119b Avenue – Pitt Meadows

Parking Study (Final)

Metro Vancouver Housing



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June 1, 2022

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1.0 INTRODUCTION

Watt Consulting Group (WATT) was retained by Metro Vancouver Housing to conduct a parking study for the proposed mixed-use development at 119b Avenue in the City of Pitt Meadows. The development will include 115 below-market rental units as well as a childcare facility on the ground floor. The purpose of this study is to determine the parking demand for the site and identify parking and transportation demand management strategies to help the applicant reduce the expected parking demand.

1.1 SUBJECT SITE

The proposed mixed-use development is located at 119b Avenue in the City of Pitt Meadows (see **Figure 1**).

FIGURE 1. SUBJECT SITE

1.2 SITE CHARACTERISTICS AND POLICY CONTEXT

The following provides information regarding services and transportation options in proximity to the development. In addition, the City of Pitt Meadows' planning policies pertaining to sustainable transportation and parking management are summarized below.

POLICY & PLANNING CONTEXT

The City of Pitt Meadows is currently undergoing an update of their Official Community Plan (OCP). The City's current OCP, adopted in 2010, recognizes that expanding the road network is not a complete solution and that improving public transit and increasing opportunities for walking and cycling is crucial to efficiently moving people within and beyond Pitt Meadows.[1] Section 4 of the OCP sets out the following high-level policies that are relevant to the proposed development:

- Safe, linked and convenient pedestrian circulation shall be a key consideration of approval of all new developments in the Town Centre.
- The City will maintain a safe, functional urban multi-user road and parking network.
- The City will facilitate opportunities for cycling by:
    - Considering the needs of cyclists in road design and upgrading; and
    - Requiring bicycle parking and end of trip facilities for new developments within the community.
- The City will work with Translink and its subsidiary companies to help provide transportation choice and improve regional air quality

The City is also undergoing an update to its Transportation Master Plan (TMP). The current plan, developed in 2014, provides long-term direction

[1] The City of Pitt Meadows. (2010). Official Community Plan. Retrieved from https://tinyurl.com/y3wtzfef

of the City's transportation system with an emphasis on walking, cycling and transit as a means to reduce automobile dependency.[2] The plan presents a vision of Pitt Meadows as a "vibrant, healthy, active, and diverse small city in a rural natural setting – a compact and sustainable community that supports an efficient and safe multi-modal transportation system that puts people first".[2] In support of the above vision, the TMP has four guiding goals with the following relevant policies:

- **Goal 1:** A balanced and multi-modal transportation system
  - **1.7** Support strategic parking management initiatives
- **Goal 2:** A safe and accessible transportation system
- **Goal 3:** An integrated land use and transportation system
  - **3.4** Providing safe and secure on-street parking at key locations throughout the City is a significant means of encouraging cycling in addition to developing a comprehensive network of bicycle facilities.
- **Goal 4:** A managed and cost-effective transportation system
  - **4.4** Support transportation demand management initiatives which reduce the need to travel and reduce single occupancy vehicle trips

As part of its 2014 Transportation Master Plan, the City of Pitt Meadows conducted a Parking Strategy study that recognized that higher density housing and retail, office, and mixed-use developments have shifted parking trends resulting in a "broader range of user groups seeking, and competing for, access to shared parking resources". The study states that these parking impacts are particularly evident in the Town Centre Commercial Area and Civic Centre area where the subject site is located. The study also states that parking demand management strategies are

[2] City of Pitt Meadows. (2014). Transportation Master Plan. Retrieved from https://tinyurl.com/5ekax6bn

key to help reduce parking demand in these hot spots and will support the City's sustainable transportation objectives.

SERVICES

The subject site is in the urban town centre of Pitt Meadows just 550 meters west of Harris Road. Harris Road is key multi-modal corridor and the "gateway to Pitt Meadows" that serves the city's prominent commercial and community destinations.[3] The subject site is within 300 meters or a 4-minute walk to many key community destinations including the Civic Centre, the Public Library, Family Recreation Centre, Pitt Meadows City Hall, and Pitt Meadows Elementary School. The site is also located 600 meters (about an 8-minute walk or 3-minute bike ride) from amenities including groceries, pharmacy, clinics, restaurants, and cafés near Harris Road and Ford Road. In addition, Meadowtown Shopping Centre is located 2.5 kilometers (about an 8-minute bike ride or 6-minute bus ride) from the site and features a wider array of commercial amenities.

The site also has convenient access to three green spaces including Eagle Park within 450 meters (about a 6-minute walk), Mitchell Road Park within 500 meters (about a 6-minute walk), and Hoffmann Park within 750 meters (about a 9-minute walk).

TRANSIT

The subject site is well served by the existing transit system in Pitt Meadows which is concentrated around the Pitt Meadows West Coast Express (WCE) Station in the City's urban core. The WCE is a commuter rail service that travels between Downtown Vancouver and Mission City on weekdays during morning and evening rush hours.[3] The Pitt Meadows Station is located 1 km away (about a 10-minute walk or 4-minute bike ride) from the site providing

[3] TransLink. (n,d.) West Coast Express Schedules. Retrieved from https://tinyurl.com/fsmjy2n5

commuter-oriented regional connections to other Lower Mainland communities (see **Figure 2**).

FIGURE 2. WEST COAST EXPRESS ROUTE

The proposed development site is also served by three bus routes that provide community-oriented connections for trips to and from local destinations as well as regional connections to Coquitlam, Maple Ridge, and New Westminster (see **Figure 3**).

FIGURE 3. LOCAL SERVICE WITHIN PITT MEADOWS

The subject site is located about 350 meters or a 4-minute walk from the accessible southbound and northbound bus stops on Harris Road in front of the Civic Centre. These stops are served by the following routes:

- **Route 701: Coquitlam Central Station/Haney Place/Maple Ridge East/Mission City Station**
  This regional route is a designated frequent transit network route, providing service every 15 minutes throughout the day and operating from approximately 4:00 am to 2:00 am. The route travels to Coquitlam Central Station along Mariner, Barnet, Lougheed, Harris, Pitt Meadows Station, Hammond, and Maple Meadows Way to Dunn.
- **Route 791: Braid Station/Haney Place**
  This regional route provides service every 20 minutes throughout the day and operates from approximately 4:30 am to 8:00 pm Monday to Friday. The route travels from Haney Place in Maple Ridge to Braid

Station in New Westminster through Maple Meadows Station in Maple Ridge.

The site is also 150 meters or a 2-minute walk from the southbound and northbound bus stops along 190a Street. These stops are served by:

- **Route 722: Bonson/Meadowtown**
  This route is a community shuttle route that provides 30-minute local service to the commercial area of Meadowtown Centre.

