

MEMORANDUM

Date: March 26, 2025
To: Toby Seward, Seward Developments Inc.
Cc: Payton Carter, City of Nanaimo
From: Kristen Machina, WATT Consulting Group
Our File No: 3904.B01
Subject: 335 Third Street, Nanaimo – Access Review

1.0 INTRODUCTION

WATT Consulting Group is retained by Seward Developments Inc. to conduct a review of the access points for a proposed residential development at 335 Third Street in Nanaimo BC. The site location is illustrated in **Figure 1**.

The Site Today

The site is generally bounded by Third Street to the north, and Wharton Street/Georgia Ave to the south. The site currently has direct frontage onto Third Street only and is occupied by a detached house. The site is currently zoned Single Dwelling residential (R-1).

Proposed Development

The proposed development consists of two (2) multifamily residential rental buildings. Both North and South buildings are 4 storeys in height. At surface parking is proposed to be provided for both buildings. The overall unit count is 56 units.

This Memorandum

This memo is provided as part of the rezoning application to the City of Nanaimo. This memo provides the following:

- A brief overview of the surrounding road network
- A review of the potential site access configurations.
 - A single access onto Third Street
 - A single access onto Georgia Ave / Wharton Street
 - A dual access, with one on Third Street and one on Georgia / Wharton

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- An assessment of the traffic generation potential and operational performance at the access points for the three access configurations
- Assessment of sightlines at the potential driveway locations onto Third Street and Georgia Avenue / Wharton based on TAC standards
- Summary of benefits and drawbacks of the three access options and recommendations for preferred option.

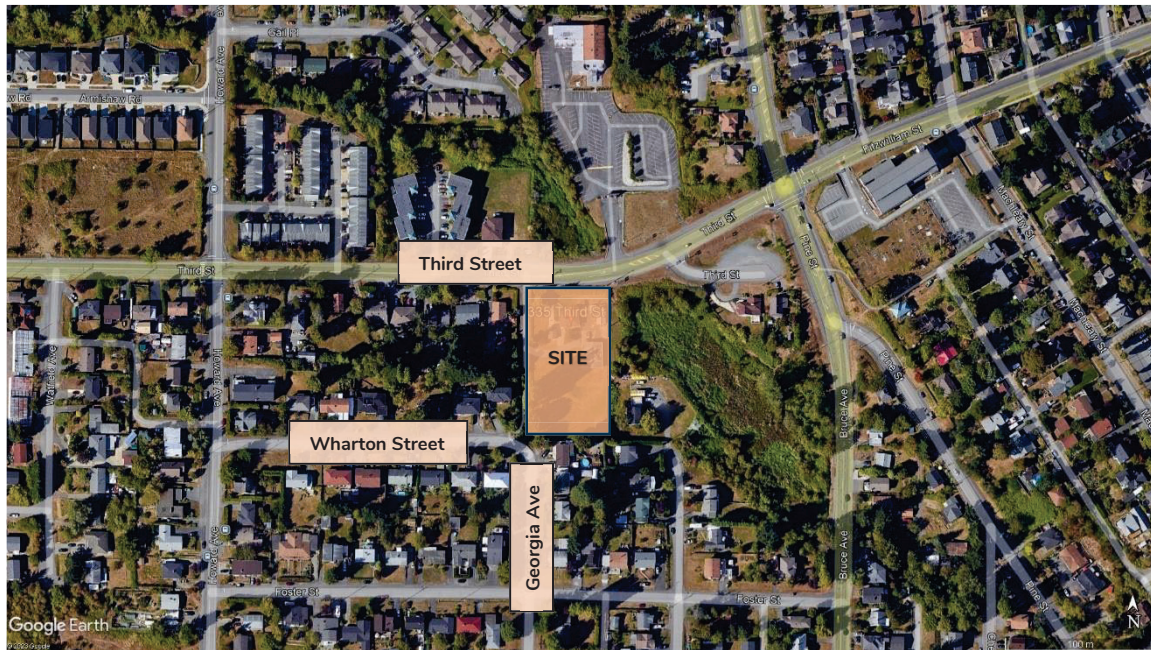


Figure 1 – Site Location

2.0 ROAD NETWORK

Third Street is an arterial road under the jurisdiction of the City of Nanaimo. Third Street extends between Wakesiah Avenue in the west near Vancouver Island University (VIU), and Bruce Avenue in the east, connecting to the surrounding University District. This stretch of Third Street serves as a significant corridor within the University District, accommodating local and through traffic while providing access to residential, institutional, and recreational areas. Within the study area, Third Street is a two-lane road, with on-street parking permitted on both sides of the road. The existing pavement width is approximately 9m, which is relatively wide for a two-lane road. A sidewalk is provided on the north side of the road only. The posted speed limit is 50 km/h. There is a substantial downhill grade of 7% for vehicles approaching the site from the west (i.e. from Howard Avenue).

The City of Nanaimo is set to upgrade Third Street in 2025, focusing on stormwater, watermain, and sanitary sewer replacements alongside mobility and safety improvements. Key upgrades include raised pedestrian crossings for improved safety, colored bike crossings and separated bike lanes at key intersections, tactile warning surfaces and upgraded concrete sidewalks for accessibility, and intersection enhancements at Third/Howard Avenue and Third/Pine Street to improve pedestrian and cyclist connectivity.

Wharton Street and Georgia Avenue are local roads under the jurisdiction of the City of Nanaimo, located within the University District. Wharton Street connects to Georgia Avenue, forming an important local access route for residential and institutional uses in the vicinity. Within the study area, Wharton Street and Georgia Avenue are two-lane roads with limited on-street parking available on one or both sides of the road, depending on the segment. The pavement width is approximately 6 meters, which is standard for local streets in the area. No formal sidewalks are provided; instead, gravel shoulders are available for pedestrian movement. The posted speed limit is 50 km/h. The terrain includes significant grade variations, with Wharton Street having an 8% slope leading to the site from Howard Avenue, and Georgia Avenue featuring a steeper 15% grade leading to the site from Foster Street.

