

Royal Oak Shopping Centre Transportation Impact Assessment

Version 2

Prepared for
Island View Land Management

Date
May 5, 2026

Project No.
08-25-0038

Bunt & Associates acknowledges and respects the Traditional Territories upon which our work spans, and from which we benefit. We are grateful for the unique cultures and histories of Indigenous Peoples that enrich our understanding and connection to the lands we call home. We honour learning, listening, and truth in our journey to reconciliation.

May 5, 2026
08-25-0038

Niall Paltiel
President
Island View Land Management

Dear Niall:

**Re: Royal Oak Shopping Centre
Transportation Impact Assessment**

As requested, Bunt & Associates Engineering Ltd. (Bunt) has conducted a Transportation Impact Assessment (TIA) for the proposed redevelopment of Royal Oak Shopping Centre located at 4400 West Saanich Road, in Saanich, BC. The redevelopment will redevelop the site's existing commercial land uses while adding a mix of residential units, creating a comprehensive mixed-use site.

We look forward to continued collaboration with the development team and Saanich staff on this important project.

Yours truly,
Bunt & Associates



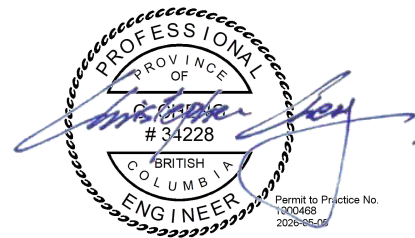
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Written with respect and gratitude for the Traditional Territories upon which we work and live.

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EXECUTIVE SUMMARY

Proposed Development

Hansbraun Investments Ltd proposes the redevelopment of Royal Oak Shopping Centre which is located at 4440 West Saanich Road, in Saanich BC into a comprehensive mixed land use site which will include 676 residential apartment units, 10 residential townhouse units, and 191,230 ft² of commercial and office space.

The proposed development density was adjusted by applying upshot percentages to commercial area and residential units to maintain flexibility for future development variation during the phased development. Accordingly, an adjusted density of 826 residential apartment units, 10 residential townhouse units, and 199,153 ft² of commercial and office space was applied to the traffic and parking analysis components of this study.

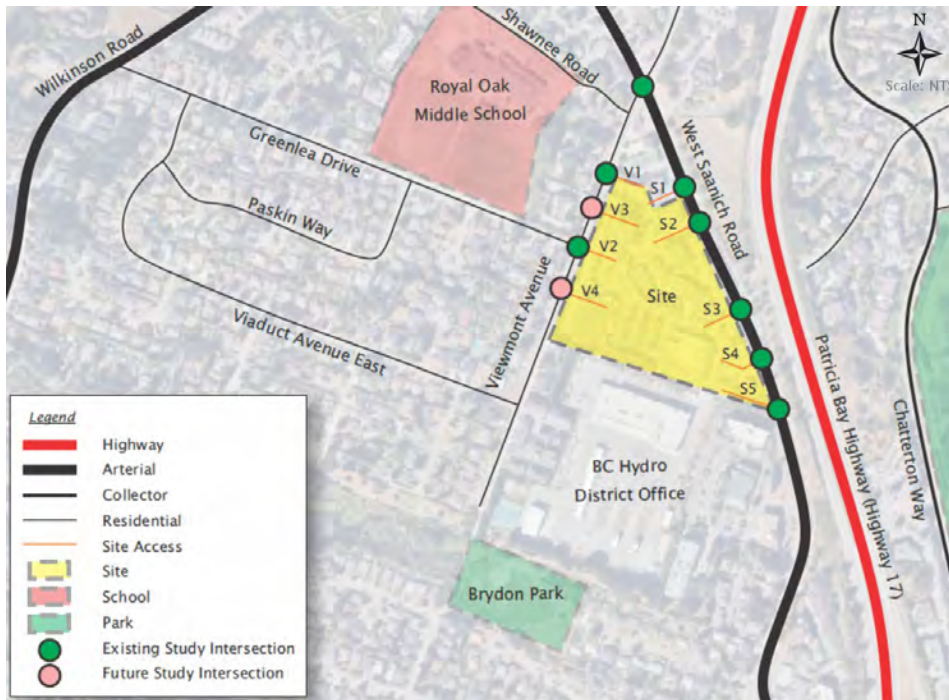
The current development plan consists of six development lots with two differing phasing plans (Options A & B). While the impacts of these two phasing options were considered in this study, traffic operations for the two options is anticipated to be the same as they now both have the same access configuration to the proposed parkades.

The existing site has a total of approximately 157,900 ft² of commercial and office space, which is comprised of a grocery store, various smaller retail units, restaurants and approximately 57,300 ft² of office space. The existing commercial and office site has a total of approximately 584 vehicle parking spaces.

Traffic Impact

The existing site was observed to generate approximately 1,709 vehicle trips during the PM peak hour (809 inbound trips and 900 outbound trips).

Site access intersections which connect with Viewmont Avenue are labelled as V1-V4, and intersections which connect with West Saanich Road are labelled as S1-S5. Some of these accesses are existing access points into the site and some are future proposed new site accesses, as illustrated in **Figure ES.1**.

Figure ES.1: Site Access Intersections

The development is anticipated to result in an increase in site vehicle trips from 1,709 to approximately 2,400 two-way trips in the weekday PM peak hour (when applying the upshot development statistics).

A potential variation to the development plan would see one building replaced with a hotel. The two “No-Hotel” and “with Hotel” scenarios are shown to be very similar in terms of trip generation and therefore this potential variation is considered inconsequential to the study’s findings and recommendations.

All study intersections are shown to operate within acceptable performance thresholds for overall level of service (LOS) and volume-to-capacity (V/C) ratios under existing conditions, with the exception of the West Saanich Road & Site Access S2 intersection. This intersection exceeds acceptable thresholds, with the eastbound movement (vehicle exiting the existing Royal Oak Shopping Centre) delays exceeding thresholds for mitigation consideration.

To mitigate the operation constraints at this West Saanich Road & Site Access S2 intersection, Bunt considered various options including signalization, turn restrictions and additional lanes. Signalization is not a preferred option, as it would add another traffic signal along the West Saanich Road corridor, and would service only a private development rather than a public through route. Turn restrictions such as restricting the eastbound to northbound left turn movement were not considered viable, as vehicles wishing to travel north would transfer this delay to other West Saanich access points or result in greater than desired use of the Viewmont Road frontage. Additional turn lanes such as a dedicated eastbound to northbound left turn do not improve operating conditions. As such, a four-leg, single lane roundabout at

the intersection of West Saanich Road and Site Access S2 is proposed by the development team. The roundabout allows for potential future development to the east of West Saanich Road. The introduction of a single lane roundabout at the West Saanich Road & Site Access S2 is shown to operate within acceptable LOS and V/C thresholds under interim and full Build-Out Opening Day (2034) Total PM peak hour scenarios with the proposed single lane roundabout in place.

Bunt recommends that the traffic signal timing plan at the West Saanich Road & Viewmont Avenue be reviewed and optimized in coordination with the proposed development as well as with potential development at the adjacent 4512 West Saanich Road site.

Bunt recommends that the District of Saanich consider introducing traffic calming measures on Greenlea Drive in order to ensure that increase vehicle generation at the Royal Oak Shopping Centre does not lead to the use of Greenlea Drive as a short cut route and to help restrain vehicle speeds along this roadway and its school zone.

Parking

A potential development scenario includes a hotel use within Building F in Lot 4, assuming 140 hotel units in place of 130 residential units based on the summary statistics. Accordingly, the “With Hotel” scenario has also been considered in the parking analysis.

The proposed site plan provides a total of 1,007 vehicle parking spaces, including 623 for the non-residential component (554 for the commercial and 69 for the hotel) and 384 for the residential component. This results in an overall net shortfall of 85 parking spaces relative to the Saanich Bylaw requirements based on the upshot statistics. Specifically, the development falls short of the commercial shopping centre parking requirement by 422 spaces and the hotel parking requirement by 21 spaces, while meeting the District’s Zoning Bylaw minimum residential parking requirements. The small net shortfall is lower than the commercial shortfall due to the recently adopted low residential parking requirements. The development with its upshot statistics will provide parking ratios of 0.54 vehicle spaces per apartment unit and 1.00 space per townhouse unit.

If the original proposed statistics were used, the development will provide parking ratios of 0.65 vehicle spaces per apartment unit and 1.00 space per townhouse unit.

Although the commercial and hotel parking provisions indicate a variance from bylaw requirements based on the upshot statistics, the proposed commercial stalls are considered viable due predominately to the proposed supply being informed by the existing site’s commercial parking supply and demand profiles.

The proposed residential parking supply is supported by the proposed residential unit types, the site being located in an area with viable non-private vehicle transportation alternatives and the potential for shared parking between land uses, such as commercial spaces being shared with residential visitors.

The shared peak parking demand based on the upshot statistics is projected to occur on a weekday at 12 PM, with 668 spaces required, while the weekend peak demand is 742 spaces occurring at 2 PM. The analysis indicates that the proposed non-resident parking supply of 623 spaces may be insufficient to meet peak period demand, resulting in a shortfall of 45 spaces on weekdays and 119 spaces on weekends. However, if the original proposed statistics were used, the estimated weekday peak parking demand would be approximately 568 spaces, which is lower than the proposed non-residential parking supply of 623 spaces and therefore sufficient; the estimated weekend peak parking demand would be approximately 632 spaces, which is slightly higher than the proposed supply.

Bunt recommends that, in addition to implementing a robust TDM package, parking utilization be monitored on a phase-by-phase basis, with adjustments to parking allocation or development scale as needed to ensure adequate on-site parking supply.

The development is anticipated to meet requirements pertaining to accessible vehicle spaces, small vehicle and electric vehicle spaces.

The proposed loading spaces are anticipated to accommodate site demands.

The development is anticipated to meet or exceed bicycle parking bylaw requirements

Transportation Demand Management

To reduce the need for private vehicle use, and encourage more sustainable forms of transportation Bunt recommends:

- The provision of at least 1 car-share vehicle to be located on site;
- Parking to be unbundled from the residential units;
- Ride-share initiatives;
- Active mode orientated wayfinding;
- Augmented bicycle parking;
- Bus stop improvements; and,
- Potential consultation with the District of Saanich to reduce the posted vehicle speed limit along West Saanich Road to 40 km/h.

The development may consider transit subsidies if residential parking demand is shown to outpace parking supply after initial development phases.

1. INTRODUCTION

1.1 Study Purpose & Objectives

Hansbraun Investments Inc. plans to redevelop the Royal Oak Shopping Centre, located at 4440 West Saanich Road, in Saanich BC into a comprehensive mixed land use site which will include 676 residential units and 191,230 ft² of commercial and office space.

The existing site has approximately 157,900 ft² of commercial space, which comprises a grocery store, various smaller retail units, restaurants and approximately 57,300 ft² of office space.

This Transportation Impact Assessment (TIA) has been prepared to support the project approval process and assess the impact of the development on the surrounding neighbourhood's transportation network. Additionally, the TIA will identify any necessary mitigation measures to ensure the surrounding road network can accommodate the additional trips resulting from the development.

Bunt & Associates Engineering Ltd. (Bunt) has prepared this Transportation Impact Assessment (TIA) as part of the project rezoning application. The TIA scope and objectives are as follows:

- Summarize existing conditions in the study area, including zoning, transportation context (road, transit, cycling, and pedestrian networks), and relevant policies and plans.
- Evaluate the existing traffic volumes and operations in the study area.
- Estimate the impact of background traffic and the proposed development on the traffic operations of the study area's network.
- Provide recommended mitigations to improve future traffic performance and estimate when they will be required.
- Review the District of Saanich Zoning Bylaw vehicle parking, bicycle parking, and loading space supply requirements and note what the development will need to achieve.
- Identify potential Transportation Demand Management (TDM) measures that the proposed development could provide to encourage travel by modes other than private vehicles.
- Identify improvements to local active transportation and transit networks that will be implemented with this development.

1.2 Study Scope & Area

The traffic study area includes intersections that are part of the road network as well as site accesses. The study intersections include:

External Road Network Intersections:

- West Saanich Road & Viewmont Avenue
- Viewmont Avenue & Greenlea Drive
- Existing and potential Site Accesses along Viewmont Avenue and West Saanich Road

Site Access Intersections:

Intersections which connect with Viewmont Avenue are labelled as V1-V4, and intersections which connect with West Saanich Road are labelled as S1-S5. Some of these accesses are existing access points into the site and some are future proposed new site accesses.

Exhibit 1.1 shows the site location, study area and highlights the described intersections.



Exhibit 1.1 Site Location & Study Area

Royal Oak Shopping Centre
08-25-0038 March 2026

1.3 Organization of Report

- **Section 1** presents the scope of the study, including the site location and details of the proposed development.
- **Section 2** discusses the existing conditions in the study area, including the existing transportation network (road network, transit network, pedestrian facilities, cycling facilities), and existing traffic operations.
- **Section 3** looks at future traffic conditions and future traffic operations in the study area.
- **Section 4** reviews the development plan as it relates to parking and loading.
- **Section 5** discusses transportation demand management strategies and the implementation of active transportation in site planning.
- **Section 6** summarizes the conclusions and recommendations based on the findings of this report.

1.4 Proposed Development

The current development plan consists of two different phasing plans. Option A differs from Option B only in the phasing sequence, the total overall development is consistent. The land uses provided in **Table 1.1** represent the total development for both Options. As a conservative approach and to maintain flexibility for future development across the different phases, uplifted development statistics were applied to selected land use categories in consultation with the developer. Accordingly, the adjusted higher densities shown in **Table 1.1** was applied to the traffic and parking analysis components of this study. It is noted that some variation between uplifted or adjusted statistics may occur between the proposed phases, but the overall development will not exceed the provided total commercial area or number of dwelling units.

