Port Moody (subject)	3	0	3	3	3	3	5	4	1	0	25	

Table B-3: Baseline Parking Demand Estimation for Micro Units, Demand Rates by Unit Size

Address	Quantity				TDM- and Location-Adjusted Overall Parking Demand Rate	Parking Demand Rate by Unit Size (Spaces per Unit)			
	Micro	1 BR	2 BR	3 BR		Micro	1 BR	2 BR	3 BR
3185 Tillicum Road, Saanich	23	36	36	9	0.89 spaces per unit	0.41	0.88	1.09	1.34
626 Gorge Road, Victoria	18	5	0	0	0.51 spaces per unit	0.41	0.89	N/A	N/A
655 Douglas Street, Victoria	129	10	7	0	0.74 spaces per unit	0.64	1.38	1.72	N/A
Average						0.48	1.05	1.41	1.34

Note: Parking demand for one-bedroom rental units are 117% higher than studio rental units; two-bedroom rental units are 24% higher than one-bedroom rental units; three-bedroom rental units are 23% higher than two-bedroom rental units.

APPENDIX B: BASELINE PARKING DEMAND ESTIMATION FOR MICRO UNITS (ICBC VEHICLE OWNERSHIP APPROACH)

Table C-1: Baseline Parking Demand Estimation for Micro Units

Address	ICBC Insured Vehicle Rate	TDM Adjustment Factor ¹	Overall Parking Demand Rate Less TDM	Location Adjustment ²	Overall Parking Demand Rate Less Location	Parking Demand Rate for Micro Units (Rental) ³	Tenure Adjustment ⁴	Parking Demand Rate for Micro Units (Strata)
3185 Tillicum Road, Saanich	0.38 spaces per unit	11%	0.43 spaces per unit	36%	0.58 spaces per unit	0.26 spaces per unit	15%	0.30 spaces per unit
626 Gorge Road, Victoria	0.42 spaces per unit	0%	0.42 spaces per unit	19%	0.50 spaces per unit	0.43 spaces per unit	15%	0.49 spaces per unit
655 Douglas Street, Victoria	0.39 spaces per unit	30%	0.50 spaces per unit	39%	0.70 spaces per unit	0.51 spaces per unit	15%	0.59 spaces per unit
Average						0.40 spaces per unit		0.46 spaces per unit

¹ 3185 Tillicum Road (10% from transit pass + 1% from transportation welcome package = 11%); 626 Gorge Road (No TDM = 0%); 655 Douglas Street (15% from carshare vehicle × 2 vehicles = 30%)

² Refer to Table B-2 for calculations for location adjustment factors.

³ Refer to Table B-3 for calculations for unit size factors.

⁴ Metro Vancouver. (2019). 2018 Regional Parking Study: Technical Report, p. 18.

Table C-2: Baseline Parking Demand Estimation for Micro Units, Location Adjustment Factors

Address	Service and Amenity Proximity Quintiles (Out of 5)										Sum	Percentage Difference with Subject Site
	Employ	Grocery Stores	Pharmacies	Health Care	Child Care	Primary Education	Secondary Education	Public Transit	Parks	Libraries		
3185 Tillicum Road, Saanich	3	5	3	2	5	4	4	5	3	5	39	36%
626 Gorge Road East, Victoria	4	4	4	3	1	0	5	5	5	0	31	19%
655 Douglas Street, Victoria	4	5	5	4	3	5	0	5	5	5	41	39%
148-154 James Road, Port Moody (subject)	3	0	3	3	3	3	5	4	1	0	25	

Table C-3: Baseline Parking Demand Estimation for Micro Units, Demand Rates by Unit Size

Address	Quantity				TDM- and Location-Adjusted Overall Parking Demand Rate	Parking Demand Rate by Unit Size (Spaces per Unit)			
	Micro	1 BR	2 BR	3 BR		Micro	1 BR	2 BR	3 BR
3185 Tillicum Road, Saanich	23	36	36	9	0.58 spaces per unit	0.30	0.66	0.82	1.01
626 Gorge Road, Victoria	23	1	2	0	0.50 spaces per unit	0.49	1.07	1.33	N/A
655 Douglas Street, Victoria	95	7	22	0	0.70 spaces per unit	0.59	1.28	1.58	N/A
Average						0.46	1.00	1.24	1.01

Note: Parking demand for one-bedroom rental units are 117% higher than studio rental units; two-bedroom rental units are 24% higher than one-bedroom rental units; three-bedroom rental units are 23% higher than two-bedroom rental units.

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To: Bill Laidler

RE: 148-154 James Road Parking Study: Parking Demand and TDM Plan

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Page 27

APPENDIX D: ICBC VEHICLE REGISTRATION REPORT