3.0 SITE ACCESS OPTIONS

Three options for access to the proposed development are being considered: a full-movement access onto Third Street, an access onto Wharton Street, or the potential for both access points, depending on their compliance with TAC standards and the City's bylaws. City staff have identified potential safety concerns related to left turns into the Third Street access due to the substantial downhill grade of 7% for vehicles approaching from Howard Avenue, which could impact driver visibility and reaction times, posing safety risks at this location.

Additionally, concerns have been raised regarding a potential access onto Wharton Street, as it could generate opposition from local residents. Wharton Street is a quieter local road with significantly lower traffic volumes compared to Third Street and is predominantly used for residential access. A development of this scale, consisting of 56 units, is perceived by neighbouring residents to substantially impact traffic volumes and potentially raise safety concerns within the surrounding neighborhood.

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Third Street Access

The proposed Third Street vehicle access is approximately 195 meters from the Third Street/Howard Avenue intersection and 175 meters from the Third Street/Bruce Avenue intersection. According to the Transportation Association of Canada (TAC)'s suggested driveway spacing guidelines for arterial roads, a minimum spacing of 100 meters from signalized intersections and 75 meters from stop-controlled intersections is required. However, the steep downhill grade of Third Street poses potential safety concerns, particularly for left-turning vehicles exiting the site. A dedicated left turn lane would mitigate some of the safety risk posed by the upstream downhill grade, however there may not be sufficient right-of-way (ROW) width to accommodate a dedicated left-turn lane, further complicating left-turn movements. Given these constraints, a right-in/right-out configuration may be the most viable option to minimize conflicts and maintain safe traffic operations.

Wharton Street Access

The proposed access on Wharton Street/Georgia Avenue is positioned such that it satisfies the required turning sight distance (TSD) limits for both the Wharton/Howard Avenue intersection (170 m) and the Georgia Avenue/Foster Street intersection (90 m). Additionally, the approach along Wharton Street has an 8% slope leading to the site from Howard Avenue, while Georgia Avenue has a steeper 15% slope from Foster Street, which may further impact vehicle control, stopping distances, and overall safety at the access.

Dual Access

Providing dual access, with one on Third Street and the other on Wharton Street/Georgia Avenue, offers an effective compromise for site accessibility and traffic distribution. The Third Street access, as the primary connection to a major arterial road, is advantageous due to its ability to handle higher traffic volumes, ensuring efficient connectivity to surrounding areas. The secondary access on Wharton/Georgia complements the Third Street access by distributing local traffic and reducing congestion on the primary access point. Providing this access within the Georgia Avenue ROW would present challenges due to limited space and grading constraints. The Georgia Avenue ROW west of the property at 335 Third Street is extremely steep (16%) and narrow, making it unsuitable for access. A dual access from the Wharton/Georgia intersection would need to go through the subject property to ensure a feasible connection.