Table 1.1: Proposed Land Uses

LOT #	LAND USE	DENSITY (ORIGINAL)	UPSHOT PERCENTAGE	DENSITY (ADJUSTED)
Lot 1	Commercial (Shopping Centre)	48,300 ft ² / 4,487 m ² GFA	0%	48,300 ft ² / 4,487 m ² GFA
	Residential Apartment	119 d.u.	30%	155 d.u.
Lot 2	Commercial (Shopping Centre)	64,200 ft ² / 5,964 m ² GFA	0%	64,200 ft ² / 5,964 m ² GFA
	Residential Apartment	239 d.u.	20%	287 d.u.
Lot 3	Commercial (Shopping Centre)	13,400 ft ² / 1,245 m ² GFA	10%	14,740 ft ² / 1,369 m ² GFA
	Residential Apartment	76 d.u.	20%	91 d.u.
	Residential Townhouse	10 d.u.	0%	10 d.u.
Lot 4	Commercial (Shopping Centre)	55,330 ft ² / 5,138 m ² GFA	10%	60,830 ft ² / 5,651 m ² GFA
	Residential Apartment	140 d.u.	30%	182 d.u.
Lot 5	Commercial (Shopping Centre)	0 ft ² / 0 m ² GFA	0%	0 ft ² / 0 m ² GFA
	Residential Apartment	42 d.u.	10%	46 d.u.
Lot 6	Commercial (Shopping Centre)	10,076 ft ² / 1,000 m ² GFA	10%	11,083 ft ² / 1,030 m ² GFA
	Residential Apartment	50 d.u.	10%	55 d.u.
TOTAL	COMMERCIAL	191,230 FT ² / 17,766 M ² GFA		199,153 FT ² / 18,502 M ² GFA
	APARTMENTS	676 D.U.	-	826 D.U.
	TOWNHOUSES	10 D.U.		10 D.U.

Exhibit 1.2 illustrates the site plan and the detailed lot boundaries within the development.



Source: Mallen Gowing Berzins Architecture (MGBA) - February 2, 2026)

Exhibit 1.2 Site Plan & Lot Plan

Royal Oak Shopping Centre
08-25-0038 March 2026

2. EXISTING CONDITIONS

2.1 Land Use

The site is located at 4400 West Saanich Road in Saanich, BC. It is currently zoned for Commercial (C) and operates as a Shopping Centre with a mix of retail and office uses, owned by Hansbraun Investments Ltd.

2.2 Existing Transportation Network

2.2.1 Road Network

The road network is primarily centred around West Saanich Road, which runs along the east side of the site connecting to Royal Oak Drive to the north, Quadra Street and the Patricia Bay Highway (Highway 17), which connects Victoria to the Saanich Peninsula and Swartz Bay.

West Saanich Road is a northwest-southeast arterial road. It travels north towards Brentwood Bay and Deep Cove. South of the site, West Saanich Road connects to Quadra Street, which continues south towards Victoria's downtown. Adjacent to the site, West Saanich Road is a two-lane road with left turn bays into the site. It also has sidewalks and on-street buffered bike lanes on both sides of the road.

Viewmont Avenue is a north-south residential road. It is a two-lane road with sidewalks on both sides of the street and on-street parking available on its west edge adjacent to the site north of its intersection with Greenlea Drive. South of Greenlea Drive, Viewmont Avenue has a shoulder area on its west edge where parking is not permitted, a sidewalk along its east edge, but no sidewalks on its west side.

Greenlea Drive is a west-east residential road. It travels between Wilkinson Road and Viewmont Avenue. Greenlea Drive is a two-way street with a sidewalk and on-street parking on its north side. Most of Greenlea Drive is within a School Zone with a 30km/hour maximum speed. Anecdotal information obtained from the public engagement process identified potential speeding activities on Greenlea Drive.

Table 2.1: Existing Street Characteristics

STREET	CLASSIFICATION	NUMBER OF TRAVEL LANES	POSTED SPEED	PARKING FACILITIES
West Saanich Road	Arterial	2	50km/h	Limited Parallel Parking
Viewmont Road	Residential	2	50km/h	On West Shoulder
Greenlea Drive	Residential	2	50km/h	On North Shoulder



Exhibit 2.1 Existing Laning & Traffic Control

Royal Oak Shopping Centre
08-25-0038 March 2026

2.2.2 Transit Network

The site has direct access to multiple bus routes, primarily connecting Royal Oak Exchange with Downtown Victoria. **Table 2.2** shows transit stops within an 800-metre walking radius of the site. **Table 2.3** shows the existing transit frequency near the site. **Exhibit 2.2** shows the existing transit network.

Table 2.2: Transit Stops within 800m Walking Distance of Site

STOP LOCATION	DIRECTION	STOP #	AMENITY	ROUTES SERVICED	WALKING DISTANCE
West Saanich Road & Royal Oak Shopping Centre	Northbound	101316	Bus Stop Sign, Shelter, Bench, Trash Can	6,31,32,75	15 m
	Southbound	101318	Bus Stop Sign, Shelter, Bench, Trash Can	6,31,32	10 m
West Saanich Road & Tri-Eagle Plaza	Northbound	101257	Bus Stop Sign, Shelter, Bench, Trash Can	6,31,32,75	420 m
	Southbound	102008	Bus Stop Sign, Shelter, Bench, Trash Can	6,31,32	420 m
West Saanich Road & Elk Lake Drive	Northbound	101345	Bus Stop Sign	6,31,32,75	450 m
	Southbound	101352	Bus Stop Sign, Shelter, Bench, Trash Can	6,31,32	450 m

Table 2.3: Existing Transit Service Frequency

ROUTE		STOP	WEEKDAY SERVICE SPAN		HEADWAY (MIN.)				
#	DIRECTION		START	END	AM	MID-DAY	PM	EVENING	WEEKEND
6	Royal Oak Exchange	101316	5:42 AM	12:40 AM	15 mins	25 mins	15 mins	30 mins	25 mins
	Downtown	101318	5:34 AM	12:30 AM					
31	Royal Oak Exchange	101316	6:39 AM	1:07 AM	30 mins	30 mins	30 mins	30 mins	30 mins
	Downtown	101318	5:46 AM	12:49 AM					
32 ⁽¹⁾	Cordova Bay	101316	17:13 PM	-	-	-	-	-	-
	Downtown	101318	7:10 AM	7:53 PM	-	-	-	-	-
75	Saanichton Exchange	101316	5:23 AM	23:43 PM	20 mins	30 mins	20 mins	1 hr	30 mins

1: Route 32 only runs once to twice daily, the times presented in the weekday service span are the only times the route runs.

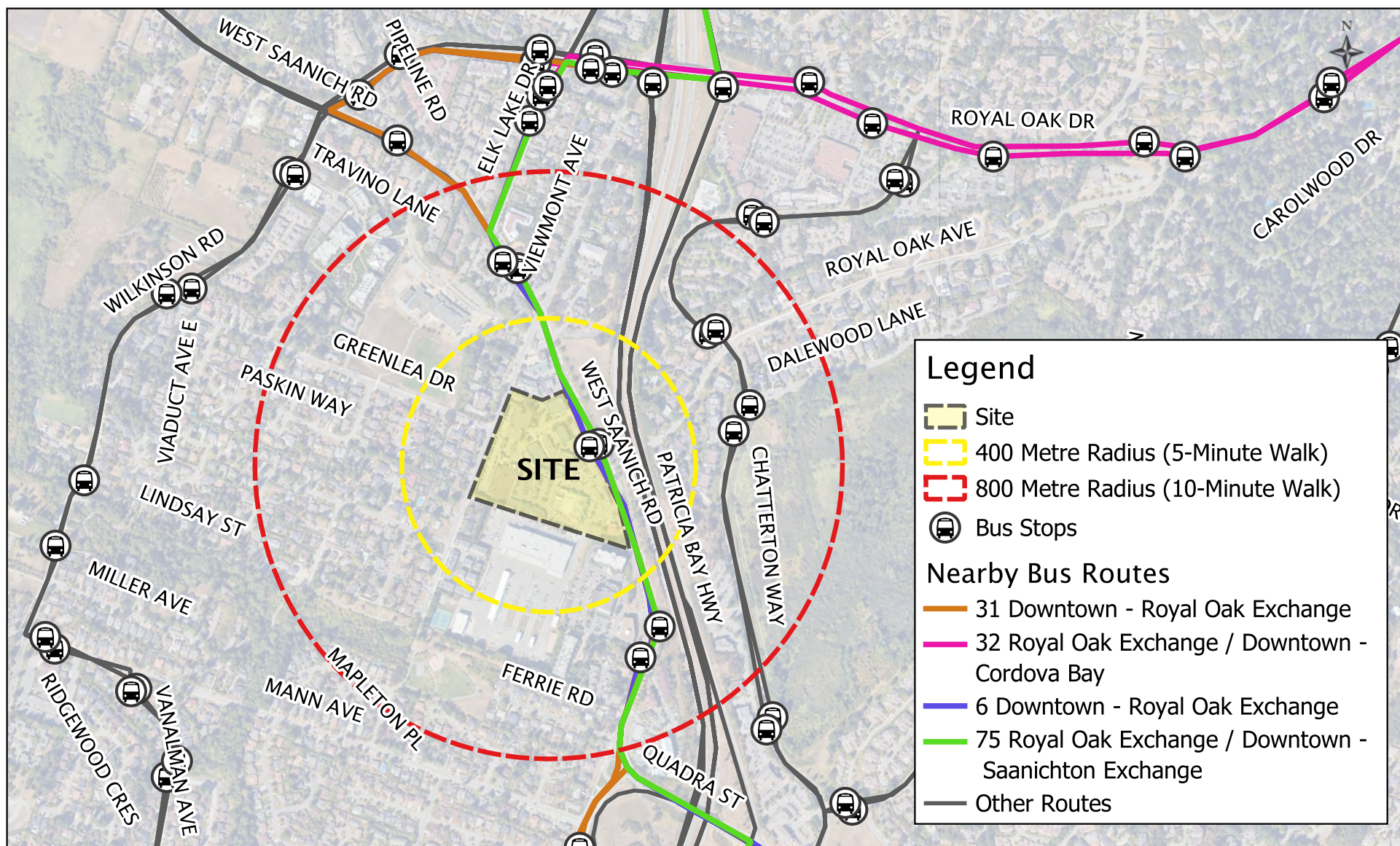


Exhibit 2.2 Transit Network

Royal Oak Shopping Centre
08-25-0038 February 2026

2.2.3 Cycling & Pedestrian Networks

The pedestrian and cycling network infrastructure connects the site to important retail, school and transit stops. To evaluate the quality of the nearby pedestrian and cycling network, Bunt referred to the Walk Score, an online rating website that estimates walking scores based on the site's proximity to local services such as schools, shopping, recreation, and other nearby amenities.

According to Walk Score¹, the site has a Walk Score of 76 out of 100, which puts it in the "Very Walkable" class, and that most errands can be accomplished on foot.

Walk Score has given the site a Bike Score of 92 out of 100, which puts the site in the "Bikers Paradise" class, and most errands can be accomplished on a bike.

Overall, the site enjoys abundant access to a robust pedestrian and cycling network. **Exhibits 2.3 and 2.4** show the cycling and pedestrian facilities, respectively.