The Maple Ridge–Pitt Meadows Area Transport Plan is currently being finalized and will provide a roadmap for improving local transit services to make transit safer and more enjoyable. The draft plan was released in 2019 and identified the following relevant priorities to improve the local transportation network over the next 10 years.[4]

- Support additional transit priority measures along Lougheed Hwy;
- Increase frequency, simplify schedule, and add Sunday service for route 722; and
- Extend existing routing to provide a connection from the 722 to the new R3 RapidBus service at Harris and Lougheed.

WALKING

Given that there is no specific address for the proposed site, the existing parking lot at the proposed development site was used to determine a Walk Score of 63.[5] This indicates that some errands can be accomplished on foot. There are sidewalks on both sides of 119b Avenue adjacent to the site (see Figure 4). As part of the urban core, an extensive network of sidewalks connect the Town Centre with surrounding residential and commercial areas, parks, community facilities, and regional greenways.[6] Furthermore, Harris and

[4] TransLink. (2019). Maple Ridge – Pitt Meadows Area Transport Plan Draft. Retrieved from https://tinyurl.com/y9htrzrf
[5] More information about the site's Walk Score is available at: https://tinyurl.com/2226dsu5
[6] City of Pitt Meadows. (2012). Pedestrian & Cycling Master Plan. Retrieved from https://tinyurl.com/3urt27vd

Hammond Roads have signalized intersections that include a combination of pedestrian-activated pushbuttons, pedestrian countdown timers, audible pedestrian signals, and bollard for pedestrian safety and accessibility.

FIGURE 4. PEDESTRIAN FACILITIES ALONG 119B AVENUE

The City promotes a "pedestrian-friendly Town Centre with safe, linked and convenient pedestrian connections that complement the higher densities and mixed use development of the area". The Transportation Master Plan has emphasized reimagining the design of the Harris Road corridor to make it more "appealing environment for non-motorized road users, while still accommodating vehicles".[7] Given the site's close proximity to Harris Road and its potential redevelopment, it is anticipated that the pedestrian experience around the site will only improve as the larger pedestrian network develops.

CYCLING

The site is located adjacent to Pitt Meadows' bike network on a designated Neighbourhood Bikeway/Informal Bicycle Route along 119b Avenue. Informal bicycle routes are "unmarked routes where bicycles and vehicles share the

[7] Pitt Meadows. (2014) Master Transportation Master Plan. Retrieved from https://tinyurl.com/5ekax6bn

roadway and tend to be traffic calmed".[8] 119b Avenue provides connections to the wider cycling network in the Urban Area with direct connections to the Designated Bike Lanes along Harris Road and Hammond Road. Notably, the proposed site is an 8-minute bike ride to the popular Pitt River Regional Greenway along Harris Road.

The flat topography of Pitt Meadows provides favourable cycling conditions for those of all ages and abilities. The City's cycling network provides access to commercial areas, parks, schools, and other destinations within Pitt Meadows as well as regional connections. To the west, the Pitt River Bridge pathway connects cyclists to the Traboulay PoCo Trail system in Port Coquitlam; to the east, bicycle lanes connect to the District of Maple Ridge; and to the south, bicycle lanes and access paths facilitate cycling connections over the Golden Ears Bridge to Surrey and Langley.

Some of the key directions related to cycling in the Pedestrian & Cycling Master Plan are to:

- Ensure that all residents in the urban core are within 400 metres of a designated bicycle route;
- Connect to key commercial areas, connect with all schools, parks and community facilities; and
- Integrate with the off-street pathway network.[9]

The plan identifies several cycling priority projects, but in particular, the recommended protected bike lane along Harris Road Corridor is anticipated to enhance the cycling network around the subject site and increase the overall appeal and safety for people cycling to/from the site.

[8] City of Pitt Meadows. (nd). Cycling Map. Retrieved from https://tinyurl.com/nrsupcxs
[9] City of Pitt Meadows. (2012). Pedestrian & Cycling Master Plan. Retrieved from https://tinyurl.com/3urt27vd

2.0 PROPOSED DEVELOPMENT

2.1 LAND USE

The proposed mixed-use development will consist of the following land uses:

- **115 below-market rental units**
  - 30% of units will be rented at **Fixed Affordability** – 70% of BC Housing Income Limits
  - The remainder will be rented at **Low End of Market** – Typically 10% below true market rents for comparable buildings (with similar age, amenities, and location). Income limit of BC Housing Low and Moderate Income Limits.
- **1018 sq. m childcare facility** including daycare, infant/toddler care, before/after school care, and preschool programs

The unit breakdown of the residential portion is shown in Table 1.

TABLE 1. UNIT BREAKDOWN

Land Use	Unit Type	Units
Below-market rental units	One Bedroom	53
	One Bedroom – Accessible	10
	Two Bedroom	36
	Two Bedroom – Accessible	6
	Three Bedroom	10
	Total	**115**

2.2 VEHICLE PARKING

Two options are proposed for vehicle parking at the site:

- **Option One:** 94 parkade stalls + approx. 22 surface stalls to the west of building. The proposed allocation is as follows:
    - Resident parking accommodated in the parkade
    - Visitor parking accommodated in the surface lot west of the building
    - Childcare staff accommodated in the Recreation Centre underground parking (northeast of the site)
    - Childcare pick-up/drop-off accommodated in one row of stalls in the Recreation Centre surface lot
- **Option Two:** 124 parkade stalls + approx. 22 surface stalls to the west of building. The proposed allocation is as follows:
    - Resident parking accommodated in the parkade
    - Visitor parking accommodated in the parkade
    - Childcare staff accommodated in the Recreation Centre underground parking (northeast of the site)
    - Childcare pick-up/drop-off accommodated in one row of stalls in the surface lot the surface lot west of the building

In both scenarios, no spaces will be provided on-site for the childcare facility as the applicant has an agreement with the City to locate childcare parking (including staff and parent/guardian parking) at the adjacent Pitt Meadows Recreation Centre parking lot.

Based on information received from the applicant, it is our understanding that the surface lot to the west of the building will be shared with the existing Seniors' Centre for visitor use (in Option One) or childcare pick-up/drop-off (in Option Two), both of which would require short-term parking.