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4.0 OPERATIONAL ASSESSMENT

Existing Traffic Volumes

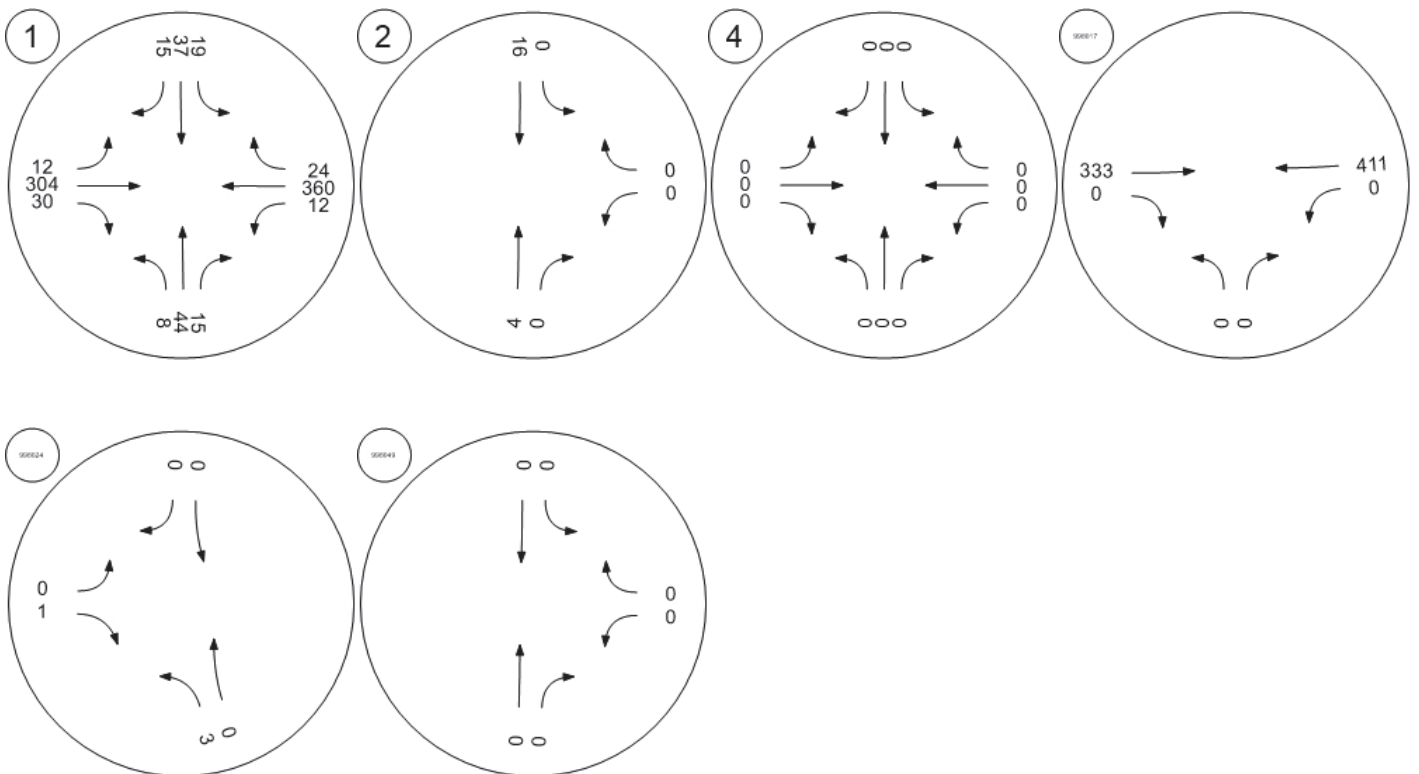
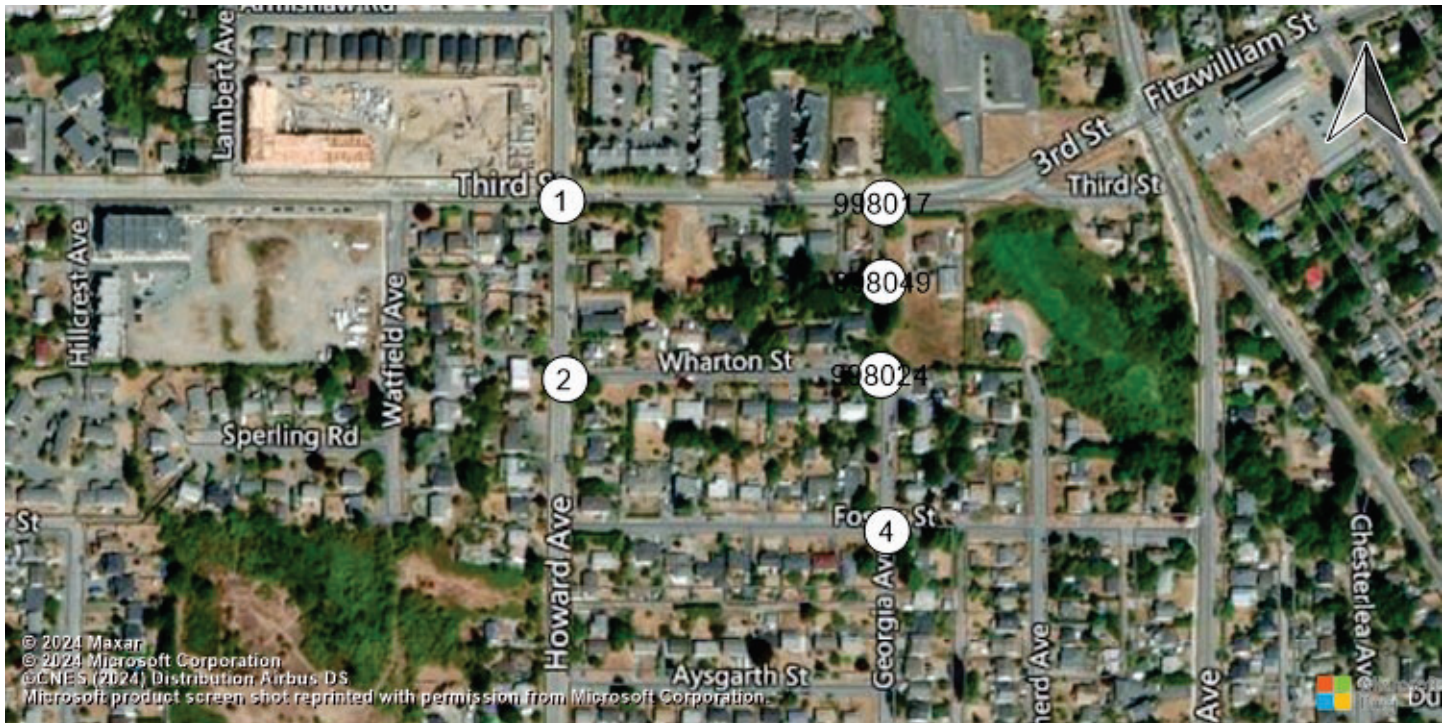
Existing turning movement counts were established for intersections in the study area for the weekday AM and PM peak periods. Traffic counts adopted as the basis for this study are summarized in **Table 1**.

Table 1 – Existing Turning Movement Counts

Intersection	Count Date	Time Period	Source
Third Street / Georgia Avenue	Tuesday 17 Dec, 2024	8:00 – 9:00 AM 4:00 – 5:00 PM	Field Data Collection
Wharton Street / Georgia Avenue	Tuesday 17 Dec, 2024	8:00 – 9:00 AM 4:00 – 5:00 PM	

The existing baseline traffic volumes for the weekday morning and Evening peak hours are illustrated in **Figure 2** Existing Traffic Volumes.