¹ <https://www.walkscore.com/>

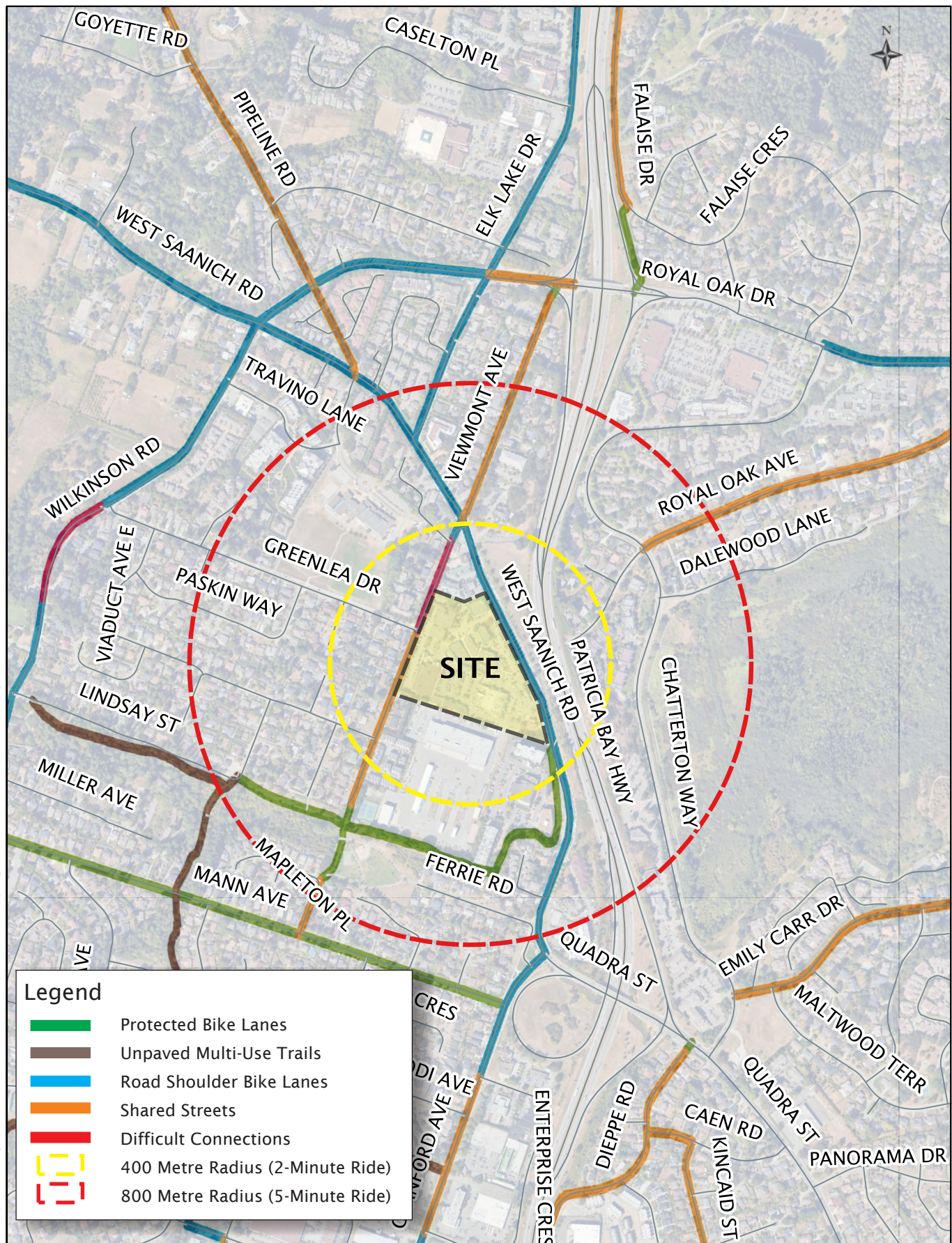


Exhibit 2.3
Cycling Facilities

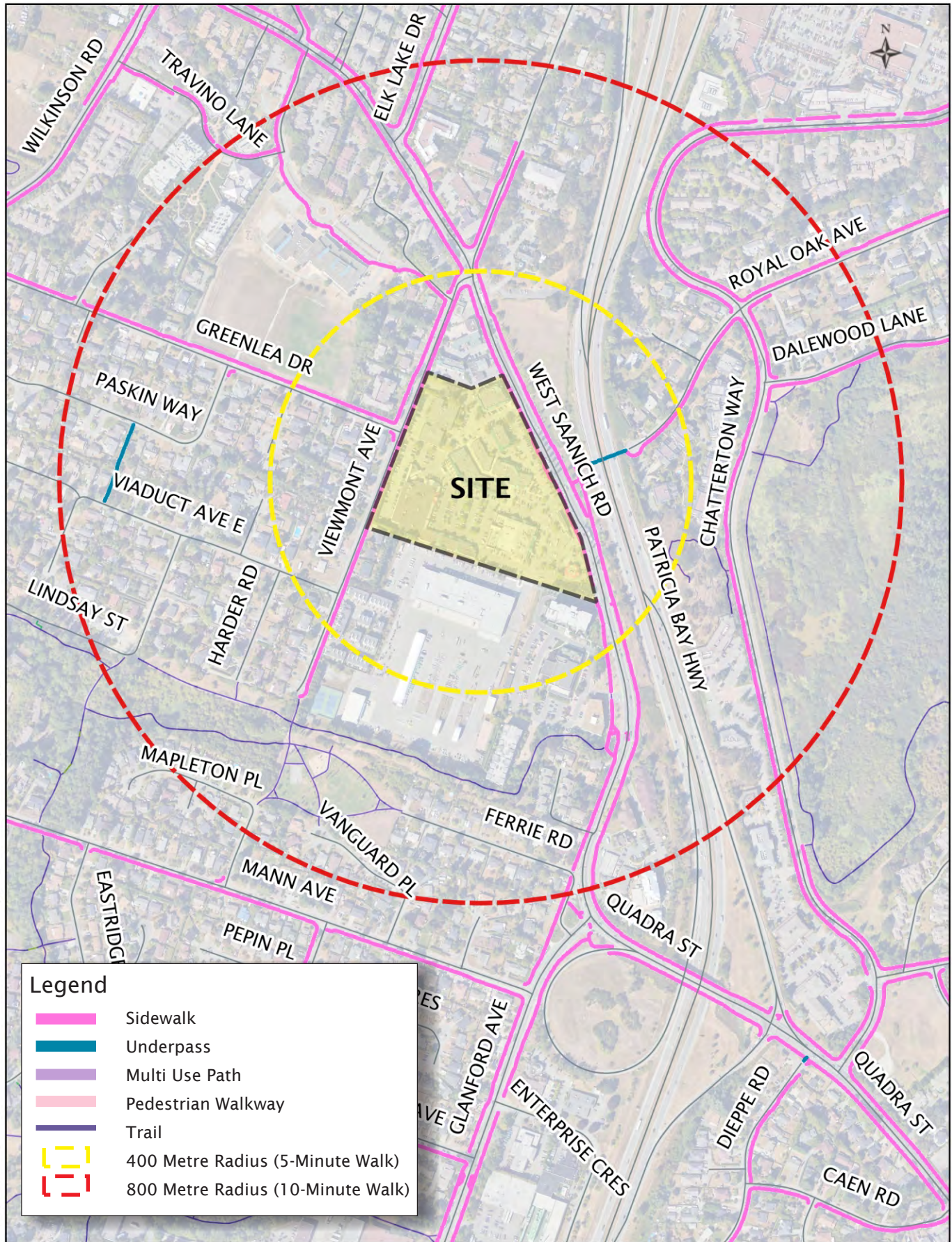


Exhibit 2.4
Pedestrian Facilities

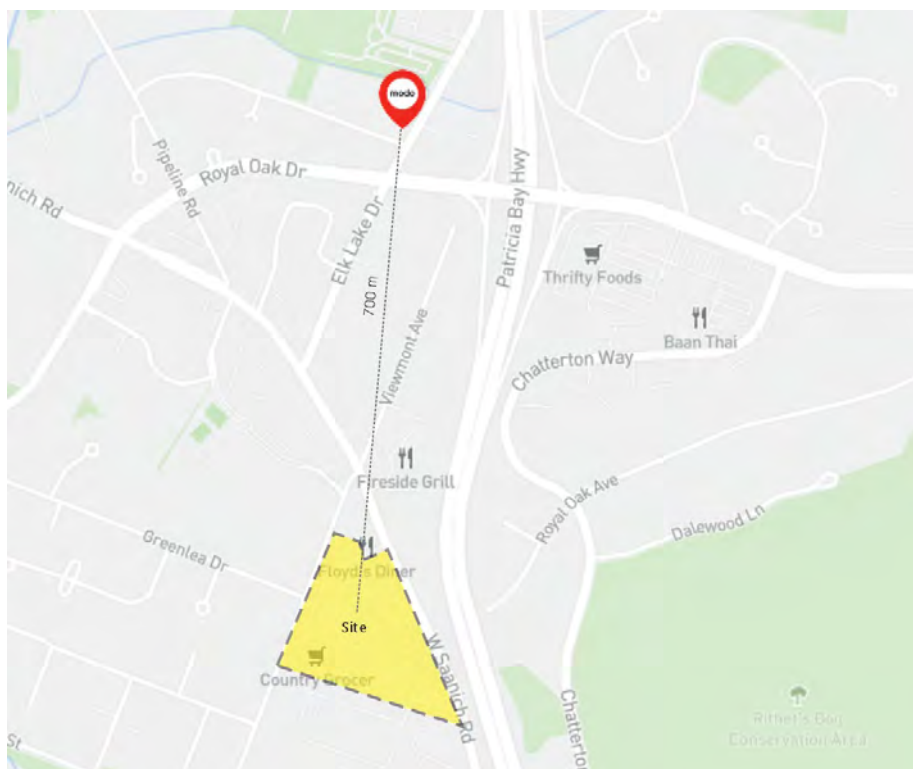
2.3 Car Share

Modo is a co-operative association that offers two-way carshare services in several regions across the province, including on Vancouver Island. There is currently 1 vehicle approximately 700 m from the Royal Oak Shopping Centre site. However, this fleet is growing, and there are significantly more vehicles available south of the site towards Victoria.

Modo's round-trip services are designed to integrate well with other sustainable modes of transportation, including transit, cycling, and walking. Offering an affordable alternative to car ownership, Modo and other car-share companies are gaining popularity and rapidly expanding. It is expected that car-sharing opportunities will continue to increase as app-based and autonomous vehicle technologies improve.

The location of the one existing carshare vehicle is shown in **Figure 2.1**.

Figure 2.1: Modo Car-Sharing Location



Source: <https://www.modocoop/#find-a-modo>

2.4 Current Relevant Policies & Plans

Royal Oak Shopping Centre's redevelopment plan references various municipal, regional and provincial policies and plans, which are listed below.

2.4.1 Municipal Plans

Key municipal planning documents include:

- District of Saanich *Zoning Bylaw 8200 (updated 2024 with parking requirement updates)*;
- Official Community Plan (May 2024); and,
- Active Transportation Plan (updated 2024).

2.4.2 Regional Plans

Key regional plans include:

- Regional Growth Strategy (2018);
- Regional Transportation Plan (2014); and,
- Ongoing BC Transit Service Plans.

2.4.3 Provincial Plans

Key provincial plans include:

- Transit-Oriented Development (TOD) Guidelines; and,
- BC Provincial Transportation and Highway Strategy – B.C. on the Move: A 10-Year Transportation Plan (2015).

2.5 Existing Traffic Volumes

2.5.1 Traffic Data Collection Program

To better understand local traffic conditions, Bunt collected traffic data at the following study intersections on June 24, 2025:

- West Saanich Road & Viewmont Avenue
- West Saanich Road & Site Access S1
- West Saanich Road & Site Access S2
- West Saanich Road & Site Access S3
- West Saanich Road & Site Access S4
- West Saanich Road & Site Access S5
- Viewmont Avenue & Site Access V1
- Viewmont Avenue & Site Access V2

Traffic data for the study intersections was collected during the weekday morning and afternoon peak periods to capture representative operating conditions within the study area. However, based on observed AM and PM peak-hour traffic patterns, no weekday AM analysis was included in this study, as the AM peak hour falls outside the critical period of the background and development traffic due to the predominant commercial nature of the development. District of Saanich's March 2024 traffic data (available online) at the West Saanich Road & Wilkinson Road confirms that vehicle volumes are significantly higher in the weekday PM peak period over the weekday AM period for all directions of travel.

Bunt further confirmed that the weekday PM hour is the critical time period for all directions of travel in the study area over Saturday peak periods through consultation with MOTT datasets at Highway 17 & Royal Oak Avenue as well as CRD Automated Vehicle Count Report of October 2023 data at Wilkinson Road South of West Saanich Road; both of these dataset include weekday and Saturday peak period data.

Weekday PM peak-hour counts were conducted from 3:00 PM to 7:00 PM. This time period was selected to capture the weekday peak commuter and shopping-related traffic activity generated by the existing development.

The collected data includes vehicle through and turning movement counts, cyclist and pedestrian activity, truck percentages, and other relevant observations necessary to assess existing traffic conditions and support the subsequent analysis presented in this study.

A summary of the traffic data is presented in **Table 2.4**. Detailed count data is included in **Appendix A**.

Table 2.4: Summary of Available and Counted Traffic Data

INTERSECTION	SOURCE	DATE OF COUNT	PEAK HOURS
			PM
West Saanich Road & Viewmont Avenue	Bunt	June 24, 2025	4:15 – 5:15
West Saanich Road & Site Access S1			4:15 – 5:15
West Saanich Road & Site Access S2			4:15 – 5:15
West Saanich Road & Site Access S3			4:15 – 5:15
West Saanich Road & Site Access S4			4:15 – 5:15
West Saanich Road & Site Access S5			4:00 – 5:00
Viewmont Avenue & Site Access V1			4:15 – 5:15
Viewmont Avenue & Site Access V2			4:15 – 5:15
OVERALL STUDY AREA PEAK HOUR			4:15 – 5:15 PM

As shown above, the weekday PM peak hour occurred from 4:15 PM to 5:15 PM, which coincides with typical work departure times and the onset of evening dining and shopping activities.

2.5.2 Existing Site Vehicle Trip Generation

The existing site was found to generate approximately 1,793 vehicle trips during the PM peak hour (829 inbound trips and 964 outbound trips), based on the turning movement counts collected at the intersections of the existing site accesses along West Saanich Road (S1, S2, S3, S4, and S5) and Viewmont Road (V1 and V2) during the weekday peak periods. Given that trips generated by adjacent developments, including but not limited to the BC Hydro District Office, Floyd's Diner, Viewmont Dental Centre, and Sweet Nothing Sugaring Spa, share Site Accesses S1 and S5 as their primary entry points, the collected trips were adjusted based on spot count and field observations to most accurately reflect the existing site-generated traffic associated with the Royal Oak Shopping Centre.

As such, following these adjustments, the existing site was estimated to generate approximately 1,709 vehicle trips during the PM peak hour (809 inbound trips and 900 outbound trips), which were applied in the existing traffic operations analysis.

2.5.3 Peak Hour Traffic Volumes

Peak-hour traffic volumes were extracted directly from the count data. Traffic volumes were balanced to ensure consistency along the corridor. The existing peak-hour vehicle traffic volumes within the study area are presented in **Exhibit 2.5**. **Table 2.5** presents a summary of the two-way peak-hour vehicle movements in the study area.

Table 2.5: Existing Peak Hour Roadway Link Volumes

ROAD LINK	TWO-WAY PEAK LINK VOLUMES (VEH/HR)
	PM
West Saanich Road	1,500
Viewmont Avenue	390
Greenlea Drive	300
Site Access S1	50
Site Access S2	490
Site Access S3	330
Site Access S4	100
Site Access S5	480
Site Access V1	40
Site Access V2	300

The existing peak-hour pedestrian and cyclist volumes within the study area are presented in **Exhibit 2.6**.