2.3 BICYCLE PARKING

70 Class 1 (long-term secure) resident bicycle parking spaces are proposed, as well as 2 Class 2 bicycle spaces for childcare staff. In addition, the applicant is proposing the following:

- 6 cargo bike spaces
- 12 bike share spaces
- 8 scooter spaces

12 Class 2 (short-term visitor) bicycle parking spaces will also be provided.

3.0 PARKING REQUIREMENT

3.1 VEHICLE PARKING

The vehicle parking requirement for the site is summarized in Table 2. The site is required to provide 183 spaces for the below-market rental units and is short of meeting this requirement by 89 spaces in Option One and 59 spaces in Option Two.

TABLE 2. SUMMARY OF OFF-STREET PARKING REQUIREMENTS

Land Use	Basic Requirement	Applied to Subject Site	Visitor Requirement	Applied to Subject Site	Total Requirement
Below-market rental units	1.3 spaces per bachelor unit or 1-bedroom unit 1.5 spaces per 2-bedroom or more unit	63*1.3 = 82 (81.9, rounded) 52*1.5 = 78	0.2 spaces per dwelling unit	115*0.2 = 23	**183** (82+78+23)
Daycare facility	1 space per 93 sq m GFA	1018 / 93 = 11 (10.9, rounded)	n/a	n/a	**11**

3.2 BICYCLE PARKING

The bicycle parking requirement for Apartment Residential is 0.5 Class 1 (long-term secure) spaces per dwelling unit and a minimum of 6 Class 2 (short-term visitor) spaces for developments greater than or equal to 20 units. This results in 58 Class 1 spaces and a minimum of 6 Class 2 spaces. The proposed development is exceeding the Class 1 requirement by 12 spaces and is meeting the Class 2 requirement. There is no bicycle parking requirement for childcare facilities.

4.0 EXPECTED PARKING DEMAND

4.1 BELOW-MARKET RENTAL UNITS

The expected parking demand for the below-market rental units was estimated using vehicle ownership data from representative sites.

4.1.1 REPRESENTATIVE SITES

Vehicle ownership data was collected from four representative multi-family sites representing 421 below-market rental units, summarized in **Table 3**. Walk scores ranged from 56 to 73, with an average score of 67 (in comparison, the subject site has a walk score of 63). Data was obtained from Metro Vancouver Housing and by conducting outreach via email and phone to representative sites. The average vehicle ownership rate across the four sites is 0.99 vehicles per unit.

TABLE 3. SUMMARY OF REPRESENTATIVE BELOW-MARKET RENTAL SITES

Site	Location	Walk Score	Number of Units	Number of Vehicles	Parking Demand (Vehicles/Unit)
Ozada Village	Coquitlam	67	61	60	0.98
Fraserwood	Maple Ridge	56	48	32	0.67
Ford Road Housing Co-op	Pitt Meadows	72	110	143	1.30
Meridian Village	Coquitlam	73	202	207	1.02
				Average	**0.99**

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 that additional vehicles will be owned by occupants

and increase the parking demand.[10] A large-scale parking study commissioned by Metro Vancouver assumes the following "ratio differences" for parking demand:

- 1-Bedroom units' parking demand rates will be 117% higher than studio units rates;
- 2-Bedroom units' parking demand rates will be 26% higher than 1-Bedroom rates; and
- 3-Bedroom units' parking demand rates will be 23% higher than 2-Bedroom rates. [11]

Vehicle ownership data collected for this study was assessed to reflect unit type using these "ratio differences". The parking demand by unit type is shown in **Table 4**. Due to the lower sample of 3-Bedroom units, the 3-Bedroom ratio of 1.23 was applied to the 2-Bedroom rate to obtain the 3-Bedroom rate (1.25 spaces per unit).

TABLE 4. ADJUSTED VEHICLE OWNERSHIP BY UNIT TYPE

Address	1-Bedroom	2-Bedroom
Ozada Village	0.86	1.08
Fraserwood	0.54	0.68
Ford Road Housing Co-op	1.10	1.39
Meridian Village	0.74	0.94
Average	**0.81**	**1.02**

[10] 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.
[11] Metro Vancouver. (2018). The 2018 Regional Parking Study. Technical Report. Retrieved from https://tinyurl.com/7sfh3cr8

In summary, based on the analysis above, the following are the recommended demand rates for the below-market rental units:

- One-bedroom | 0.81 spaces per unit X 63 units = 51 spaces (51.03, rounded)
- Two-bedroom | 1.02 spaces per unit X 42 units = 43 spaces (42.84, rounded)
- Three-bedroom | 1.25 spaces per unit X 10 units = 13 spaces (12.5, rounded)

Total parking demand = 107 spaces

4.2 RESIDENT VISITOR PARKING

Visitor parking was calculated using a rate of 0.1 vehicles per unit. This is based on a study by Metro Vancouver[12] that concluded typical visitor parking demand is less than 0.1 vehicles per unit. Overall, the research indicates that visitor parking demand is not strongly influenced by location.

For the subject site, a rate of 0.1 spaces per unit is recommended, which results in a total of 12 vehicle parking spaces (11.5, rounded).

4.3 CHILDCARE

4.3.1 REPRESENTATIVE DAYCARE/PRESCHOOL SITES

To assist with estimating demand for the proposed development, data was collected from five representative daycare and/or preschool facilities via email outreach and phone interviews. **Table 5** provides an overview of the representative sites.

[12] Metro Vancouver. (2018). The 2018 Regional Parking Study. Technical Report. Retrieved from https://tinyurl.com/7sfh3cr8

TABLE 5. SUMMARY OF REPRESENTATIVE DAYCARE/PRESCHOOL SITES

Name of Facility	Municipality	Address	Walk Score	Number of Child Care Spaces
Discovery Playhouse Centre	Pitt Meadows	12027 Harris Rd	79	107
Bright Butterfly Child Care Centre	Pitt Meadows	12149 Harris Rd	74	32
Beginners Kollege Child Care Centre	Pitt Meadows	12350 Harris Road	81	53
Port Coquitlam Children's Centre	Coquitlam	3150 Coast Meridian Rd #50	64	65
Best Friends Children's Centre	Pitt Meadows	19141 Ford Road	74	90

4.3.2 STAFF PARKING

The peak number of staff at the new centre will be 25. The average number of staff at the representative sites is 13 and the average staff parking demand is 0.65, as shown in **Table 6**. Applied to the subject site, this results in a parking demand of 16 staff parking spaces (16.25, rounded).

TABLE 6. SUMMARY OF DAYCARE/PRESCHOOL STAFF PARKING DEMAND

Name of Facility	Number of Staff	Staff Parking Demand Rate*
Discovery Playhouse Centre	12	0.75
Bright Butterfly Child Care Centre	5	0.60
Beginners Kollege Child Care Centre	11	0.64
Port Coquitlam Children's Centre	11	0.45
Best Friends Children's Centre	25	0.80
Average	**12.8**	**0.65**

*Staff parking demand was calculated based on the number of staff who drive and require parking.