Traffic Volume - Base Volume



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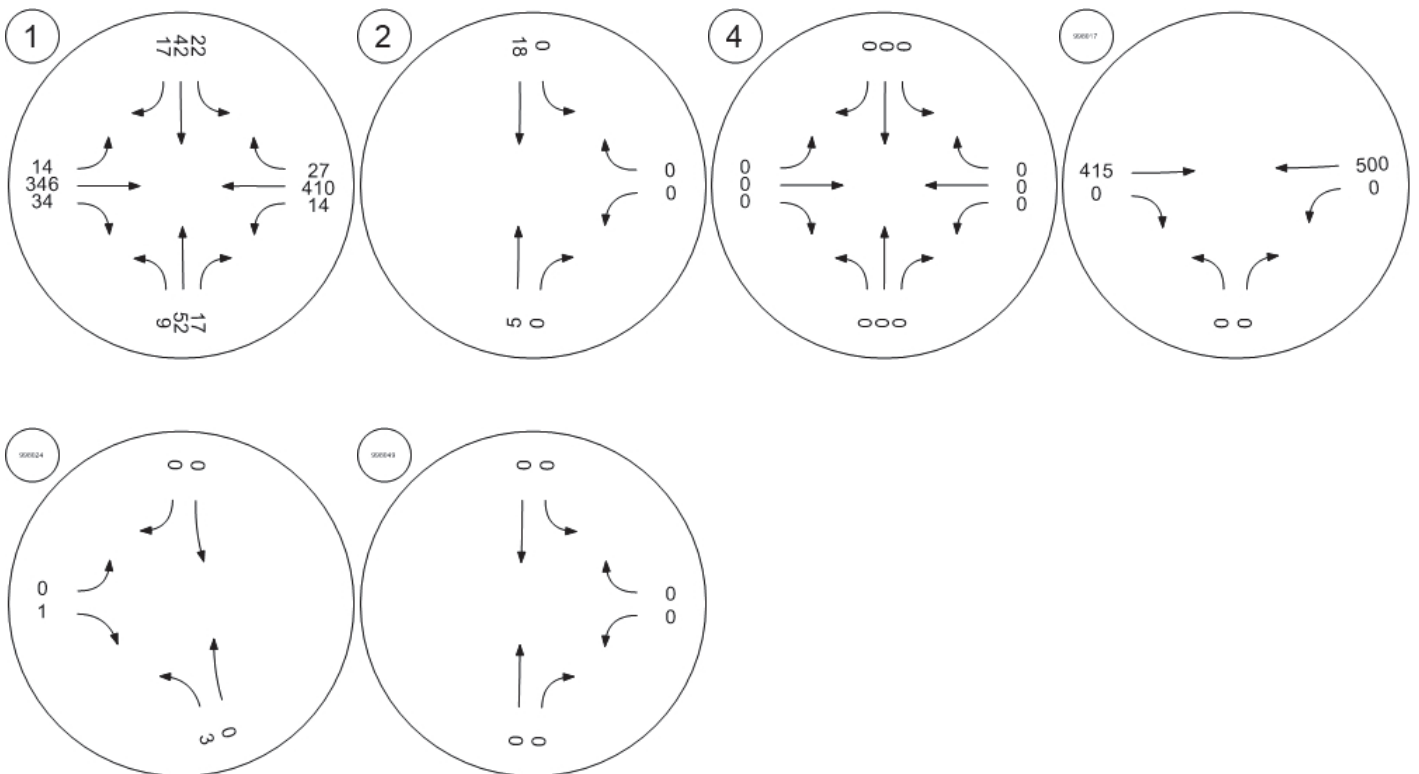
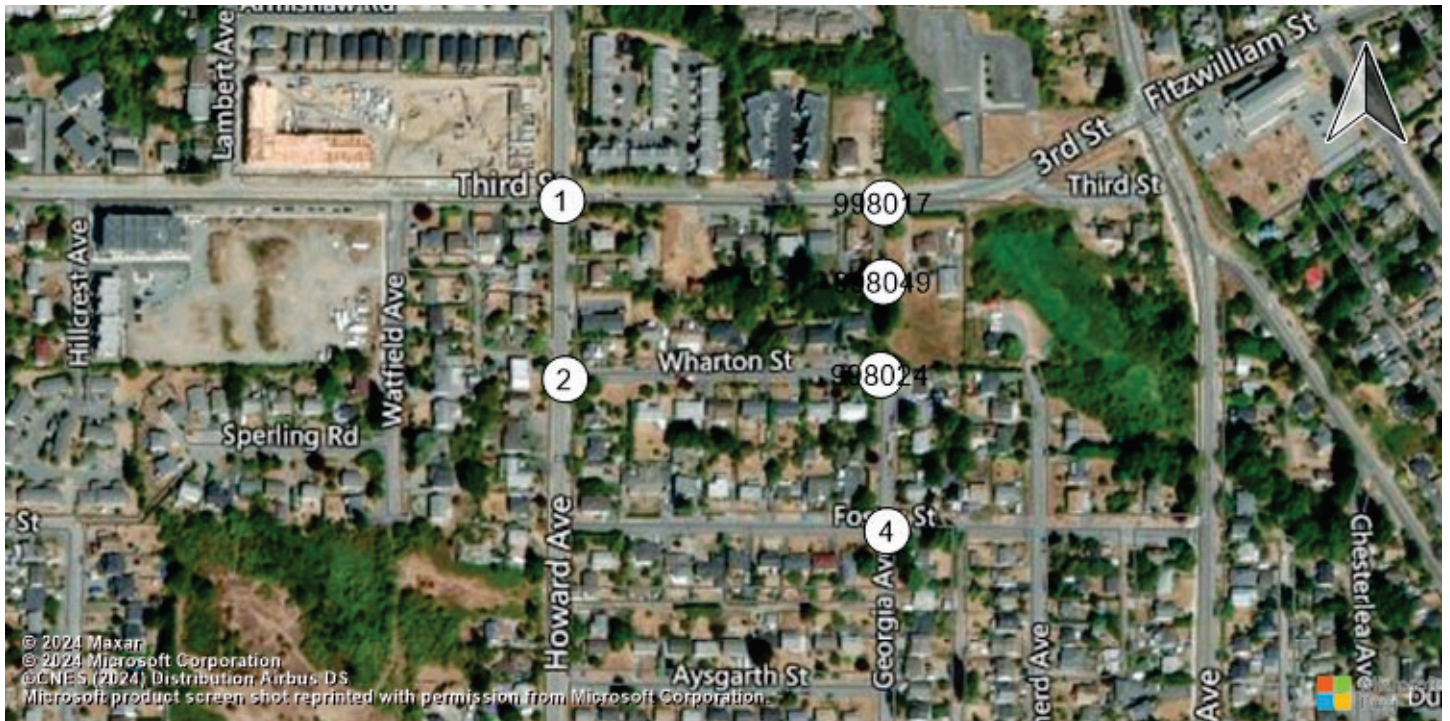
Background Traffic volumes

Background traffic volumes were determined by incorporating planned and approved developments in the study area. The following developments were considered:

- 325 Watfield/515 Third Street
- 300 Howard/560 Third Street
- 560 Fourth/502 Howard Street
- 388 Machleary Street.

Trip generation for each development was calculated using the ITE Trip Generation Manual (11th Edition) to estimate their contributions to background traffic. These volumes were then integrated into the analysis to provide a comprehensive assessment of existing and future traffic conditions in the study area. The background traffic volumes for the weekday morning and Evening peak hours are illustrated in **Figure 3– Background Traffic Volumes**.

Traffic Volume - Future Background Volume



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Trip Generation

Vehicular trip generation rates for the proposed residential development are based on the *ITE Trip Generation Manual* (11th Edition). The trip generation forecast for the new site and background developments are provided in **Table 2** and **Table 3** respectively.