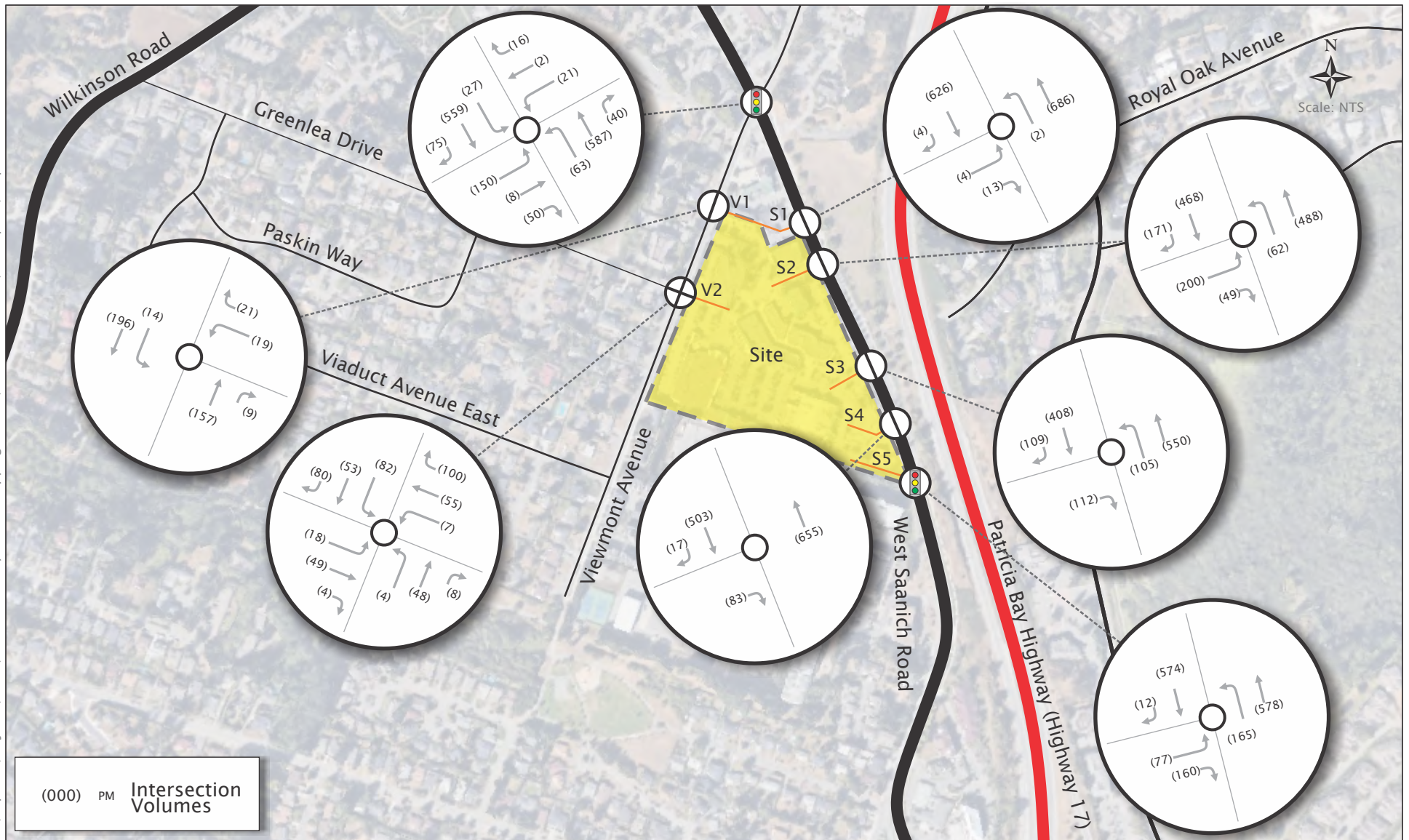


Exhibit 2.5 Existing (2025) PM Peak Hour Vehicle Traffic Volumes

Royal Oak Shopping Centre
08-25-0038 March 2026

Exhibit 2.6



bunt
& associates

2.6 Existing Operations

The existing operations of study area intersections and access points were assessed using the methods outlined in the 2000 Highway Capacity Manual (HCM), using the Synchro 11 analysis software (Build 11.1). The traffic operations were assessed using the performance measures of Level of Service (LOS) and volume-to-capacity (V/C) ratio. Results from SimTraffic analysis were also reviewed for some intersections to provide supplemental operational insights.

The LOS rating is based on average vehicle delay and ranges from “A” to “F” based on the quality of operation at the intersection. LOS “A” represents optimal, minimal delay conditions while a LOS “F” represents an over-capacity condition with considerable congestion and/or delay. Delay is calculated in seconds and is based on the average intersection delay per vehicle.

Table 2.6 below summarizes the LOS thresholds for the six Levels of Service, for both signalized and unsignalized intersections.

Table 2.6: Intersection Level of Service Thresholds

LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)	
	SIGNALIZED	UNSIGNALIZED
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Source: Highway Capacity Manual

The volume to capacity (V/C) ratio of an intersection represents ratio between the demand volume and the available capacity. A V/C ratio less than 0.85 indicates that there is sufficient capacity to accommodate demands and generally represents reasonable traffic conditions in suburban settings. A V/C value between 0.85 and 0.95 indicates an intersection is approaching practical capacity; a V/C ratio over 0.95 indicates that traffic demands are close to exceeding the available capacity, resulting in saturated conditions. A V/C ratio over 1.0 indicates a very congested intersection where drivers may have to wait through several signal cycles. In downtown and Town Centre contexts, during peak demand periods, V/C ratios over 0.90 and even 1.0 are common.

The performance thresholds that were used to trigger consideration of roadway or traffic control improvements to support roadway or traffic control improvements employed in this study are listed below:

Signalized Intersections:

- Overall intersection Level of Service = LOS D or better;
- Overall intersection V/C ratio = 0.85 or less;

- Individual movement Level of Service = LOS E or better; and,
- Individual movement V/C ratio = 0.90 or less.

Unsignalized Intersections and Roundabouts:

- Individual movement Level of Service = LOS E or better, unless the volume is very low in which case LOS F is acceptable.

In interpreting of the analysis results, note that the HCM methodology reports performance differently for various types of intersection traffic control. In this report, the performance reporting convention is as follows:

- For signalized intersections: HCM 2000 output for overall LOS and V/C as well as individual movement LOS and V/C is reported. 95th Percentile Queues are reported as estimated by Synchro.
- For unsignalized two-way stop-controlled intersections: HCM 2000 LOS and V/C output is reported just for individual lanes as the HCM methodology does not report overall performance.
- For unsignalized All-way Stop controlled intersections: HCM 2000 unsignalized LOS is reported for the overall intersection as well as by intersection approach LOS. The HCM 2000 methodology does not report an overall V/C ratio for All Way Stop controlled intersections. Degree of Utilization calculated with the HCM 2000 methodology is reported for individual movements in place of V/C, which is not part of the HCM 2000 report.

The performance reporting conventions noted above have been consistently applied throughout this document, and the detailed outputs are provided in **Appendix B**.

2.6.1 Existing Conditions Analysis Assumptions

Signal Timing:

For signalized study area intersections Bunt applied laning and signal phasing specific to the subject intersection, then optimized signal phase splits to provide the assessment of existing capacity.

Synchro Parameters

Synchro parameters for the Peak Hour Factors (PHFs) and heavy vehicle percentages (HV%) were obtained from the existing traffic count data. Overall intersection PHFs were applied to each intersection, while individual movement heavy vehicle percentages were used in the analysis. Observed conflicting pedestrian and cyclist counts were also utilized in the synchro analysis. All other parameters utilized synchro default values.

2.6.2 Existing Operational Analysis Results

Table 2.7 summarizes existing traffic operations in the study area in terms of key performance measure outputs from the Synchro model.

Table 2.7: Existing (2025) PM Peak Hour Traffic Operations

INTERSECTION/ TRAFFIC CONTROL	MOVEMENT	EXISTING PM		
		LOS	V/C	95TH Q (M)
W Saanich Rd & Site Access S1 (Minor-leg stop-controlled)	OVERALL	A	-	-
	EBLR	C	0.10	5
	NBL	A	0.00	0
	NBT	A	0.42	0
	SBTR	A	0.38	0
W Saanich Rd & Site Access S2 (Minor-leg stop-controlled)	OVERALL	B	-	-
	EBLR	F	1.20	100
	NBL	A	0.07	5
	NBT	A	0.30	0
	SBTR	A	0.39	0
W Saanich Rd & Site Access S3 (Minor-leg stop-controlled)	OVERALL	A	-	-
	EBR	B	0.20	10
	NBL	A	0.11	5
	NBT	A	0.34	0
	SBTR	A	0.32	0
W Saanich Rd & Site Access S4 (Minor-leg stop-controlled)	OVERALL	A	-	-
	EBR	B	0.16	5
	NBT	A	0.40	0
	SBTR	A	0.32	0
W Saanich Rd & Site Access S5 (Signalized)	OVERALL	B	0.62	-
	EBL	C	0.31	25
	EBR	C	0.14	15
	NBL	A	0.42	20
	NBT	A	0.48	65
	SBTR	B	0.75	135
Viewmont Ave & Site Access V1 (Minor-leg stop-controlled)	OVERALL	A	-	-
	WBLR	B	0.06	5
	NBTR	A	0.11	0
	SBTR	A	0.01	0
Viewmont Ave & Greenlea Dr/Site Access V2 (Minor-leg stop-controlled)	OVERALL	A	-	-
	EBLTR	B	0.16	5
	WBLTR	B	0.26	10
	NBLTR	A	0.00	0
	SBLTR	A	0.06	5

INTERSECTION/ TRAFFIC CONTROL	MOVEMENT	EXISTING PM		
		LOS	V/C	95TH Q (M)
W Saanich Rd & Viewmont Ave (Signalized)	OVERALL	<i>B</i>	0.52*	-
	EBLT	C	0.68	45
	EBR	C	0.03	0
	WBLTR	C	0.10	10
	NBL	A	0.17	10
	NBTR	A	0.52	75
	SBL	A	0.07	10
	SBTR	B	0.65	115

Note: NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound, L = Left, T = Through, R = Right (e.g., NBLTR = Northbound Left/Through/Right Lane).

Bolded results indicate values that do not meet acceptable performance criteria.

"-" indicates a value not applicable to that particular intersection or movement.

"avg" indicates the overall V/C ratio results for the signalized intersection that were calculated using the weighted average method.

The overall V/C ratio for the signalized intersection at West Saanich Road & Viewmont Avenue was calculated using the weighted average method. This methodology was selected since the HCM 2000 method implemented in Synchro yields higher V/C ratio that exceeds the V/C of the individual movement, which is not theoretically valid.

All study intersections are shown to operate within acceptable performance thresholds for overall level of service (LOS) and volume-to-capacity (V/C) ratios under existing conditions, with the exception of the West Saanich Road & Site Access S2 intersection. This intersection exceeds acceptable thresholds, with the eastbound movement (vehicle exiting the existing Royal Oak Shopping Centre) operating at LOS F indicating peak period delays that exceed thresholds for mitigation and a V/C ratio of approximately 1.20. Traffic mitigation measures for this Site Access S2 intersection are examined and recommended in **Section 3.2** total "with proposed re-development" scenarios.

3. FUTURE TRAFFIC CONDITIONS

3.1 Traffic Forecasts

This section presents an assessment of future traffic operations within the study area for the horizon year 2034 (the Full Built-Out Opening Day). The horizon year 2034 is based on the preliminary development phasing plan summarized in **Tables 3.1 and 3.2**. These presented phasing plans and associated anticipated opening dates are best estimates at this time.

For the purpose of analysis, although two phasing options were considered in this study, traffic operations for both options are expected to remain similar, as both options include two ramp accesses to the site's largest parkade area (Lot 4): one from the north via Site Access S2, and one from the south via Site Access S3.

Table 3.1: Preliminary Phasing Plan - Option A

DEVELOPMENT PHASE	LOT #	TIMELINE FROM 2025	OPENING YEAR
Phase 1	Lot 4	+3	2028
Phase 2	Lot 2	+5	2030
	Lot 3		
Phase 3	Lot 1	+7	2032
Phase 4	Lot 5	+9	2034
	Lot 6		
FULL BUILD-OUT OPENING DAY			2034

Table 3.2: Preliminary Phasing Plan - Option B

DEVELOPMENT PHASE	LOT #	TIMELINE FROM 2025	OPENING YEAR
Phase 1	Lot 1	+5	2030
	Lot 2		
Phase 2	Lot 3	+7	2032
	Lot 4		
Phase 3	Lot 5	+9	2034
	Lot 6		
FULL BUILD-OUT OPENING DAY			2034

Traffic conditions for the full build-out year 2034 were evaluated under two scenarios: background traffic and total traffic.

By comparing the background and total scenarios, the analysis provides a clear understanding of the incremental impact of the development on future traffic operations within the study area.

3.1.1 Background Traffic Forecasts

Background traffic is traffic that would be present on the road network if the site did not redevelop.

Historical traffic data and Bunt's relevant project experience in the District of Saanich indicate that year-over-year traffic growth in the study area has been minimal, if not declining. As a result, Bunt applied a linear growth rate of 0.5% per year to existing traffic volumes to estimate future background traffic as a conservative approach.

Exhibit 3.1 illustrates the proposed laning and traffic control under the horizon year 2034 (the Full Built-Out Opening Day). **Exhibit 3.2** illustrates the "Full Built-Out Opening Day" (2034) background volume forecasts in the study area.