4.3.3 PARENT/GUARDIAN PARKING

WHERE PARENTS/GUARDIANS PARK

Two of the representative childcare facilities provide a 5-minute drop-off/pick-up zone with space for 2-6 cars and Beginners Kollege Child Care Centre provides about 20 off-street spaces for parents. However, most of the sites reported that they rely on nearby parking lots (e.g. a rec centre or plaza parking lot) or on-street parking to accommodate parent parking demand.

Parents/guardians at the existing Discovery Playhouse facility use the two parking lots at the Pitt Meadows Family Recreation Centre for drop-off and pick-up.

MODE SHARE

All of the representative sites indicated that most parents drive to drop-off and pick-up their children, with only a few families walking from nearby buildings. Staff at the existing Discovery Playhouse facility said that most families do a combination of walking/biking/driving depending on the child's mood and the weather, but all of them use a car at least once a day.

To get a better understanding of transportation patterns, an online survey was conducted by email with the parents/guardians at the existing Discovery Playhouse facility asking the following questions:

1. How do you typically drop off your child / children?
2. How do you typically pick up your child / children?
3. How many children do you drop off / pick up at once?

The survey was open from Monday, September 13, 2021 – Friday, September 17, 2021. Discovery Playhouse currently has 83 children and an estimated 75 parents/guardians. The survey received 56 complete responses, a response rate of approximately 75%. The mode split for drop-off and pick-up is summarized in **Table 7**. Of the transportation

options provided in the survey (Walk, Bike, Public Transit, Drive, and Other), only Walk and Drive were selected. Therefore, the other modes were excluded from the analysis.

TABLE 7. SUMMARY OF MODE SPLIT FOR DROP-OFF AND PICK-UP

Transportation Mode	Drop-Off		Pick-Up	
	Number of Respondents	Percent of Respondents	Number of Respondents	Percent of Respondents
Walk	14	25.5%	11	19.6%
Drive	41	74.5%	45	80.4%

The number of children dropped off or picked up by one parent/guardian is summarized in Table 8. One respondent wrote in that they take one child to Discovery Playhouse and one to the neighbouring Pitt Meadows Elementary School. The data indicate that about 22% of the families drop-off / pick-up more than one child.

TABLE 8. NUMBER OF CHILDREN DROPPED OFF AND PICKED UP

Number of Children	Number of Respondents	Percent of Respondents
1	42	75.0%
2	10	17.9%
3	2	3.6%

DROP-OFF AND PICK-UP TIMES

Drop-off and pick-up times for daycare programs vary and can depend on parents' work schedules but are generally between 7:00-9:15 am and 4-6 pm, with peak times between 8:00-9:00 am and 4:15-4:45 pm. Meanwhile, preschool programs have fixed start and end times and see an influx of families arriving all at once for drop-off and pick-up. However, Port Coquitlam Children's Centre indicated that preschool parents are usually not as rushed to get to work (due to the hours of the program) and can be more flexible.

Drop-off and pick-up times for the proposed site were determined based on information provided by the existing Discovery Playhouse facility and are summarized in **Table 9**.

TABLE 9. PROPOSED DROP-OFF & PICK-UP SCHEDULE (SUBJECT SITE)

Time of Day	Daycare	Infant/Toddler Care	Before/After School Care	Preschool
6:30 am			**48** (Drop-off)	
7:00 am				
7:30 am	**50** (Drop-off)	**12** (Drop-off)		
8:00 am				
8:30 am				**40** (Drop-off)
9:00 am				
11:00 am				**40** (Pick-up)
11:30 am				**40** (Drop-off)
2:30 pm				**40** (Pick-up)
3:00 pm				
3:30 pm	**50** (Pick-up)	**12** (Pick-up)	**48** (Pick-up)	
4:00 pm				
4:30 pm				
5:00 pm				
5:30 pm				

Discovery Playhouse staff indicated that the peak time for drop-offs is 7:45-8:15 am, with a flux of drop-offs for the before school care program at 8:00 am. With the overlap between programs, the peak number of families that could possibly be on site is 150. This means that 150 vehicles could arrive at the same time. However, this is considered the worst-case scenario due to several factors. For one, Discovery Playhouse staff indicated that they prefer to keep siblings together, which reduces the number of families on site at a time. As the survey results show, approximately 22% of parents/guardians drop-off/pick-up more than one child. Additionally, about 26% of families walk to drop-off and about 20% walk to pick-up, therefore they do not require parking. These reductions have been applied to the peak demand (150) and are shown in Table 10.

TABLE 10. PEAK PARENT/GUARDIAN PARKING DEMAND WITH REDUCTIONS

Time of Day	Peak Demand	Families with More Than One Child	Reduction (Total Vehicles)	Families Who Walk	Reduction	Total Reduced Demand
AM (drop-off)	150	22%	33	26%	39	**78** (150-33-39)
PM (pick-up)	110	22%	24	20%	22	**64** (110-24-22)

Furthermore, based on conversations with the representative sites, children in the daycare, infant/toddler care, and before/after school care programs are dropped off/picked up over a period of time and it is highly unlikely that they would arrive all at once. However, it is difficult to estimate the distribution of drop-offs and pick-ups. As such, this has not been included in the reduction calculation.

4.4 SUMMARY OF EXPECTED PARKING DEMAND

Based on the above analysis, the resident parking demand is estimated as 107 spaces, with an additional 12 spaces for resident visitor parking. A total of 119 parking spaces is expected for the residential portion of the development, which is 25 more than what is proposed in Option One and 5 less than what is proposed in Option Two.

For the childcare portion of the development, the staff parking demand is estimated as 16 parking spaces and the peak expected parent/guardian parking demand is 78 parking spaces. Therefore, the total expected parking demand for the site is 213 parking spaces. A summary of the expected parking demand is shown in **Table 11**.