Table 2 – New Site Trip Generation

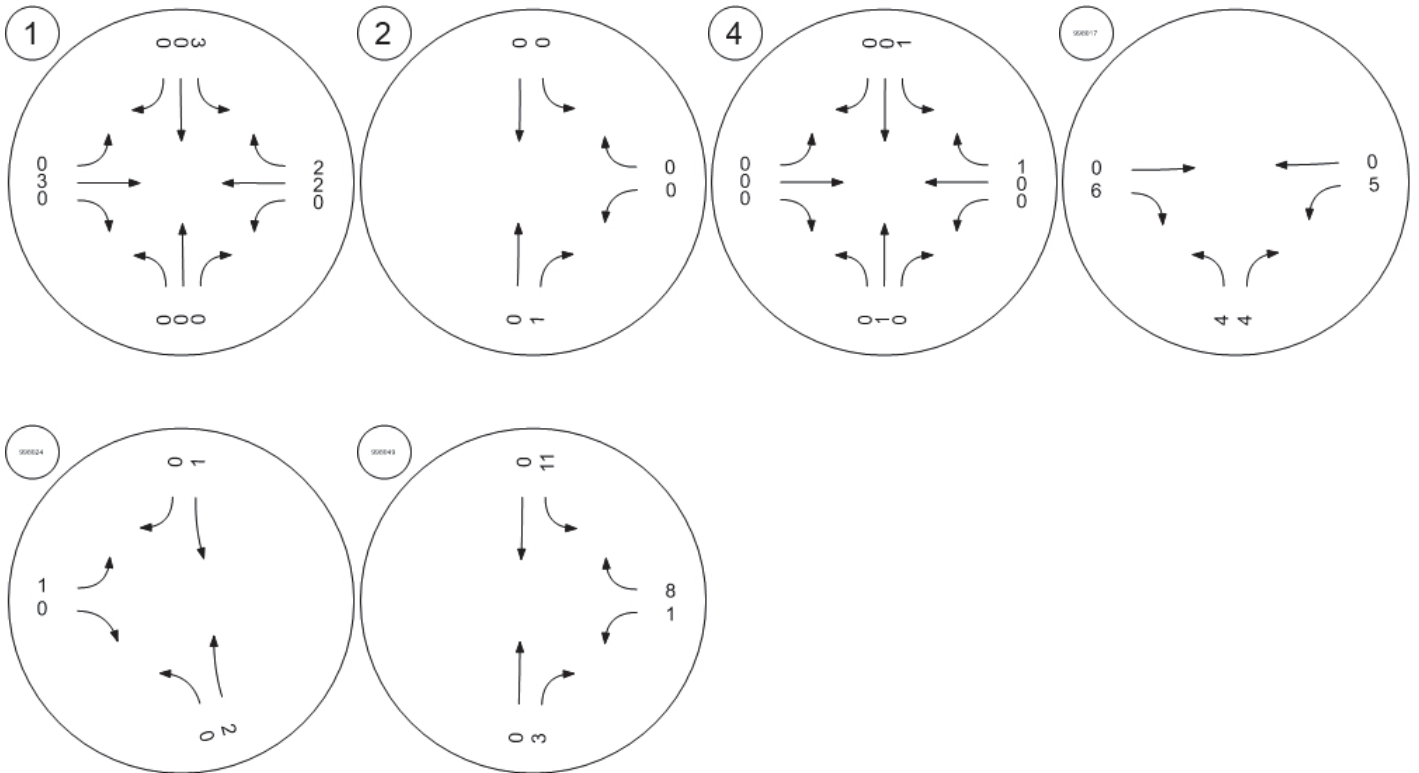
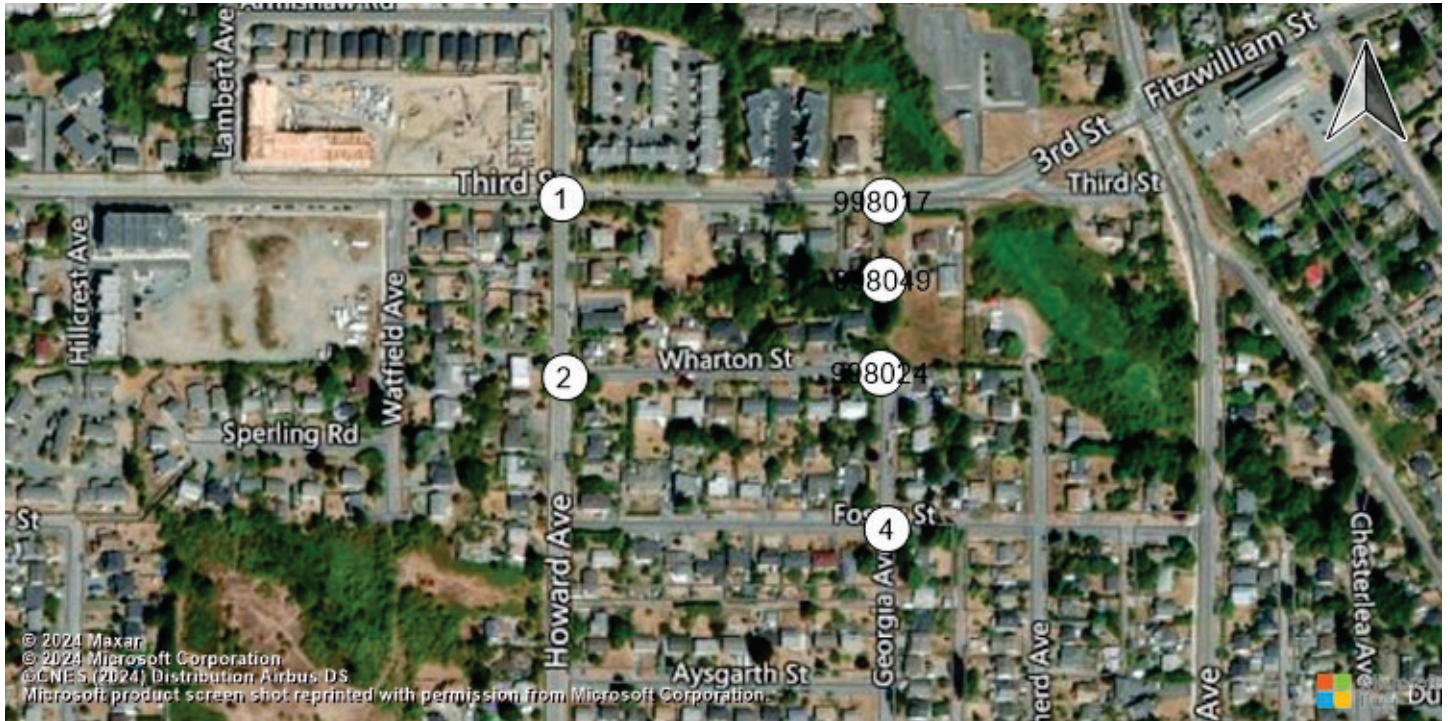
Use	AM Peak Hour			PM Peak Hour		
	In	Out	2-Way	In	Out	2-Way
Trip Generation Rates						
Multifamily Housing (Mid-Rise) (ITE LU 221) ^[1]	0.07	0.19	0.28	0.23	0.03	0.26
Vehicular Trip Generation						
Rental Apartments (56 units)	04	11	15	16	02	18