Exhibit 3.1 Proposed Laning & Traffic Control in Full Built-Out Opening Day (2034)

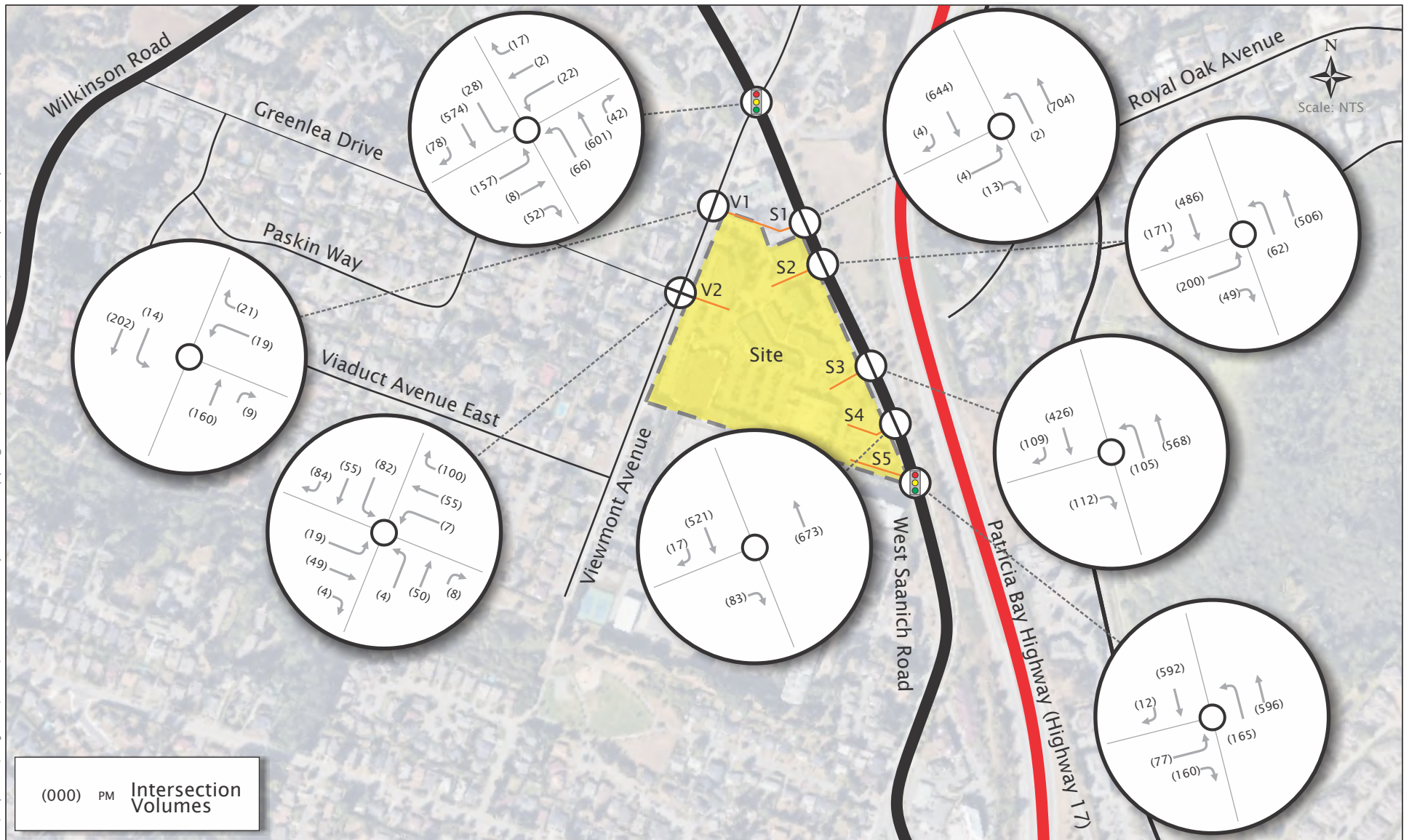


Exhibit 3.2 Full Built-Out Opening Day (2034) Background Traffic Forecasts

3.1.2 Site Traffic

Trip Generation

The *ITE Trip Generation Manual, 12th Edition* was used to estimate the vehicle trips generated by the proposed re-development. The calculations were based on the STAT received from Mallen Gowing Berzins Architecture (MGBA) on February 2nd, 2026.

The commercial trip rates are based on observed conditions at the existing site. Collected traffic data indicate that the site currently generates approximately 1,709 vehicle trips during the PM peak hour (809 inbound trips and 900 outbound trips) over an existing gross floor area (GFA) of approximately 157,900m² GFA.

ITE Land Use Code (LUC) 215 for Single Family Attached Housing, and LUC 221 for Mid-Rise Multifamily Housing, were selected as the most appropriate categories for the townhouse and multifamily residential components of the project. The residential vehicle trip rates are summarized in **Table 3.3**.

A Hotel trip rate (LUC 310) is also provided in **Table 3.3** as there is also a potential development scenario where one of the buildings be a hotel. That “With Hotel” scenario was examined with an assumption of 140 hotel units replacing 130 residential units and ground floor commercial area in Lot 4, Building F. The Hotel scenario is anticipated to have slightly higher overall trips in the peak hour of analysis and hence was applied to the traffic and parking analysis. However, it is noted that the Hotel trip rates is similar to residential rates, and importantly, the Hotel land use has its own peak trip generation time periods and parking demand periods. As such the two “No-Hotel” and “with Hotel” scenarios are comparable and considered inconsequential to the study’s findings.

Table 3.3: Peak Hour Residential & Hotel Vehicle Trip Rates

LAND USE	ITE CODE	UNITS	PM PEAK HOUR		
			IN	OUT	TOTAL
Single-Family Attached Housing	215	Dwelling Units	57%	43%	0.51
Multi-Family Housing (Mid-Rise)	221	Dwelling Units	64%	36%	0.38
Hotel	310	Rooms	51%	49%	0.47

The commercial site trip generation was also cross-checked using ITE trip generation rates. The observed site-based trip rates are approximately 14% higher than those derived using *ITE 12th Edition* rates. As a result, the existing site-based commercial trip rates were applied in this study as a conservative approach.

Table 3.4 summarizes the anticipated future site generated vehicle trips for the proposed development based on the described rates.

Table 3.4: Estimated Peak Hour Site Vehicle Trips

LAND USE	DENSITY	PM PEAK HOUR		
		IN	OUT	TOTAL
Single-Family Attached Housing	10 Dwelling Units	3	2	5
Multi-Family Housing (Mid-Rise)	686 Dwelling Units	149	112	261
RESIDENTIAL TOTAL		152 (88')	114 (88')	266 (176')
Hotel	140 Rooms	34	32	66
Commercial ²	199,153 m ² GFA	1022	1137	2160
TOTAL		1208 (1145')	1283 (1257')	2492 (2402')

1: Internal capture reductions of 42% and 23% were applied to the total inbound and outbound residential site trips, respectively.

2: The future commercial trip rates were based on the existing site-based non-residential trip rate of 10.82 trips per 1,000 m² of GFA, consisting of 5.12 inbound trips and 5.70 outbound trips per 1,000 m² of GFA. By using existing rates that include office space, the future commercial area is assumed to incorporate a similar proportion of office use.

The site is expected to generate approximately 2,492 vehicle trips in the weekday PM peak hour, including 1,208 inbound trips and 1,283 outbound trips, respectively.

The proposed mixed-use nature of the redevelopment lends itself to internal trip capture. An example of internal trip capture is future residents patronizing on-site commercial land uses and therefore these trips would not represent a vehicle trip on the external network. The NCHRP Internal Trip Capture Estimation Tool and methodology has been applied to estimate internal trip activity specific for the proposed redevelopment. To be conservative internal capture trip reductions were only applied to residential trips in this analysis as they represent the land use most impacted by potential internal trips.

Internal capture reduction factors of 42% for inbound trips and 23% for outbound trips were therefore applied to the residential land use to avoid double counting trips generated by residents within the same site. With this adjustment, the site is expected to generate approximately 2,402 vehicle trips during weekday PM peak hour, including 1,145 inbound trips and 1,257 outbound trips, respectively. Overall, the applied internal trip factor results in an approximate 4% reduction to overall site trips.

Trip Distribution & Assignment

Bunt estimated the routing of site-generated traffic using existing traffic patterns and engineering judgment. Most site trips were assumed to use West Saanich Road, which is a key northwest-southeast major arterial serving the Royal Oak and Rural Saanich areas, providing connections to Royal Oak Drive, Quadra Street, and Glanford Avenue. These corridors provide further access to the Patricia Bay Highway and the University of Victoria to the east, the City of Langford to the west, the Saanich Core and the City of Victoria to the south, and the District of North Saanich and Swartz Bay Ferry Terminal to the north.

A lower percentage of trips were assumed to route via Viewmont Avenue and Greenlea Drive due to their road network connections and proximity to the proposed site accesses.

Tables 3.5 summarizes the estimated trip distribution under both Phasing Options A and B.

Table 3.5: Estimated Trip Distribution

ORIGIN/DESTINATION	PM PEAK HOUR	
	IN (%)	OUT (%)
West Saanich Road (North)	43%	27%
West Saanich Road (South)	40%	50%
Greenlea Drive	10%	10%
Viewmont Avenue (West)	5%	10%
Viewmont Avenue (East)	2%	3%
TOTAL	100%	100%

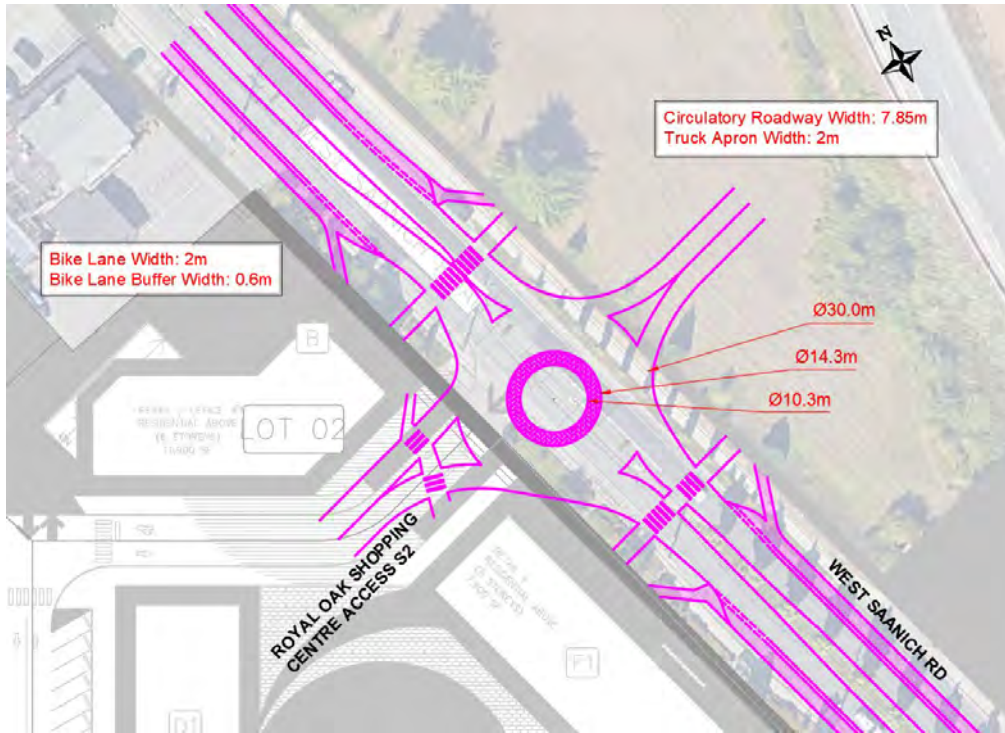
All lane configurations under the 2034 horizon year (the Full Build-Out Opening Day) were assumed to remain the same as existing conditions, except for the following changes:

- The introduction of a single lane roundabout is proposed at the Site Access S2 & West Saanich Road intersection to address existing operation constraints for vehicles accessing this access.
- The existing Site Accesses V1, V2, S1, and S4 were removed.
- Two new site accesses (Site Access V3 and Site Access V4) were proposed along Viewmont Avenue: one connecting directly across from the site's West Saanich & Site Access S2 intersection, and another directly connecting to West Saanich Road & Site Access S3 which is the existing stop-controlled intersection.

Constraints at the West Saanich Road & S2 Site Access were found in the existing condition and they are anticipated to continue in both Phasing Options A and B development scenarios. To mitigate the operation constraints at this access, Bunt considered various options including signalization, turn restrictions and additional lanes. Signalization is not a preferred option, as it would add another traffic signal along the West Saanich Road corridor, and would service only a private development rather than a public through route. Turn restrictions such as restricting the eastbound to northbound left turn movement were not considered viable, as vehicles wishing to travel north would transfer this delay to other West Saanich access points or result in greater than desired use of the Viewmont Road frontage. Additional turn lanes such as a dedicated eastbound to northbound left turn do not improve operating conditions. As such, a four-leg roundabout at the intersection of West Saanich Road and Site Access S2 is proposed by the development team. This potential design allows for potential future development to the east of West Saanich Road.

Figure 3.1 illustrates the preliminary conceptual roundabout design.

Figure 3.1: Preliminary Conceptual Roundabout Design



Detailed modifications under the 2034 horizon year are provided in **Section 3.2.1**.

Tables 3.6 and **3.7** indicate the opening and closing status of each site access under the different development phases. The internal road network within the site is expected to remain connected at all times.

Table 3.6: Preliminary Phasing Development - Option A

SITE ACCESS	PHASE 1 (LOT 4)	PHASE 2 (LOTS 2 & 3)	PHASE 3 (LOT 1)	PHASE 4 (LOTS 5 & 6)	FULL BUILT- OUT
	Opening Year: 2028	Opening Year: 2030	Opening Year: 2032	Opening Year: 2034	Opening Year: 2034
Site Access S1	✓	✓	✓	x	xx
Site Access S2	x	✓	✓	✓	✓
Site Access S3	✓	✓	✓	✓	✓
Site Access S4	✓	✓	x	xx	xx
Site Access S5	✓	✓	✓	✓	✓
Site Access V1	✓	✓	✓	x	xx
Site Access V2	✓	x	xx	xx	xx
Site Access V3	x	**	✓	✓	✓
Site Access V4	x	**	✓	✓	✓

“✓” indicates that site accesses will be reopened, or remain open, during that development phase.

“**” indicates that new site accesses will be introduced during the development phase.

“x” indicates that site accesses will be temporarily closed or not introduced during that development phase.

“xx” indicates that the site accesses will be closed permanently.

Table 3.7: Preliminary Phasing Development - Option B

SITE ACCESS	PHASE 1 (LOTS 1 & 2)	PHASE 2 (LOTS 3 & 4)	PHASE 3 (LOTS 5 & 6)	FULL BUILT-OUT
	Opening Year: 2030	Opening Year: 2032	Opening Year: 2034	Opening Year: 2034
Site Access S1	✓	✓	x	xx
Site Access S2	✓	x	✓	✓
Site Access S3	✓	✓	✓	✓
Site Access S4	x	xx	xx	xx
Site Access S5	✓	✓	✓	✓
Site Access V1	✓	✓	x	xx
Site Access V2	✓	x	xx	xx
Site Access V3	x	**	✓	✓
Site Access V4	**	✓	✓	✓

“✓” indicates that site accesses will be reopened, or remain open, during that development phase.

“**” indicates that new site accesses will be introduced during the development phase.

“x” indicates that site accesses will be closed temporarily during that development phase.

“xx” indicates that the site accesses will be closed permanently.

Site traffic forecasts for both Phasing Options A and B based on the above trip generation and assignment assumptions are presented in **Exhibit 3.3**.