TABLE 11. SUMMARY OF EXPECTED PARKING DEMAND

Parking Type	Unit Type	Units	Demand Rate	Rounded Totals
Residential Parking	1-Bedroom	63	0.81	51
	2-Bedroom	42	1.02	43
	3-Bedroom	10	1.25	13
Visitor Parking			0.1	12
Childcare Parking (Staff)			0.65	16
Childcare Parking (Parents/Guardians)				78
		Total Parking Demand (Spaces)		**213**

5.0 PITT MEADOWS PARKING STRATEGY

In 2014, the City developed a Parking Strategy[13] to investigate parking trends in Pitt Meadows, including the Civic Centre area where the proposed development is located. The study shows that there are 300 unrestricted on-street parking spaces on the following street segments that are in proximity to the site (see also **Figure 2**):

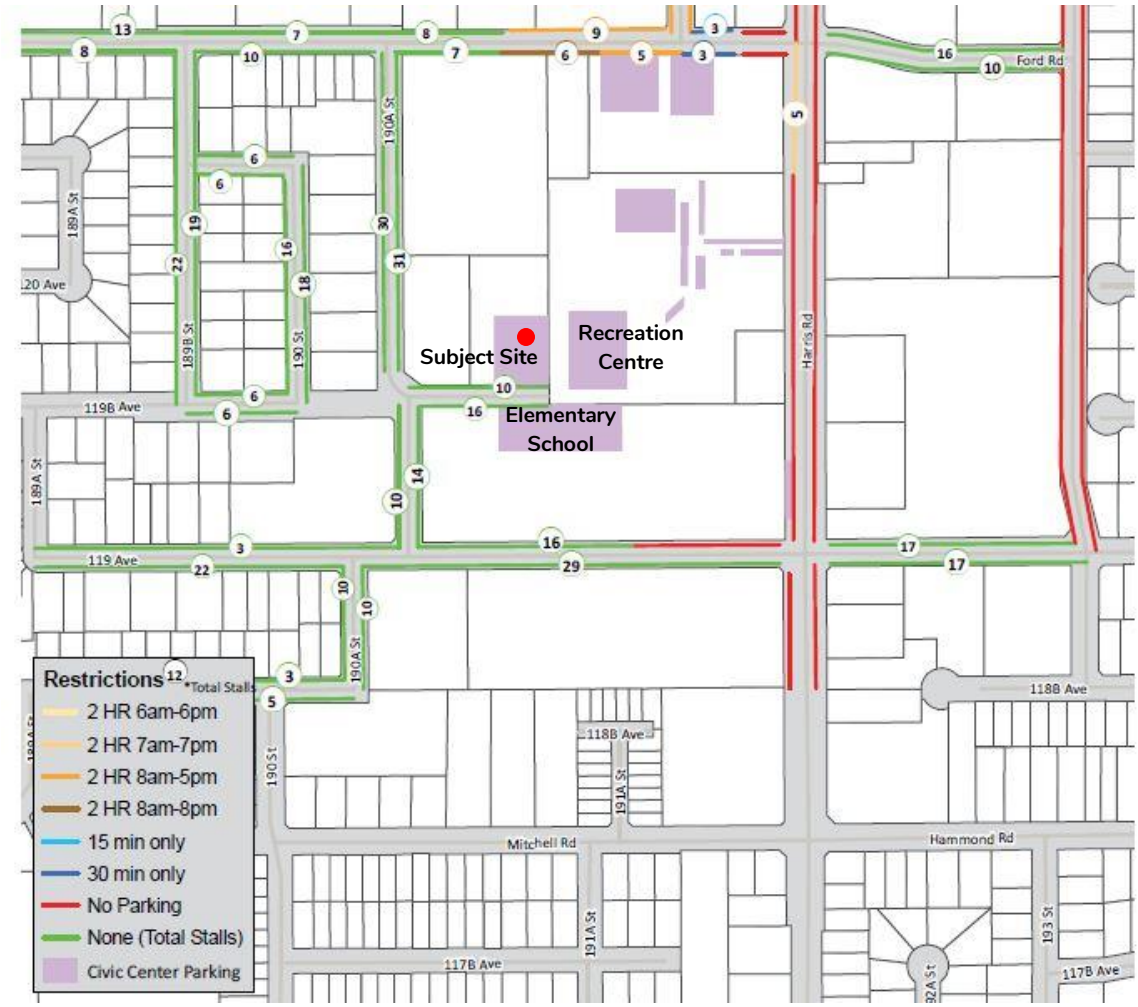
- 119b Ave from 189b St to end
- 190a St from 118b Ave to Ford Rd
- 119 Ave from 189a St to Harris Rd
- 190 St from 119b Ave to 189a St
- 189b St from 119b Ave to Ford Rd

Observations conducted between 11:00 am-noon and 2:00-3:00 pm on a Thursday and Saturday found that on-street parking occupancy rates were below 50% on most blocks, with some exceptions. The 45 unrestricted parking spaces on 119 Avenue between 190a Street and Harris Road (approximately 180 meters from the site or a 2-minute walk) averaged approximately 50% occupancy and had as high as 76% occupancy during the Saturday morning observation. The block where the subject site is proposed (119b Avenue from 190a Street to the end) has 26 unrestricted parking spaces.

Additionally, a review of the approximately 400 off-street public parking spaces throughout the Civic Centre area found that the parking supply is generally under-utilized. Of note, the report stated that the gravel parking area (which has 69 parking spaces) on which the proposed developed is planned to be built was virtually unused.

[13] Pitt Meadows Parking Strategy (2014). City of Pitt Meadows and Boulevard Transportation Group.

FIGURE 2. ON-STREET PARKING IN PROXIMITY TO THE SUBJECT SITE



While the study is a useful indicator of parking patterns in the area, it is from 2014 and therefore may not reflect current parking utilization. Anecdotal reports from the applicant and current Discovery Playhouse staff indicate that surrounding parking conditions are typically busier, especially during pick-up and drop-off times at Pitt Meadows Elementary School.

6.0 PARKING MANAGEMENT

6.1 STAGGERED PICK-UPS AND DROP-OFFS FOR CHILDCARE

Due to the unfixed start and end times of the daycare, infant/toddler care, and before/after school care programs, it is expected that drop-offs and pick-ups will naturally stagger but be concentrated during the peak times. There is also the possibility that all families will show up at the same time, although this is unlikely. To manage the drop-off and pick-up parking demand, it is recommended that the childcare centre implement a more official staggered system whereby parents/guardians drop-off and pick-up their children during assigned time slots that are organized into 30-minute increments. Table 12 shows the recommended drop-off/pick-up schedule and associated parking demand.