Notes:

1. Trip rates are per dwelling unit

The proposed development is forecast to generate 15 two-way trips during the weekday AM peak hour, and 18 two-way trips during the weekday PM peak hour. The site generated traffic volumes for the weekday morning and Evening peak hours are illustrated in **Figure 4 – New Site Generated Traffic Volumes**.

Traffic Volume - Net New Site Trips



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Table 3 – Concurrent Developments Trip Generation

Sr. No.	Development	Use	AM Peak Hour			PM Peak Hour		
			In	Out	2-Way	In	Out	2-Way
Trip Generation Rates								
01	325 Watfield/515 Third Street	Multifamily Housing (Mid-Rise) (ITE LU 221)	0.03	0.25	0.28	0.19	0.05	0.26
02	300 Howard/560 Third Street	Multifamily Housing (Mid-Rise) (ITE LU 221)	0.07	0.17	0.24	0.14	0.09	0.23
03	560 Fourth/502 Howard Street	Multifamily Housing (Mid-Rise) (ITE LU 221)	0.04	0.24	0.28	0.20	0.06	0.26
04	388 Machleary	Senior Adult Housing Multifamily (ITE LU 252)	0.06	0.14	0.20	0.14	0.11	0.25
Vehicular Trip Generation								
01	325 Watfield/515 Third Street	Rental Apartments (54 units)	2	13	15	10	04	14
02	300 Howard/560 Third Street	Rental Apartments (197 units)	15	32	47	28	17	45
03	560 Fourth/502 Howard Street	Residential + Commercial Ground Floor (181 Units)	7	44	51	35	12	47
04	388 Machleary	Senior Adult Housing Multifamily (145 units)	10	19	29	20	16	36

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Trip Distribution and Assignment

The trip distribution pattern for the site traffic was established based on prevailing traffic patterns in the vicinity of the site, and key destinations in the surrounding area. The distribution of inbound and outbound traffic adopted for the proposed development for each of the three access options is outlined in **Table 4** – Site Traffic Distribution.

Table 4 – Site Traffic Distribution

Street	Direction (to/from)	AM	PM
Third Street	East	50%	50%
	West	20%	20%
Howard Ave	North	20%	20%
	South	5%	5%
Georgia Ave	North	5%	5%
	South	0%	0%

Traffic Operations Analysis

Third Street Access

The post development volumes for the weekday morning and Evening peak hours are illustrated in **Figure 5**.

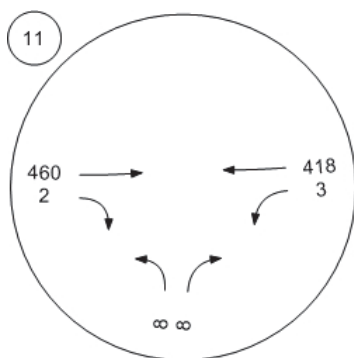
An analysis of traffic conditions at the proposed site accesses was conducted using PTV Vistro 2024 and HCM 7 methodology, with results summarized in **Table 5**. All movements at the study area currently operate at an acceptable Level of Service (LOS) during the weekday morning and evening peak hours, and this is expected to continue post-development with minimal impacts. The 95th percentile queues remain within existing storage lengths for all intersections. At the Third Street/Site Driveway, the northbound left-turn queue increases by 16 meters post-development, but it remains within operational limits and does not create a significant impact on the surrounding network.

Overall, the proposed full-movement access on Third Street can be accommodated without substantial operational issues at the access point or adverse effects on the surrounding road network.

Traffic Volume - Future Total Volume

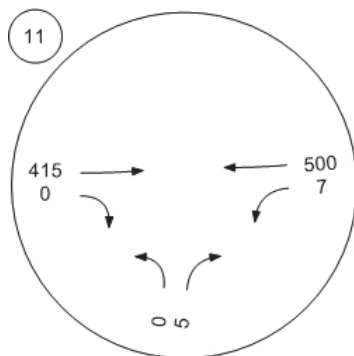


Third St Access



AM Traffic Volumes

Third St Access



PM Traffic Volumes

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Table 5 – Intersection Analysis Results (Third Street Access)

Lane Group	LOS		95 th Percentile Queue (m)	
	Existing	Post-Development	Existing	Post-Development
NBLR	—	C (B)	—	16 (11)
SBT	A (A)	A (A)	—	0 (0)
EBRT	A (A)	A (A)	—	0 (0)
WBLR	A (A)	A (A)	—	0 (0)

Notes:

1. 6 (12) = AM (PM)

Wharton Street / Georgia Avenue Access

The Wharton Street/Georgia Avenue access post development volumes for the weekday morning and Evening peak hours are illustrated in **Figure 6**.