Exhibit 3.3 Site Traffic Forecasts

Royal Oak Shopping Centre
08-25-0038 April 2026

3.1.3 Total Traffic

Total traffic volumes were estimated by adding site traffic volumes to the background traffic volumes, as shown in **Exhibit 3.4** for both the Option A and B phasing plans.



Exhibit 3.4 Full Built-Out Opening Day (2034) Total Traffic Forecasts

3.2 Future Traffic Operations

3.2.1 Future Conditions Analysis Assumptions

The Synchro parameters used in the Existing Conditions analysis (**Section 2.5**) were retained for the Future Conditions analysis, except for the following modifications:

- The intersection of Site Access S2 and West Saanich Road was modeled as a roundabout intersection.
- The following intersections were included in the Existing Conditions analysis (**Section 2.5**) but removed from the Future Conditions analysis:
 - Site Access S1 and West Saanich Road
 - Site Access S4 and West Saanich Road
 - Site Access V1 and Viewmont Avenue
 - Site Access V2 and Viewmont Avenue
- The two new site accesses along Viewmont Avenue (Site Access V3 and Site Access V4) were modeled as minor-leg, stop-controlled, unsignalized intersections. A default PHF value of 0.92 and HV% of 2% were applied in the Synchro model, where these default values reflect typical conditions for urban areas based on Bunt's experience.

For the intersection of Site Access S2 and West Saanich Road, SIDRA 9 software was used to evaluate traffic operations of a proposed roundabout. Assumptions were made as follows:

- Approach grades were modeled as follows:
 - Northbound (NB): +3.8%
 - Southbound (SB): -5.9%
 - Eastbound (EB): +4.5%
 - Westbound (WB): +3.8%
- Pedestrian volumes of 50 pedestrians per hour per crossing leg were assumed for the future condition once the roundabout is operational.
- Additional traffic demand of 50 vehicles was added to movements that do not exist in the current layout (i.e., SBL, NBR, EBT, WBL, WBT, and WBR).
- Roundabout geometry was assumed as follows:
 - Central island diameter: 15 m
 - Entry radius: 30 m
- All other parameters were maintained at SIDRA 9 default values.

3.2.2 Full Built-Out Opening Day (2034) Traffic Operations

Table 3.8 presents the Full Built-Out Opening Day (2034) Background and Total traffic operations at the study intersections for the PM peak hours under both the Phasing Plan Options A & B.

Table 3.8: Full Built-Out Opening Day (2034) PM Peak Hour Traffic Operations

INTERSECTION/ TRAFFIC CONTROL	MOVEMENT	BACKGROUND PM			TOTAL PM		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
W Saanich Rd & Site Access S1 (Minor-leg stop-controlled)	OVERALL	A	-	-	-		
	EBLR	C	0.06	5			
	NBL	A	0.00	0			
	NBT	A	0.43	0			
	SBTR	A	0.40	0			
W Saanich Rd & Site Access S2 (Minor-leg stop-controlled in Background PM)	OVERALL	B	-	-	-		
	EBLR	F	1.20	100			
	NBL	A	0.08	5			
	NBT	A	0.31	0			
	SBTR	A	0.40	0			
W Saanich Rd & Site Access S2 & Potential New West-Leg St (Roundabout in Total PM)	OVERALL	-			B	0.85	-
	WBLTR				B	0.30	20
	EBLTR				D	0.85	100
	NBLTR				B	0.73	70
	SBLTR				A	0.82	100
W Saanich Rd & Site Access S3 (Minor-leg stop-controlled)	OVERALL	A	-	-	B	-	-
	EBR	B	0.21	10	C	0.28	10
	NBL	A	0.11	5	B	0.21	10
	NBT	A	0.35	0	A	0.39	0
	SBTR	A	0.33	0	A	0.54	0
W Saanich Rd & Site Access S4 (Minor-leg stop-controlled)	OVERALL	A	-	-	-		
	EBR	B	0.16	5			
	NBT	A	0.41	0			
	SBTR	A	0.33	0			
W Saanich Rd & Site Access S5 (Signalized)	OVERALL	B	0.62	-	D	0.83	-
	EBL	C	0.29	20	C	0.38	30
	EBR	C	0.11	15	C	0.28	25
	NBL	A	0.40	20	B	0.62	30
	NBT	A	0.50	70	A	0.53	85
	SBTR	B	0.74	140	D	1.02	230 (95**)

INTERSECTION/ TRAFFIC CONTROL	MOVEMENT	BACKGROUND PM			TOTAL PM		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
Viewmont Ave & Site Access V1 (Minor-leg stop-controlled)	OVERALL	A	-	-	-		
	WBLR	B	0.06	5			
	NBTR	A	0.11	0			
	SBTR	A	0.01	0			
Viewmont Ave & Greenlea Dr/Site Access V2 (Minor-leg stop-controlled)	OVERALL	A	-	-	-		
	EBLTR	B	0.16	5			
	WBLTR	B	0.26	10			
	NBLTR	A	0.00	0			
	SBLTR	A	0.06	5			
Viewmont Ave & Greenlea Dr (Minor-leg stop-controlled)	OVERALL	-			A	-	-
	EBLR				B	0.22	10
	NBLT				A	0.07	5
	SBTR				A	0.12	0
Viewmont Ave & Site Access V3 (Minor-leg stop-controlled)	OVERALL	-			A	-	-
	WBLR				B	0.19	5
	NBTR				A	0.08	0
	SBLT				A	0.04	5
Viewmont Ave & Site Access V4 (Minor-leg stop-controlled)	OVERALL	-			A	-	-
	WBLR				B	0.26	10
	NBTR				A	0.07	0
	SBLT				A	0.04	5
W Saanich Rd & Viewmont Ave (Signalized)	OVERALL	B	0.55*	-	C	0.76*	-
	EBLT	D	0.69	45	D	0.78	70
	EBR	C	0.03	0	C	0.03	0
	WBLTR	C	0.10	10	C	0.21	20
	NBL	A	0.19	10	B	0.31	10
	NBTR	A	0.54	75	A	0.60	85
	SBL	A	0.07	10	A	0.09	10
	SBTR	B	0.69	120	D	1.02	230

Note: NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound, L = Left, T = Through, R = Right (e.g., NBLTR = Northbound Left/Through/Right Lane).

Bolded results indicate values that are close to exceeding acceptable performance criteria.

Bolded results indicate values that do not meet acceptable performance criteria.

"-" indicates a value not applicable to that particular intersection or movement.

"*" indicates the overall V/C ratio results for the signalized intersection that were calculated using the weighted average method.

"**" indicates the SimTraffic results.

West Saanich Road & Site Access S2 Intersection:

Under the background traffic scenario for the Full Build-Out Opening Day (2034) PM peak hour, all study intersections are projected to operate within acceptable level of service (LOS) and volume-to-capacity (V/C) thresholds, with the exception of the intersection of West Saanich Road & Site Access S2. As discussed in **Section 2.5.2**, this intersection already exceeds acceptable thresholds under existing conditions, with the eastbound movement operating at LOS F and a V/C ratio of approximately 1.20.

To mitigate these conditions, and to accommodate both background and site-generated traffic associated with redevelopment, a four-leg roundabout at the intersection of West Saanich Road & Site Access S2 is proposed by the development team. To evaluate the operations of a roundabout Bunt utilizes roundabout specialty Sidra software. The Sidra software produces the same HCM operation indicators as Synchro but is believed to provide more accurate measures of roundabouts. Under the total traffic scenario for the full build-out opening day (2034) PM peak hour, the introduction of the roundabout at Site Access S2 is shown to result in an improvement in the eastbound movement from LOS F to LOS D, with the V/C ratio decreasing from 1.20 to approximately 0.85. Overall, all movements at this S2 intersection as a single lane roundabout are shown to operate within acceptable LOS and V/C thresholds under the Full Build-Out Opening Day (2034) Total PM peak hour scenario with the proposed roundabout in place.

West Saanich Road / Viewmont Avenue & Site Accesses Intersections:

Except for Site Access S2, all site accesses under the background PM peak-hour scenario, including Site Accesses S1, S3, S4, S5, V1, and V2, are expected to operate within acceptable level of service (LOS) and volume-to-capacity (V/C) thresholds.

Under the Total PM peak-hour scenario, only Site Accesses S2, S3, and S5 are retained from the existing layout, with Site Accesses S2 being modified and two new site accesses (V3 and V4) being introduced, as described in **Section 3.2.1**. All retained, modified, and new site access intersections are projected to operate at acceptable LOS. However, the southbound through and right-turn movement at the signalized intersection of West Saanich Road & Site Access S5 is forecast to exceed the acceptable V/C threshold, with a modeled V/C ratio of approximately 1.02. This issue, where the V/C threshold is exceeded while the LOS remains within thresholds, is considered to be a limitation of the Synchro software. In situations such as this Bunt examines the intersection using SimTraffic, which is a microsimulation module within the Synchro software package. Simtraffic extends Synchro's capacity analysis by providing more detailed, vehicle-level modelling that more accurately captures operational variability, driver behavior, and queuing patterns. The Simtraffic results are provided in **Appendix B**. The SimTraffic analysis indicates that both the southbound through and right-turn movements are expected to operate within acceptable thresholds of LOS D based on SimTraffic delay results. The 95th percentile queue length from SimTraffic is approximately 95m.

West Saanich Road & Viewmont Avenue Intersection:

Similar to the existing condition modelling, the overall V/C ratio for the signalized intersection at West Saanich Road & Viewmont Avenue was calculated using the weighted average method. This methodology

was selected since the HCM 2000 method implemented in Synchro yields higher V/C ratio that exceeds the V/C of the individual movement, which is not theoretically valid.

This intersection also experiences a similar condition where the individual movement LOS remains acceptable, while the corresponding V/C threshold is exceeded. This is considered a limitation of the HCM analytical procedures rather than a true operational concern. The southbound approach is expected to operate under acceptable conditions, as the southbound through and southbound right-turn movements are both projected to operate at LOS E, based on SimTraffic delay results.

Modifications at this West Saanich Road & Viewmont Avenue intersection are anticipated as part of the proposed development at 4512 West Saanich Road. It is recommended that signal optimization be undertaken in coordination with proposed intersection modifications as well as local area development.

Overall Traffic Mitigation

No roadway or traffic control improvements are considered necessary for the future the Full Build-Out Opening Day (2034) PM peak hour conditions, except that a new roundabout is proposed by Bunt and the developer at the intersection of Site Access S2 & West Saanich Road, to accommodate the future traffic.

Bunt also recommends that the traffic signal timing plan at the West Saanich Road & Viewmont Avenue be reviewed and optimized in coordination with the proposed development as well as with potential development at the adjacent 4512 West Saanich Road site.

4. SITE PLAN DESIGN REVIEW

4.1 Site Access Design

Bunt conducted AutoTURN swept path analysis to confirm internal vehicle operations, including access for a large semi-truck loading vehicle (WB-20) serving the future grocery store and standard loading vehicles (MSU) for all other at-grade parking areas. The analysis also confirmed fire truck accessibility to all proposed on-site buildings using a 14.35 m fire truck (Pierce 47 ft).

The swept path analysis is provided in **Appendix C**. It is noted that this is based on a preliminary plan review. No major concerns or conflicts were identified. Bunt's key recommendations below are provided to assist in improving designs in the subsequent development process:

- Site Accesses S3 and S5 should remain open at all times to allow access for the largest loading vehicles.
- Provide a minimum height clearance of 4.3m over loading vehicles' entire driving path.
- Provide a larger corner radius at Site Access S3 to accommodate WB-20 truck turning movements.
- Modify the landscape island along the internal road accessed from Site Access S3 and ensure the highlighted areas are drivable or mountable to accommodate circulation for both Class C loading trucks and fire trucks.
- Loading management plan would be required to restrict outbound left-turn movements for WB20 loading vehicles and allow only right-turn exits at Site Access S5, in order to avoid potential encroachment into the centre boulevard median.
- Loading vehicle access and maneuver require use of the full drive aisle width. Recommend installing convex mirrors at parkade corners, conducting loading activities during off-peak hours, and having personnel on-site to facilitate loading access/egress.
- Provide parkade ramp transition slopes no greater than 7.5% for at least 4m to reduce potential vehicle drag, with the maximum slope of the remaining sections limited to 15% or less.
- Install convex mirrors at turning corners to improve sightlines for passenger vehicles and to accommodate two-way concurrent passenger vehicle movements along the proposed 180-degree ramp that accesses Lot 4 parkade from the north.

4.2 Parking Supply

The *District of Saanich's Zoning Bylaw 8200* includes minimum off-street parking for different land use types. This section reviews these minimum requirements and compares them with the proposed parking supply. It also provides guidance on future bicycle and loading space provisions by identifying the minimum requirements under the applicable bylaw.

The following analysis is based on statistics received from MGBA Architecture on February 2, 2026. As a detailed breakdown of specific non-residential land uses (e.g., supermarket, liquor store, restaurant, medical clinic, etc.) has not been determined at this stage, the “*Shopping Centres greater than 1,000 m² and less than 23,225 m² of gross leasable floor area*” subcategory from the Zoning Bylaw has been applied in this section to provide an overview of anticipated parking demand.

In addition, as noted in **Section 3.1.2**, a potential development scenario includes a hotel use within Building F in Lot 4. As such, the “With Hotel” scenario has been considered in the parking analysis.

4.2.1 Vehicle Parking

Table 4.1 outlines the base District of Saanich Zoning Bylaw (8200 Section 7) requirements applicable to the Royal Oak Shopping Centre redevelopment. The Off-Street Parking Bylaw (8200 Section 7) was recently amended to reduce minimum vehicle parking requirements for developments with over 13 units and instead introduce parking maximums for residential land uses, effective January 1, 2025, however minimum accessible parking spaces must still be provided.

In addition, as the Zoning Bylaw does not specify minimum vehicle parking requirements for hotel land use, the *ITE Parking Generation Manual, 6th Edition*, was applied to the potential hotel use in this review.