TABLE 12. PROPOSED STAGGERED DROP-OFF/PICK-UP SCHEDULE

Time of Day	Daycare	Infant/Toddler Care	Before/After School Care	Preschool	Total Families
6:30-7:00 am	**Open drop-off**				
7:00-7:30 am	**Open drop-off**		**18** (Drop-off)		**18**
7:30-8:00 am	**12** (Drop-off)	**4** (Drop-off)	**18** (Drop-off)		**34**
8:00-8:30 am	**13** (Drop-off)	**4** (Drop-off)	**12** (Drop-off)	**40** (Drop-off)	**69**
8:30-9:00 am	**13** (Drop-off)	**4** (Drop-off)			
9:00-9:30 am	**12** (Drop-off)	**Open drop-off**			
11:00 am				**40** (Pick-up)	**40**
11:30 am				**40** (Drop-off)	**40**
2:30-3:00 pm				**40** (Pick-up)	**40**
3:00-3:30 pm					
3:30-4:00 pm	**Open pick-up**				
4:00-4:30 pm	**16** (Pick-up)	**4** (Pick-up)	**16** (Pick-up)		**36**
4:30-5:00 pm	**18** (Pick-up)	**4** (Pick-up)	**16** (Pick-up)		**38**
5:00-5:30 pm	**16** (Pick-up)	**4** (Pick-up)	**16** (Pick-up)		**36**
5:30-6:00 pm	**Open pick-up**				

By staggering drop-off and pick-up times based on the proposed schedule, there would be a maximum of 69 families (vehicles) on site at one time. The number of families is estimated to be even lower than 69 as they will be spread out over the half-hour time slot (except for the preschool program). After applying the reduction percentages (for families who walk and families who have more than one child), the adjusted peak demand is 36 parking spaces. See **Table 13**.

TABLE 13. PEAK PARENT/GUARDIAN PARKING DEMAND WITH STAGGERING AND REDUCTIONS

Time of Day	Peak Demand	Families with More Than One Child	Reduction	Families Who Walk	Reduction	Total Reduced Demand
AM (drop-off)	69	22%	15	26%	18	**36** (69-15-18)
PM (pick-up)	40	22%	9	20%	8	**23** (40-9-8)

The estimated parking demand of 36 vehicles can be accommodated by the neighbouring Pitt Meadows Family Recreation Centre, which has 54 parking spaces, as well as surrounding on-street parking. As noted in **Section 2.2**, the applicant has an agreement with the City to locate childcare parking at the Recreation Centre.

Furthermore, if the applicant proceeds with Option Two, there will be approximately 22 spaces available for childcare drop-off/pick-up in the surface lot to the west of the building.

Additionally, the Pitt Meadows Elementary School parking lot (directly across the road) has 44 parking spaces and is considered public parking. It is not expected to be busy in the early morning (before 7:30 am) or during the afternoon / evening pick-up times once the school is no longer in session.

It should also be communicated by the childcare centre that any parent/guardian can drop-off between 6:30-7:30 am or 9:00-9:30 am if they wish (except for the preschool program), as those times are not as busy and do not conflict with the elementary school start time at 8:30 am. Likewise, any parent/guardian may pick-up between 3:30-4:00 pm or 5:30-6:00 pm. If some parents/guardians choose this option, it will help to further spread out the demand.

A summary of the revised expected parking demand after implementing a staggered drop-off and pick-up schedule is shown in **Table 14**.

TABLE 14. SUMMARY OF EXPECTED PARKING DEMAND WITH STAGGERING

Parking Type	Unit Type	Units	Demand Rate	Rounded Totals
Residential Parking	1-Bedroom	63	0.81	51
	2-Bedroom	42	1.02	43
	3-Bedroom	10	1.25	13
Visitor Parking			0.1	12
Childcare Parking (Staff)*			0.65	16
Childcare Parking (Parents/Guardians)*				36
			Total Parking Demand (Spaces)	**171**

*Parking for childcare staff and parents/guardians will be located at the Pitt Meadows Recreation Centre (as well as parent/guardian parking in the surface lot to the west of the building if Option Two is pursued)

6.2 SHARED PARKING ANALYSIS (CAPTIVE MARKET)

Captive market refers to visitors to a land use that do not require a vehicle as they are already present on site. In a shared parking context, this accounts for behaviours at mixed-use sites or areas of high density where a user parks once to access more than one land use. If these users are unaccounted for, parking demand may be "double counted."

Some of the families at the future site may also live in the residential units above the childcare centre and would not require a vehicle for drop-off and pick-up. However, there is a lack of data and research available on parking reductions associated with this captive market scenario and as such the analysis on parent/guardian parking should be considered the worst-case scenario.

7.0 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 sections present a menu of recommended TDM measures that the applicant could pursue for this development.

7.1 UNBUNDLED PARKING

Unbundled parking refers to a scenario where parking spaces are leased separately from rental units, so that residents have the option of renting a parking space at an additional cost. Therefore, the renter could save money by not renting a parking space. Although research has identified unbundled parking as an effective parking management strategy and some research has indicated potential reductions of vehicle kilometres travelled (VKT) ranging from 10 to 30% attributed to unbundled parking[14], overall there is not enough reliable research that supports a precise reduction associated with this strategy. Therefore, a parking demand reduction is not assigned to this parking management measure.

7.2 TRANSIT PASSES

As discussed above, the site is well-connected to transit and as the The Maple Ridge–Pitt Meadows Area Transport Plan is finalized and implemented, transit service is

[14] Mobility Lab. (2018). *Arlington County Residential Building Study*; Victoria Transport Policy Institute. (2018). *Parking Management: Strategies for More Efficient Use of Parking Resources*; Shoup, D. (2005). *The High Cost of Free Parking*, p. 570.

anticipated to improve, which will make transit more appealing as a commuting option. The applicant could increase the appeal of transit by providing a subsidy. For example, the TransLink TravelSmart for Business program[15] allows employers to subsidize employee transit costs using one of the following options:

- **Staff Pass Lite:** Provides employees with a stored value on a Compass Card with a pay-as-you-go model. The employer contributes a minimum of $10 per employee / month.
- **Staff Pass Plus:** Provides employees with unlimited trips every month with their Compass Card. The employer contributes 10-100% of the monthly pass cost.

A recent study by the Urban Studies Program at Simon Fraser University in Vancouver, BC shows the impact of transit subsidies on hotel employees in Vancouver. The study found that between 4-10% of employees became new transit commuters when a new 15% transit subsidy was made available and between 9-14% of employees became new transit commuters when a 50% subsidy was made available. Effectiveness of the subsidy can be dampened by factors such as the availability of cheap parking, or greater distance between the workplace and rapid transit.[16]

Recommendation: A <u>10-15% reduction</u> (2 staff parking spaces) is supported if the applicant commits to providing childcare employees with a <u>50% transit pass discount</u> for the first year. In the following years, it is recommended that the employer continue providing a discount that is high enough to incentivize transit use.