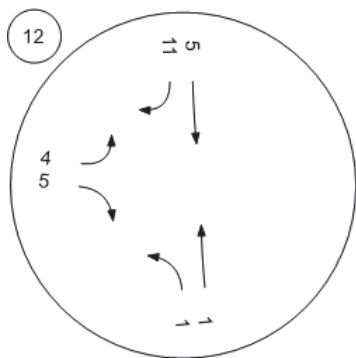
An analysis of the traffic conditions at the Wharton Street/Georgia Avenue access, was conducted for existing and post-development conditions. Intersection performance is summarized in **Table 6**. All movements at the intersections in the study area currently operate at an acceptable Level of Service (LOS) during the weekday morning and Evening peak hours. Post-development, the intersections are expected to maintain acceptable LOS levels, with minor increases in delays observed at the Wharton Street/Site Driveway intersections.

At the Wharton Street/Site Driveway, 95th percentile queue lengths remain negligible due to the lower traffic volumes along Wharton Street. Overall, the analysis indicates that the proposed Wharton Street access can accommodate the development of traffic while maintaining acceptable operational performance at all intersections.

Report Figure 2f: Traffic Volume - Future Total Volume

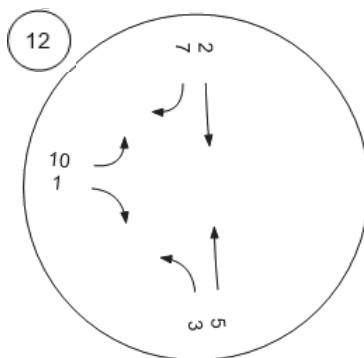


Wharton / Georgia Access



AM Traffic Volumes

Wharton / Georgia Access



PM Traffic Volumes

Table 6 – Intersection Analysis Results (Wharton Street / Georgia Avenue Access)

Lane Group	LOS		95 th Percentile Queue (m)	
	Existing	Post-Development	Existing	Post-Development
NBL	A (A)	A (A)	—	0 (0)
SBRT	—	A (A)	—	0 (0)
EBRL	A (A)	A (A)	—	0 (0)

Dual Access

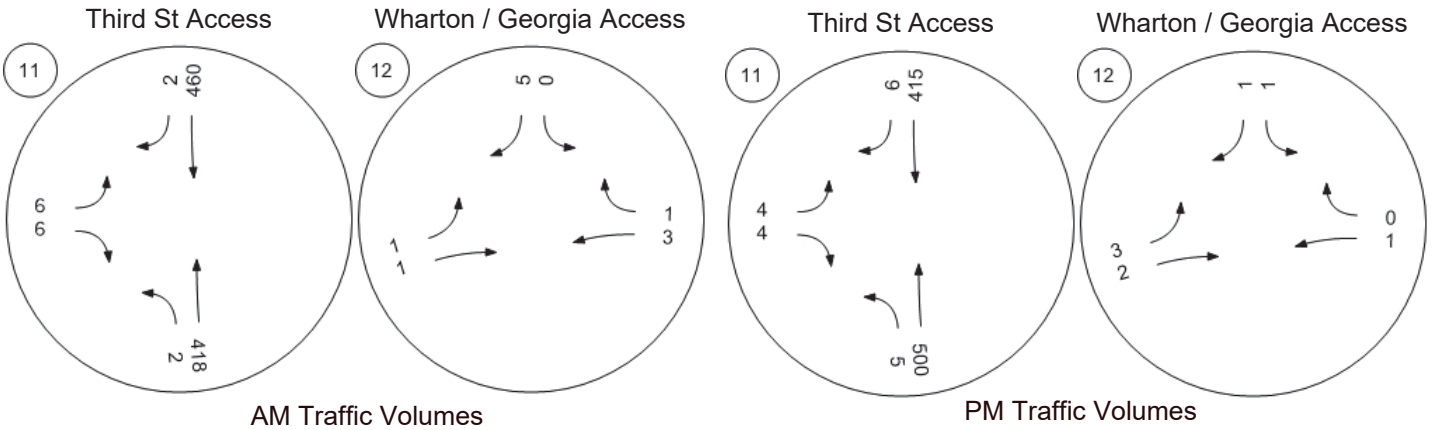
The dual access post development volumes for the weekday morning and Evening peak hours are illustrated in **Figure 7 – Post Development Traffic Volumes (Dual Access)**. An analysis of traffic conditions for the dual access scenario, including access points on Third Street and Wharton Street/Georgia Avenue, was conducted. Intersection performance for existing and post-development conditions is summarized in **Table 7**. All movements at study area intersections currently operate at acceptable Levels of Service (LOS) during the weekday morning and evening peak hours. The Third Street/Site Driveway and Wharton Street/Site Driveway intersections continue to perform efficiently, with negligible impacts on queues or LOS due to lower traffic volumes.

The dual access approach effectively distributes site-generated traffic between Third Street and Wharton Street, minimizing the impact on any single intersection. This configuration ensures adequate site accessibility while maintaining acceptable traffic operations throughout the study area.

Analysis Summary

All three access options are forecasted to experience acceptable operational performance in the future with full movement access. No access restrictions are required for operational performance.

Traffic Volume - Future Total Volume



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Table 7 – Intersection Analysis Results (Dual Access)

Lane Group	LOS		95 th Percentile Queue (m)	
	Existing	Post-Development	Existing	Post-Development
Wharton Street / Site Driveway				
NBL	A (A)	A (A)	—	0 (0)
SBRT	A (A)	A (A)	—	0 (0)
EBRL	A (A)	A (A)	—	0 (0)
Third Street / Site Driveway				
NBLR	A (A)	C (B)	—	0 (0)
SBT	A (A)	A (A)	—	0 (0)
EBRT	A (A)	A (A)	—	0 (0)
WBLR	A (A)	A (A)	—	0 (0)

5.0 CLASSIFICATION REVIEW

Conventional transportation engineering practice is to avoid locating building accesses on arterial roads where possible if access onto a lower tier (i.e. collector road) is possible. Feedback from City staff indicates that access onto Wharton Street would be unpopular by neighboring residents, however, and the traffic assessment in **Section 4.0** indicates that there are limited concerns with existing traffic operations on the streets in the study area, and that the new development could reasonably be accommodated with a full-movement access onto Wharton Street.