Table 4.1: Bylaw Vehicle Parking Supply Rates

USE	BYLAW REFERENCE	BYLAW RATE
Commercial (Shopping Centre)	Table 7.1 (4.11)	(1). 1 space per 19 m ² (204 ft ²) of gross leasable floor area; (2). Minimum 5% of spaces to be energized spaces; (3). Minimum 6 EVSEs (Electric Vehicle Supply Equipment); (4). Minimum charging Level of L2.
Hotel	<i>ITE Parking Generation Manual, 6th Edition</i>	Weekday Average Rate: 0.64/room under “All Sites” land use subcategory and “General Urban/Suburban” settings.
Residential (Apartment)	Table 7.1 (1.7)	(1). No minimum required parking spaces; (2). Maximum 1.5 spaces per dwelling unit; (3). Minimum charging Level of L2M; (4). 100% of parking spaces provided must be Energized Spaces;
Residential (Townhouse)	Table 7.1 (1.1)	(1). Minimum 1 space per dwelling unit; (2). Minimum 1 energized space; (3). Minimum charging Level of L2M.

Table 4.2 outlines the vehicle parking requirements based on the upshot statistics and compares these to the development's proposed supply.

Table 4.2: Vehicle Parking Supply Requirement & Provision – Upshot Statistics

LOT #	LAND USE	UPSHOT DENSITY	BYLAW SUPPLY REQUIREMENT		PROVIDED	DIFFERENCE
			MIN	MAX		
Lot 1	Commercial (Shopping Centre)	48,300 ft ² / 4,487 m ² GFA	237		213	-24
	Apartment	155 D.U.	N/A	233	89	+89
Lot 2	Commercial (Shopping Centre)	64,200 ft ² / 5,964 m ² GFA	315		147	-168
	Apartment	287 D.U.	N/A	431	170	+170
Lot 3	Commercial (Shopping Centre)	14,740 ft ² / 1,369 m ² GFA	72		35	-37
	Apartment	91 D.U.	N/A	137	57	+57
	Townhouse	10 D.U.	10	N/A	10	0
Lot 4	Commercial (Shopping Centre)	60,830 ft ² / 5,651 m ² GFA	298		159	-139
	Hotel	140 Rooms	90 ⁽²⁾		69	-21
	Apartment	52 D.U.	N/A	78	36	+36
Lot 5	Commercial (Shopping Centre)	0 ft ² / 0 m ² GFA	0		0	0
	Apartment	46 D.U.	N/A	69	22	+22
Lot 6	Commercial (Shopping Centre)	11,083 ft ² / 1,030 m ² GFA	54		0	-54
	Apartment	55 D.U.	N/A	83	0	0
TOTAL (COMMERCIAL)		199,153 FT ² / 18,502 M ² GFA	976		554	-422
TOTAL (HOTEL)		140 ROOMS	90		69	-21
TOTAL (APARTMENT)		686 D.U.	MINIMUM REQUIRED: 16 ACCESSIBLE SPACES MAXIMUM ALLOWED: 1,031 ⁽¹⁾		374	+358
TOTAL (TOWNHOUSE)		10 D.U.	10		10	0
TOTAL (WHOLE SITE)			1,092		1,007	-85

(1). Maximum number of vehicle parking spaces allowed.

(2). ITE Parking Generation rate of 0.64 / room for hotel land use.

As shown in **Table 4.2**, the proposed site plan provides a total of 1,007 vehicle parking spaces, including 623 for non-residential use (of which 554 are allocated to commercial uses and 69 to hotel use), and 384 for residential use. Using the upshot statistics (shown on **Table 1.1**), the results indicate a net shortfall of 85 parking spaces relative to the Saanich Bylaw requirements. Specifically, the development falls short of the commercial shopping centre parking requirement by 422 spaces and the hotel parking requirement by 21 spaces, while meeting the residential requirements with provided parking ratios of 0.54 spaces per

apartment unit and 1.00 space per townhouse unit. The small net shortfall is lower than the commercial shortfall due to the recently adopted low residential parking requirements.

Note that, if the original proposed statistics presented in **Table 1.1** were used, the development will provide a total of 453 parking spaces for the residential components of the development, corresponding to parking ratios of 0.65 spaces per apartment unit and 1.00 space per townhouse unit.

Although the commercial and hotel parking provisions indicate a variance from bylaw requirements based on the upshot statistics, the proposed commercial stalls are considered viable due predominately to the proposed supply being informed by the existing site's commercial parking supply and demand profiles. These are further supported by the site's location in an area with viable non-private vehicle transportation alternatives and the potential for shared parking between land uses, such as commercial spaces being shared with residential visitors. A shared parking review was conducted and summarized in the report's following sub-section.

The phase-by-phase approach to the development will allow the development to reevaluate parking allocations based on observed demands, for example a potential surplus of resident spaces may provide the opportunity to convert resident spaces to commercial spaces, or vice versa should they be determined to be required after occupancy.

Note that this section is intended to provide an overview and general guidance. Bunt acknowledges that, as the development progresses and more detailed information on land use and phasing becomes available, the analysis may need to be revisited and refined in subsequent reporting specific for later development permit stages of the development.

Visitor Spaces

As per the *Bylaw 8200 Section 7.4.a*, 0.3 spaces per dwelling unit of the required parking space shall be designated as visitor spaces.

Previous research conducted by Bunt has repeatedly suggested that a visitor parking rate of 0.05 to 0.07 spaces per unit for residential buildings is adequate to accommodate residential visitor peak demands. This is supported by Metro Vancouver's comprehensive "*2012 Metro Vancouver Residential Apartment Parking Study*"². The study found peak visitor parking demand rates in the range of 0.05 to 0.07 vehicles per unit for multi-family residential in a variety of locations and apartment types. This is consistent with Bunt's in-house database of peak visitor parking demand rates.

A visitor parking demand rate of 0.07 spaces per unit would translate to a peak period demand of approximately 48 parking spaces for the proposed 687 residential units. This demand is anticipated to be accommodated through shared use with the commercial parking supply. As per *Bylaw 8200 Section 7.4.a.(i)*, up to 15% of the parking spaces required for the commercial component may be shared with residential visitor parking in a mixed residential and commercial development. Therefore, up to 160 spaces (out of the total 1,066 spaces required for the commercial component, including 976 spaces for commercial use and 90 spaces for hotel use) could be allocated for shared residential visitor parking. Similarly, from the proposed parking supply perspective, 83 spaces (out of the 554 spaces proposed for the commercial component) could be shared, which is sufficient to accommodate the estimated residential visitor parking demand of 48 spaces.

Shared Parking Review

Bunt utilized the Urban Land Institute's (ULI) Shared Parking Model (2020) time-of-day proportions to understand the parking demand percentage of the development throughout the day. The ULI is a global network of professionals in all sectors of real estate development and land use, in private enterprise and public service. ULI provides standards and best practices for development and land use.

As detailed land uses have not yet been finalized for the proposed development, "Retail" land use was used to represent the broader "Commercial" category for the purpose of the parking demand analysis, which may include but not limited to uses such as a supermarket, liquor store, restaurant, and medical clinic.

Base parking ratios are shown in **Tables 4.3 and 4.4**. The ULI model provides ratios for a weekday and a weekend condition and does not provide information for specific days of the week.

² 2012 Metro Vancouver Apartment Parking Study available at:
https://www.esquimalt.ca/sites/default/files/docs/municipal-hall/EVP/schedule_m_parking_study.pdf

Table 4.3: ULI Base Parking Ratios & Demands – Original Statistics

LAND USE	ULI WEEKDAY BASE RATE	ULI WEEKEND BASE RATE	ORIGINAL DENSITY	ESTIMATED WEEKDAY BASE DEMAND	ESTIMATED WEEKEND BASE DEMAND
Retail Visitor	2.90	3.20	191,230 ft ² / 17,766 m ² GFA	555 spaces	612 spaces
Residential Visitor	0.10	0.15	676 D.U.	68 spaces	101 spaces

Table 4.4: ULI Base Parking Ratios & Demands – Upshot Statistics

LAND USE	ULI WEEKDAY BASE RATE	ULI WEEKEND BASE RATE	UPSHOT DENSITY	ESTIMATED WEEKDAY BASE DEMAND	ESTIMATED WEEKEND BASE DEMAND
Retail Visitor	2.90	3.20	199,153 ft ² / 18,502 m ² GFA	578 spaces	637 spaces
Hotel Visitor ¹	1.00	1.00	140 Rooms	140 spaces	140 spaces
Residential Visitor	0.10	0.15	687 D.U.	69 spaces	103 spaces

1. Hotel scenario shown on Table 4.4 could be either in original or upshot scenario replacing approximately 130 dwelling units.

By applying weekday and weekend time-of-day adjustment factors derived from ULI default values to the base parking demands presented in Table 4.4, the projected daily parking demand based on the upshot statistics was calculated. The results are summarized in Figures 4.1 and 4.2 for all applicable uses within the development.

Figure 4.1: Daily Parking Demand by Hour (Weekday)

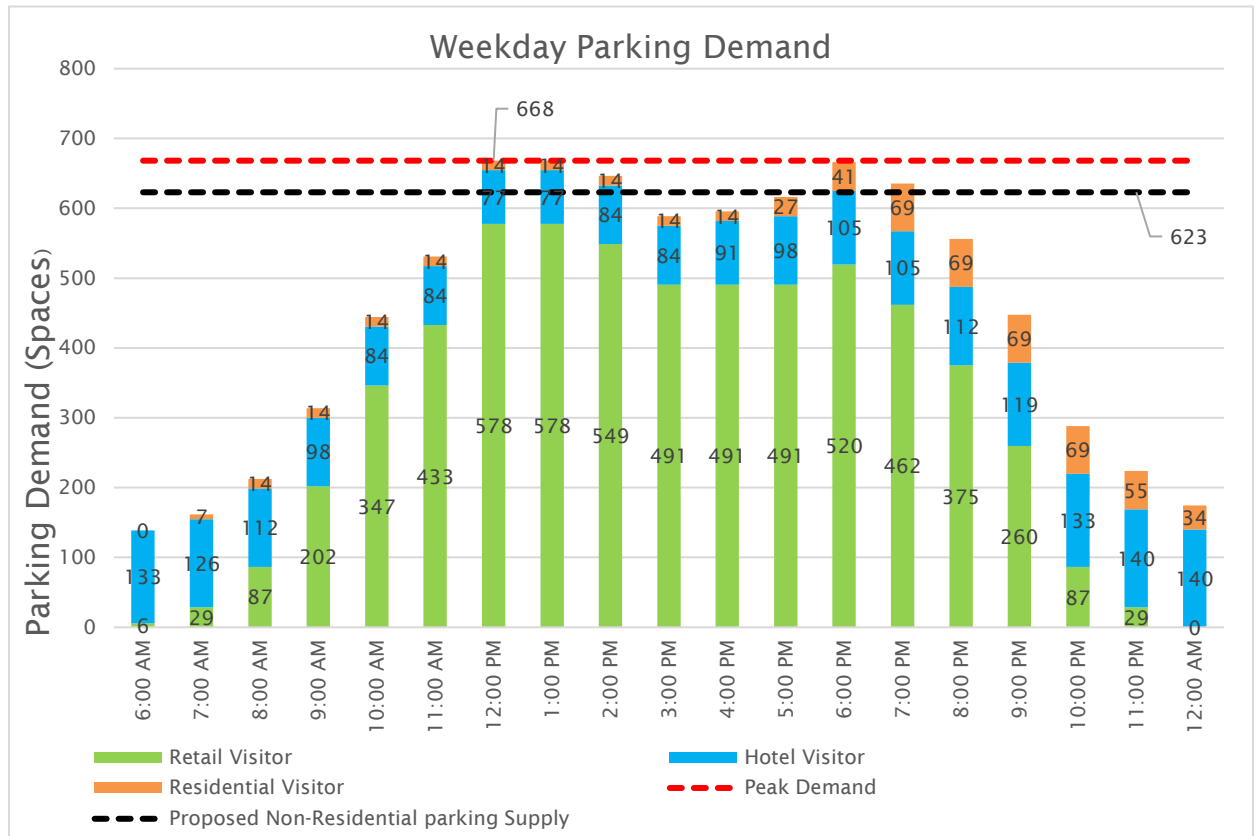
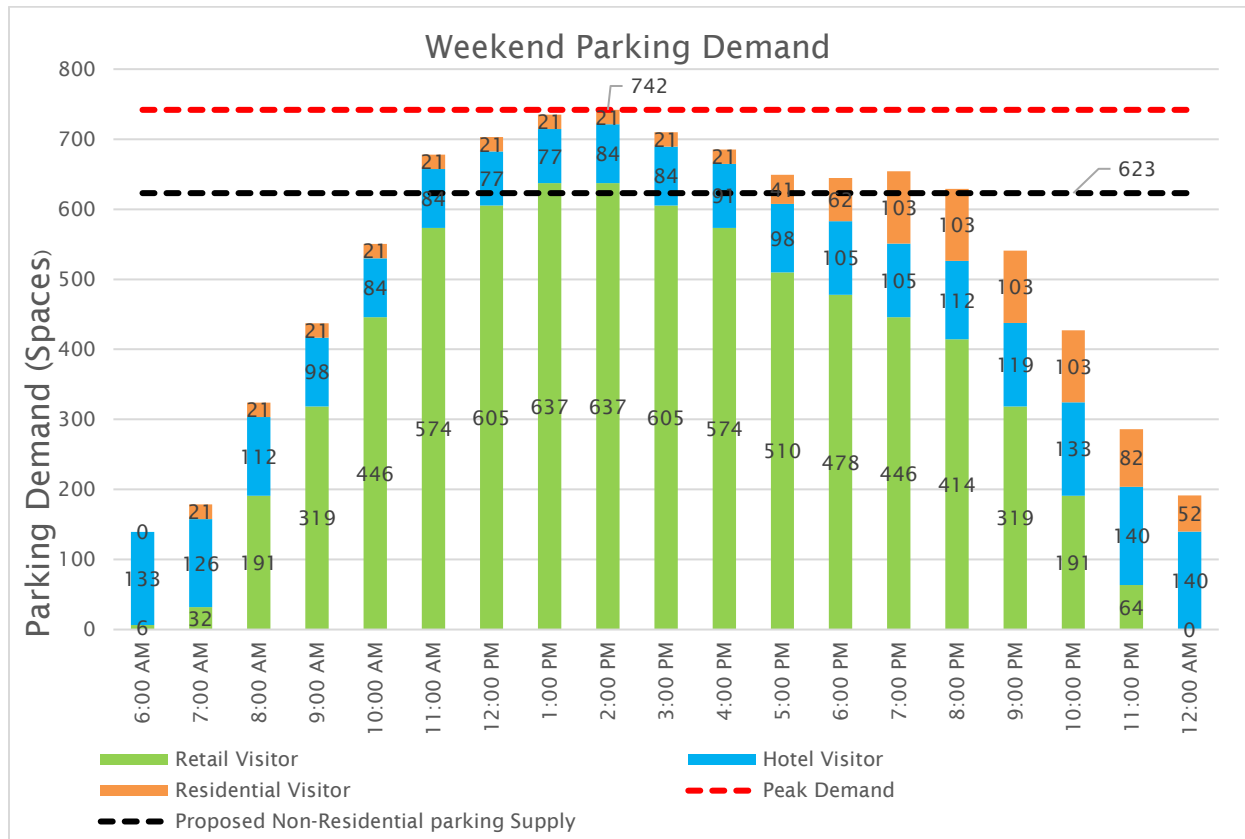


Figure 4.2: Daily Parking Demand by Hour (Weekend)

As illustrated, combined peak parking demand is anticipated to be slightly higher on weekends than on weekdays. The shared peak parking demand is projected to occur on a weekday at 12 PM, with 668 spaces required, while the weekend peak demand is 742 spaces occurring at 2 PM.