Providing subsidized transit passes can also be an effective way to encourage transit ridership among building residents. A 2019 pilot by Metro Transit in Minneapolis provided all-you-can-ride passes to residents of apartments, condos and multiunit buildings with their rent. During the six-month pilot, 60% of residents living in the four

[15] More information about the TransLink TravelSmart for Business program is available online at: https://tinyurl.com/3asmw2h3

[16] Hall, P., Perl, A., Sawatzky, K., & S. Tornes. (2021). Employer-paid transit subsidies and travel behaviour: Experimental evidence from Vancouver hotels. *Journal of Urban Mobility (1), 1-8*. Retrieved from https://tinyurl.com/efsps7rz

test buildings used the Residential Pass.[17] More locally, residents of UniverCity—a community of 5,000 residents on Burnaby Mountain—were offered discounted transit passes through the Community Transit Pass Program from 2006-2011. 25% of UniverCity residents enrolled in the program and nearly 40% use transit regularly.[18]

Recommendation: A 15% reduction (16 resident parking spaces) is supported if the applicant commits to providing residents with a 50% transit pass discount. Specifically, the applicant should pay for 50% of a one-zone transit pass (normally $100.25 per month) for each unit (115 units) for a 1-year period. The fee for this subsidy program would cost approximately $5,764 a month for the entire building, or $69,168 for the entire year.

7.3 SHARED E-BIKE PROGRAM

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. They are an emerging transportation mode that is gaining popularity worldwide. With supportive cycling infrastructure in place, e-bikes have the potential to substitute for, or completely replace, almost all trips taken by a gasoline powered car.

A 2018 study presented results of a North American survey of electric bike owners. The study reported that e-bikes have the capacity to replace various modes of transportation commonly used for utilitarian and recreational trips including motor vehicles, public transit, and regular bicycles. Specifically, it found that 62% of e-bike trips replaced trips that otherwise would have been taken by car.[19] A more recent study found that

[17] Harlow, T. (2021). Metro Transit expands pilot including transit passes with apartment dwellers' rent. *Star Tribune*. Retrieved from https://tinyurl.com/4rxhaf8s

[18] More information about the UniverCity Community Transit Pass Program is available online at: https://univercity.ca/sustainability/transportation/

[19] MacArthur, J., Harpool, M., & D. Scheppke. (2018). A North American Survey of Electric Bicycle Owners. National Institute for Transportation and Communities, NITC-RR-1041.

approximately 39 kilometres of driving per week is displaced by the average e-bike adopter along with 14 kilometres of travel by conventional bicycle.[20]

It is recommended that the applicant provide a shared e-bike program to provide a transportation option to residents who may not own a vehicle or for residents who own a vehicle but may not require it for all trip purposes. The e-bike program would include the following:

- The e-bikes would be owned and maintained by the building.
- The process to reserve an e-bike will most likely be on a first come first serve basis.
- Overall e-bike utilization should be carefully monitored in the first year. If demand is consistently high, consideration should be given to adding more e-bikes to the fleet after year 1.

Recommendation: A 10% reduction (11 resident parking spaces) is supported if the applicant commits to providing 12 electric bikes (10% of the total units) for resident use.

7.4 LONG TERM BIKE PARKING FOR NEW MOBILITY

There are opportunities to design the long-term bicycle parking in such a way that could further reduce vehicle parking demand at the site and meet the transportation objectives in the City's OCP.

7.4.1 ELECTRIC BIKE PARKING

As stated previously, electric bicycles have the ability to displace trips made by private vehicles and in some cases, substitute for private vehicles altogether. Equally important, though, is the provision of parking facilities to accommodate electric bike users. According to research completed in Greater Victoria, one of the top barriers facing

[20] Bigazzi, A & E Berjisian. (2019). Electric Bicycles: Can they reduce driving and emissions in Canada. Plan Canada Fall 2019.

prospective e-bike users is the fear that their bicycle might be stolen. That same research found that prospective e-bike users would feel more comfortable if they could park their bicycle in a locked or supervised area. [21]

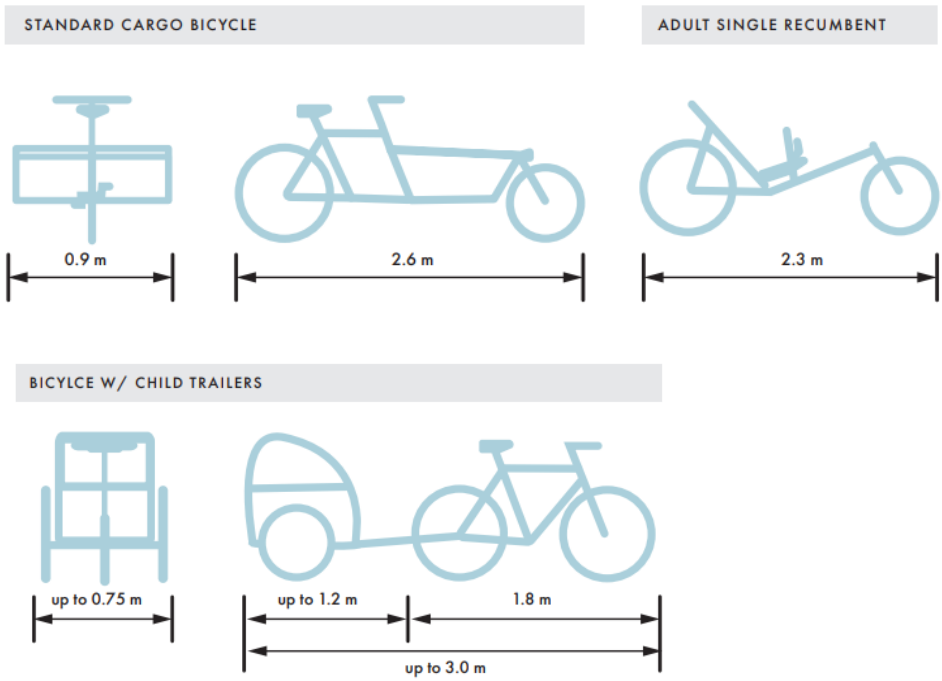
An e-bike infrastructure planning strategy from Greater Victoria includes e-bike parking design guidelines to help address the concerns of current and prospective e-bike owners as well as to increase overall e-bike ownership in the Capital Region. The guide recommends that new developments provide 50% of the long-term bicycle parking with access to an 110V wall outlet. Further, 10% of the long-term spaces are recommended to be provided as cargo racks to accommodate e-bikes.

Recommendation: Given that E-bikes have the potential to replace private motor vehicles, a 5% reduction (5 resident spaces) in resident parking demand would be supported at the site if the applicant commits to designing 50% of the spaces (35 spaces) with access to an 110V wall outlet to facilitate charging for the user.