6.0 SAFETY REVIEW

Sightlines along Third Street and Wharton Street/Georgia Avenue from the proposed site accesses are generally acceptable, with available sight distances meeting and exceeding the required turning sight distance (TSD). If necessary, trimming of foliage near the site access should be performed to maintain clear sightlines. Speed may pose a concern primarily on Third Street, where the steep downhill grade of 7% for eastbound traffic approaching from Howard Avenue could cause vehicles to exceed the posted 50 km/h speed limit. Vehicles traveling downhill may gain speed beyond the posted speed limit, especially during dry weather conditions or peak traffic periods, which could present safety challenges for vehicles entering or exiting the site.

Along Wharton Street/Georgia Avenue, sightlines in both directions are generally sufficient, given the lower traffic volumes and speeds on these roads. However, the curved section at the proposed Wharton Street/Georgia Avenue access point could limit sightlines. Mitigation measures such as trimming vegetation, ensuring clear pavement markings, or installing mirrors may be required to maintain unobstructed visibility.

Sight Distance review

Third Street Access

While the downhill grade of 7% on Third Street necessitates additional turning sight distance, the distances provided remain more than adequate to accommodate safe vehicle movements. A sight distance assessment was conducted for the proposed access location. The required and measured sight distances are summarized in **Table 8**.

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Table 8 – Sight Distance Requirements (Third Street Access)

Direction	Speed Limit	Required Sight Distance	Measured Sight Distance	Achieved?
East	50 km/h	100m	>150m	Yes
West	50 km/h	75m	>150m	Yes

The proposed location exceeds the turning sight distance requirements as per TAC.

Wharton Street Access

The proposed access on Wharton Street/Georgia Avenue is positioned such that it satisfies the required turning sight distance (TSD) limits for both the Wharton/Howard. The curvature of the road at this location inherently limits visibility for vehicles approaching the access point, particularly for drivers navigating the curve or for those turning into or out of the site. Even though the TSD technically meets the requirements, the practical application of these distances may be compromised due to the geometry of the curve and potential obstructions, such as parked vehicles, landscaping, or road infrastructure. The required and measured sight distances are summarized in **Table 9**.

Table 9 – Sight Distance Requirements (Wharton Street Access)

Direction	Speed Limit	Required Sight Distance	Measured Sight Distance	Achieved?
East	50 km/h	75m	>150m	Yes
West	50 km/h	75m	>90m	Yes

Dual Access

Proposed dual access, offers an effective solution for site accessibility and traffic distribution. However, The Wharton/Georgia access is designed to go through the property at 335 Third Street and does not lead directly to Third Street. The curved section on Wharton/Georgia also presents some visibility challenges, but appropriate mitigation strategies such as signage, road markings, and traffic calming measures can address these concerns, ensuring safe and efficient site access for all users.

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7.0 ADDITIONAL CONSIDERATIONS

The Third Street - Utility & Complete Street Upgrades project, scheduled for 2025, includes the addition of bus stops adjacent to the property on Third Street. In compliance with Bylaw 5174, Section 4.3.5, no site access will be located within the same location as a bus stop or through a parcel corner. To ensure safety and functionality, the proposed site access on Third Street is suggested to be positioned away from the upcoming bus stop location.

If dual access is considered, the site design is suggested to incorporate a direct pedestrian and cyclist connection from Wharton/Georgia Avenue to Third Street in alignment with the Georgia Greenway vision. This will enhance active transportation connectivity, ensuring a safe and continuous route for pedestrians and cyclists to access the Frequent Transit Network on Third Street.

8.0 CONCLUSIONS

Three access scenarios were analyzed for the proposed development to evaluate their feasibility, operational efficiency, and safety implications. Each scenario was carefully assessed based on its impact on the surrounding road network and compliance with applicable guidelines as summarized in **Table 10**.

Table 10 – Comparison of Access Scenarios: Advantages and Challenges

Challenges	Advantages
Single Access on Third Street	
<ul style="list-style-type: none"> Positions left-turning traffic in front of downhill eastbound traffic, posing safety concerns. Limited ROW width on Third limits feasibility of a left turn lane into the site. If considered, access should be restricted to right-in/right-out or right-out only to minimize conflicts. Close proximity to the planned bus stop under the Third Street Upgrades project. Site access cannot be located at a bus stop or through a parcel corner. 	<ul style="list-style-type: none"> Direct connection to a major arterial road, ensuring efficient site accessibility for both local and through traffic. Adequate sight distances of 170 meters to the west (Howard Avenue) and 175 meters to the east (Bruce Avenue) satisfy turning sight distance (TSD) requirements with proper mitigation measures. Provides a primary access point on higher capacity road for handling higher traffic volumes.
Single Access on Wharton Street/Georgia Avenue	
<ul style="list-style-type: none"> Located on a curved section of Wharton Street, which limits sightlines, particularly for vehicles approaching from the south. Visibility issues may necessitate mitigation such as vegetation trimming, enhanced signage, and markings to improve safety. 	<ul style="list-style-type: none"> Local road access reduces continued reliance on Third Street, distributing site traffic more evenly. Lower traffic volumes on Wharton Street enhance the accessibility and safety of site movements.
Dual Access (Third Street and Wharton Street)	
<ul style="list-style-type: none"> Requires addressing the safety and operational concerns of both access points The Georgia Avenue ROW cannot be used for access, as it is too steep (16%) and narrow for a feasible connection. Instead, the access is designed through the subject property at 335 Third Street. 	<ul style="list-style-type: none"> Combines the strengths of both single-access scenarios by providing flexibility in traffic distribution and increased site accessibility. Reduces congestion and potential queueing issues at any single access point.

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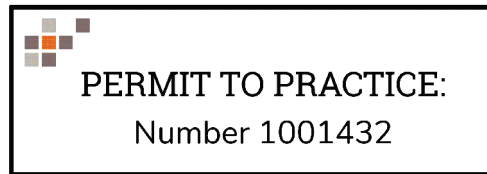
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Please feel free to reach out if you have any questions relating to any of the above.

Sincerely,

WATT Consulting Group



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