7.4.2 CARGO BIKE PARKING

Cargo bikes are typically electric-assist (e-bikes) and longer than regular bicycles because they are capable of carrying cargo and/or multiple passengers with the assistance of the battery. Cargo bikes are typically longer than regular bicycles because they are capable of carrying cargo and/or multiple passengers and can be a popular option for young families. They can be as long as 3.0 m and as wide as 0.9 m. A figure has been included below to illustrate the dimensions of different cargo and oversized bicycles.

[21] WATT Consulting Group. (2018). Capital Region Local Government Electric Vehicle + Electric Bike Infrastructure Backgrounder. Retrieved from https://tinyurl.com/sk8d58nf



Typical dimensions for cargo and longer bicycles. Source: BC Active Transportation Design Guide

Recommendation: An additional 5% reduction (5 resident spaces) in resident parking demand would be supported if the applicant commits to designing a minimum of 10% of the long-term bicycle parking spaces (7 spaces) to accommodate larger bicycles such as cargo bikes.

7.5 END-OF-TRIP CYCLING FACILITIES

Bicycle end-of-trip facilities further encourages the use of cycling. These facilities typically contain change rooms and showers, bicycle repair tools, and personal lockers. The provision of end-of-trip facilities has the potential to reduce parking demand. Providing showers and clothing lockers at workplaces has been found to be effective at

encouraging bicycle use, particularly among commuters who require professional clothing attire.[22]

Consideration should be given to providing a shower and change room to encourage cycling among childcare employees.

Recommendation: An 10% reduction (2 staff parking spaces) would be supported if the applicant commits to providing end-of-trip cycling facilities.

7.6 MARKETING & PROMOTION

Incentives and promotions have been valuable in encouraging use of alternative modes of transportation. However, if residents and employees are not aware of the available TDM options, they will likely not consider using them. Information about available TDM programs for the site should be included as part of marketing the development and as part of a welcome package for new tenants. The materials would also be shared with the childcare with the hope of communicating the TDM options to their staff. Marketing the TDM programs is particularly valuable for influencing travel behaviour.

Once residents move into the site, on-going contests, promotions and incentives should be used to maintain awareness of the available TDM programs. The use of an annual week long contest similar to a commuter challenge or bike to work week for residents would encourage use of alternative transportation modes that residents may not normally consider or try. Prizes for participation and high use could include gift certificates for local grocery stores, complimentary passes for Pitt Meadows Family Recreation Centre, transit vouchers or bicycle equipment such as helmets and bike lights.

[22] City of Victoria. (2011). Bicycle Parking Strategy. Retrieved from https://tinyurl.com/39xzvmtf

7.7 CARPOOLING

7.7.1 EMPLOYEE PROGRAM

A formal carpool program could be implemented for childcare staff working at the site that are travelling from the same areas. A sign-up sheet or bulletin board could be placed in the staff room so that staff can note what time they are planning to leave at and from where, and others could sign up and note if they would like to join the driver.

7.7.2 RESIDENT PROGRAM

An informal rideshare program may be implemented on site that will allow building residents to identify if they require a ride or if they can provide a ride. This will be particularly useful for those residents who work in the same part of Metro Vancouver and have similar shifts to each other. An informal program could be implemented internally, with a sign-up sheet in the lobby, or residents can be encouraged to sign up for online apps such as Poparide. Alternatively, a page or group could be established through social media to facilitate carpooling among building residents.

8.0 TDM SUMMARY

A summary of the proposed TDM measures is provided in Table 15. A parking reduction of 33% is supported if all the proposed TDM measures are provided. This represents a reduction in the estimated parking demand by 41 spaces.

TABLE 15. SUMMARY OF EXPECTED PARKING DEMAND WITH TDM

TDM Measure		Parking Demand Reduction
Estimated Resident and Staff Parking Demand, Baseline		123 spaces (107 resident + 16 staff)
Total Parking Demand Reduction		-41 spaces (-33%)
Unbundled Parking		n/a
Transit Passes		-2 staff and -16 resident spaces
Shared E-Bike Program		-11 resident spaces
Electric Bike Parking		-5 resident spaces
Cargo Bike Parking		-5 resident spaces
End-of-Trip Cycling Facilities		-2 staff spaces
Marketing and Promotion		n/a
Carpooling		n/a
Estimated Resident Parking Demand with TDM		70 spaces (107-16-11-5-5)
Estimated Staff Parking Demand with TDM		12 spaces (16-2-2)
Total Estimated Resident and Staff Parking Demand with TDM		82 spaces (123-41)
Estimated Visitor Parking Demand		12 spaces
Total Estimated Site Parking Demand		94 spaces
Proposed Parking Supply	**Option One:**	94 spaces
	Option Two:	124 spaces

Assuming the applicant commits to the recommended TDM measures, the total site parking demand is 94 spaces. This meets the proposed parking supply of 94 spaces in Option One, and is below the proposed parking supply of 124 spaces in Option Two (by 30 spaces).

9.0 CONCLUSIONS

The proposed development is for a mixed-use site with 115 below-market rental units and a childcare facility consisting of daycare, infant/toddler care, before/after school care, and preschool programs. Two options are proposed for parking supply: Option One proposes 94 parkade spaces and Option Two proposes 124 parkade spaces. In both scenarios, approximately 22 spaces would also be available in the shared surface lot to the west of the building for visitor use or childcare drop-off/pick-up.

The expected peak parking demand was determined to be 107 resident spaces, 12 visitor spaces, and 16 childcare staff spaces. Additionally, the peak childcare parent/guardian parking demand was determined to be 78 spaces.

By implementing a staggered drop-off/pick-up system, the parent/guardian parking demand can be reduced to a maximum of 36 spaces.

Furthermore, several Transportation Demand Management (TDM) measures have been identified for consideration that will allow the proposed development to further reduce automobile dependency and subsequently parking demand. If adopted, these measures can reduce the expected staff and resident parking demand by 41 spaces, which would bring the entire staff and resident demand to 82 spaces.

10.0 RECOMMENDATIONS

It is recommended that the applicant:

1. Implement a staggered drop-off and pick-up system for childcare parents/guardians;
2. Implement unbundled parking;
3. Provide a 50% transit pass discount for both childcare staff and residents;
4. Provide at least 12 shared e-bikes for resident use;
5. Provide at least 35 resident bike spaces with access to an 110V wall outlet for e-bike charging, and 7 resident cargo bike spaces;
6. Provide end-of-trip cycling facilities for childcare staff;
7. Utilize incentives and promotions to encourage use of alternative modes of transportation; and
8. Implement a formal carpool program for childcare staff and building residents.

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