Both Figures indicate that the peak parking demand for retail visitors, hotel visitors, and residential visitors occurs at different time periods of the day. Retail visitor parking demand is expected to peak between 12 PM and 1 PM on both weekdays and weekends. Hotel visitor parking demand is expected to peak after 11 PM on both weekdays and weekends. Residential visitor parking demand is expected to peak between 7 PM and 10 PM on both weekdays and weekends.

The differing peak period for applicable land uses further support the opportunity to share non-residential parking spaces with residential visitor parking.

The current proposed parking provision, as discussed previously, includes a total of 1,007 spaces across the site, comprising 384 residential-only spaces, 69 hotel spaces, and 554 commercial spaces.

Based on the parking demand analysis, peak demand is expected to occur on weekends, with approximately 742 spaces required. Even with shared parking assumptions, the analysis indicates that the proposed non-resident parking supply of 623 spaces may be insufficient to meet peak period demand, resulting in a shortfall of 45 spaces on weekdays and 119 spaces on weekends.

However, this analysis was based on the upshot statistics as a conservative approach. If the original proposed statistics are used, the estimated weekday peak parking demand would be approximately 568 spaces, which is lower than the proposed non-residential parking supply of 623 spaces and therefore sufficient; the estimated weekend peak parking demand would be approximately 632 spaces, which is slightly higher than the proposed supply. In addition, the proposed number of commercial parking spaces is generally consistent with the existing on-site supply. The operator has indicated that this supply is anticipated to be adequate based on observed demand at the existing site, given that the proposed development is expected to include similar commercial uses, despite a slightly higher gross floor area.

As such, Bunt recommends that, in addition to implementing a robust TDM package, parking utilization be monitored on a phase-by-phase basis, with adjustments to parking allocation or development scale as needed to ensure adequate on-site parking supply.

Small Vehicle Spaces

As per *Bylaw 8200 Section 7.5*, up to 35% and 30% of the total required off-street parking spaces for residential and non-residential land uses, respectively, may be designated as small car spaces. As such, up to 361 of the 1,031 required residential apartment parking spaces may be designed as small car spaces at maximum. Similarly, up to 293 of the 976 required commercial parking spaces and up to 27 of the 90 required hotel parking spaces may be designed as small car spaces at maximum. The development is expected to meet these requirements.

Applying these small car spaces maximums to the proposed parking supply rather than the bylaw required spaces would permit up to 134 residential small car spaces, 21 hotel small car spaces, and 166 commercial small car spaces, for a total of 321 small vehicle spaces across the site. The proposed development is anticipated to meet these requirements.

Accessible Spaces

As per the *Bylaw 8200 Table 7.1B* and *Section 7.4 (b)*, a minimum of 12 accessible parking spaces is required for the commercial land use and 1 accessible parking space for the hotel land use. In addition, a minimum of 16 accessible parking spaces are required for the residential apartment land use category, of which at least 6 must be Van-Accessible spaces. The development is expected to meet these requirements and to position the Accessible spaces near building entries.

Electric Vehicle Spaces

As per the Bylaw, “Energized Spaces” refer to spaces that have Energized EV Outlets. “Minimum Electric Vehicle Supply Equipment” refers to the Energized Spaces that must also be provided with Electric Vehicle Supply Equipment.

The development will provide electric vehicle charging stalls in accordance with the Bylaw requirements which stipulates a requirement for all residential apartment spaces to be Energized Spaces.

4.2.2 Bicycle Parking

The base District of Saanich Zoning Bylaw (8200 Section 7) Bicycle Parking Space requirements applicable to the Royal Oak Shopping Centre redevelopment is summarized in **Table 4.5**.

Table 4.5: Bylaw Bicycle Parking Supply Rates

USE	BYLAW REFERENCE	BYLAW RATE
Commercial (Shopping Centre)	Table 7.4	(1). 1 space per 250 m ² GFA for first 5,000 m ² , plus 1 space for each additional 500 m ² or portion thereof; (2). 30% of the required bicycle spaces to be Class I; (3). 70% of the required bicycle spaces to be Class II.
Hotel		(1). 1 space per 15 rooms; (2). 60% of the required bicycle spaces to be Class I; (3). 40% of the required bicycle spaces to be Class II, plus a 6-space visitor rack if room number > 75.
Residential (Apartment / Townhouse)		(1). 1 space per dwelling unit (Class I); (2). Plus a 6-space rack at each entrance of an apartment (Class II).

“Class I” bicycle parking is a secure, weather-protected bicycle parking facility used to accommodate long-term parking, such as for residents or employees, usually within a room or covered, fenced area. “Class II” refers to a short-term visitor bicycle parking facility provided near a building entry in a well lit, preferably covered area, for example, a bike rack at a building’s entrance.

Table 4.6 outlines the corresponding bicycle parking requirements. Note that although the design of the bicycle parking facilities is still underway, the development is expected to meet the applicable requirements as the project progresses.

Table 4.6: Bicycle Parking Supply Requirement – Upshot Statistics

LOT #	LAND USE	UPSHOT DENSITY	BYLAW SUPPLY REQUIREMENT		TOTAL
			CLASS I	CLASS II	
Lot 1	Commercial	48,300 ft ² / 4,487 m ² GFA	5	13	18
	Apartment	155 D.U.	155	6 ⁽¹⁾	161
Lot 2	Commercial	64,200 ft ² / 5,964 m ² GFA	7	15	22
	Apartment	287 D.U.	287	6 ⁽¹⁾	293
Lot 3	Commercial	14,740 ft ² / 1,369 m ² GFA	2	4	6
	Apartment	91 D.U.	91	6 ⁽¹⁾	97
	Townhouse	10 D.U.	10	0	10
Lot 4	Commercial	60,830 ft ² / 5,651 m ² GFA	7	15	22
	Apartment	140 Rooms	52	6 ⁽¹⁾	58
	Hotel	52 D.U.	6	10	16
Lot 5	Commercial	0 ft ² / 0 m ² GFA	0	0	0
	Apartment	46 D.U.	46	6 ⁽¹⁾	52
Lot 6	Commercial	11,083 ft ² / 1,030 m ² GFA	1	3	4
	Apartment	55 D.U.	55	6	61
TOTAL (COMMERCIAL)		199,153 FT ² / 18,502 M ² GFA	22	50	72
TOTAL (HOTEL)		140 ROOMS	6	10	16
TOTAL (APARTMENT)		686 DU	686	36	722
TOTAL (TOWNHOUSE)		10 DU	10	0	0
TOTAL (WHOLE SITE)			724	96	820

(1). A rack of 6 spaces at the entrance of an apartment.

As shown in **Table 4.6**, the proposed redevelopment is anticipated to require 724 Class I bicycle spaces and 96 Class II spaces for a site total of 820 bicycle spaces. These spaces are anticipated to be provided by the development with Class I spaces in locked secure bicycle storage rooms that are positioned near building elevator cores and Class II spaces positioned at highly visible locations near building entries.

Note that the analysis was based on the upshot statistics. If the original proposed statistics were used, the development would be required to provide a total of 700 Class I bicycle spaces (676 for apartment use, 14 for commercial use, and 10 for townhouse use) and 68 Class II bicycle spaces (36 for apartment use and 32 for commercial use).

4.2.3 Loading

The *District of Saanich's Zoning Bylaw 8200* also includes minimum requirements for residential off-street loading and service spaces. However, no specific bylaw requirements currently apply to the proposed non-residential land uses associated with this project. As such, the proposed loading supply for non-residential land use is based on loading activity at the existing Royal Oak Shopping Centre and the increased demand anticipated with the redevelopment.

To provide additional context and reference, loading requirements applicable to comparable land uses and developments were also reviewed, even where such requirements do not directly apply to this project. This review is intended to provide general guidance and a reasonable benchmark for the proposed loading provision.

Table 4.7 presents the off-street loading rates for the proposed land uses, while **Table 4.8** compares the minimum requirement based on the upshot statistics.

Table 4.7: Off-Street Loading Supply Rates

LAND USE	BYLAW REFERENCE	MEDIUM	LARGE
Commercial ⁽¹⁾	Table 8.1 ⁽¹⁾	1 space if GFA $\geq 700\text{m}^2$ (7,535 ft ²) and $\leq 1,400\text{m}^2$ (15,070 ft ²); plus 1 space for each additional 1,400 m ² (15,070 ft ²) or portion thereof ^{(1) (2)} .	
Hotel	Table 8.1 ⁽¹⁾	1 space if GFA $\geq 700\text{m}^2$ (7,535 ft ²) and $\leq 1,400\text{m}^2$ (15,070 ft ²); plus 1 space for each additional 1,400 m ² (15,070 ft ²) or portion thereof ^{(1) (2)} .	
Residential (Apartment)	Table 7.6A	1 space if d.u. ≥ 101 and ≤ 250 ; plus 1 space for every 250 additional dwelling units or portion thereof ⁽³⁾ .	1 space if d.u. ≥ 13 ⁽⁴⁾ .
Residential (Townhouse)	Table 7.6A		

(1). Provided for reference purposes only and not required for this development.

(2). Minimum on-site loading space dimension for applicable land uses: 3.0m in width, 14.5m in length, and 4.25m height clearance.

(3). Minimum on-site medium loading space dimension for residential land uses: 3.0m in width, 7.5m in length, and 3.5m height clearance.

(4). Minimum on-site large loading space dimension for residential land uses: 3.5m in width, 10.2m in length, and 4.5m height clearance.

Table 4.8: Loading Supply Requirement & Provision – Upshot Statistic

LAND USE	LOT #	UPSHOT DENSITY	UNIT	BYLAW SUPPLY REQUIREMENT	
				MEDIUM	LARGE
Commercial ⁽¹⁾	LOT 1	48,300	ft ² GFA	4 ⁽¹⁾	
	LOT 2	64,200		5 ⁽¹⁾	
	LOT 3	14,740		1 ⁽¹⁾	
	LOT 4	60,830		5 ⁽¹⁾	
	LOT 6	11,083		1 ⁽¹⁾	
	TOT			16 ⁽¹⁾	
Hotel ^{(1) (2)}	Lot 4	83,937	ft ² GFA	6 ⁽¹⁾	
	TOT			6 ⁽¹⁾	
Residential (Apartment)	LOT 1	155	D.U.	1	1
	LOT 2	287		2	1
	LOT 3	91		0	1
	LOT 4	52		0	1
	LOT 5	46		0	1
	LOT 6	55		0	1
	TOT			3	6
Residential (Townhouse)	LOT 3	10	D.U.	0	0
	TOT			0	0

(1). Provided for reference purposes only and not required for this development.

(2). Assuming the average gross floor area (GFA) of one hotel room is 600 ft² (55.7 m²), the total for 140 rooms would translate to approximately 84,000 ft² (7,798 m²) of GFA.

As shown in **Table 4.8**, a minimum of 3 medium and 6 large loading spaces are required for the residential use based on the upshot statistics. The proposed loading supply shortfall of 1 large loading space per the minimum bylaw requirements, as the latest statistics received on February 2, 2026, indicates that a total of 8 large loading spaces will be provided.

In addition, based on a review of loading requirements for comparable developments, a total of 25 loading spaces (16 for commercial use and 6 for hotel use) would typically be required for non-residential land uses. However, considering the observed loading activity at the existing site and the future demand anticipated with the redevelopment, the proposed provision of 6 Class A and 8 large loading spaces is considered adequate to meet operational needs for the site. Also note that, if the original proposed statistics are used, a total of 13 loading spaces would typically be required for non-residential land uses.

5. TDM & ACTIVE MODES

5.1 Definition

Transportation Demand Management (TDM) is defined as the “application of strategies and policies to reduce travel demand (specifically that of single-occupancy private vehicles), or to redistribute this demand in space or in time”³. A successful TDM program can influence travel behaviour away from Single Occupant Vehicle (SOV) travel during peak periods towards more sustainable modes such as High Occupancy Vehicle (HOV) travel, transit, cycling or walking. The responsibility for implementation of TDM measures can range across many groups, including regional and municipal governments, transit agencies, private developers, residents/resident associations or employers.

Often TDM is used to support a vehicle parking variance or anticipated parking shortfall. For the subject development, the proposed parking supply is anticipated to adequately accommodate peak parking demands regardless of TDM efforts. Therefore, the TDM initiatives presented below, represent an effort to further promote non-SOV forms of transportation.

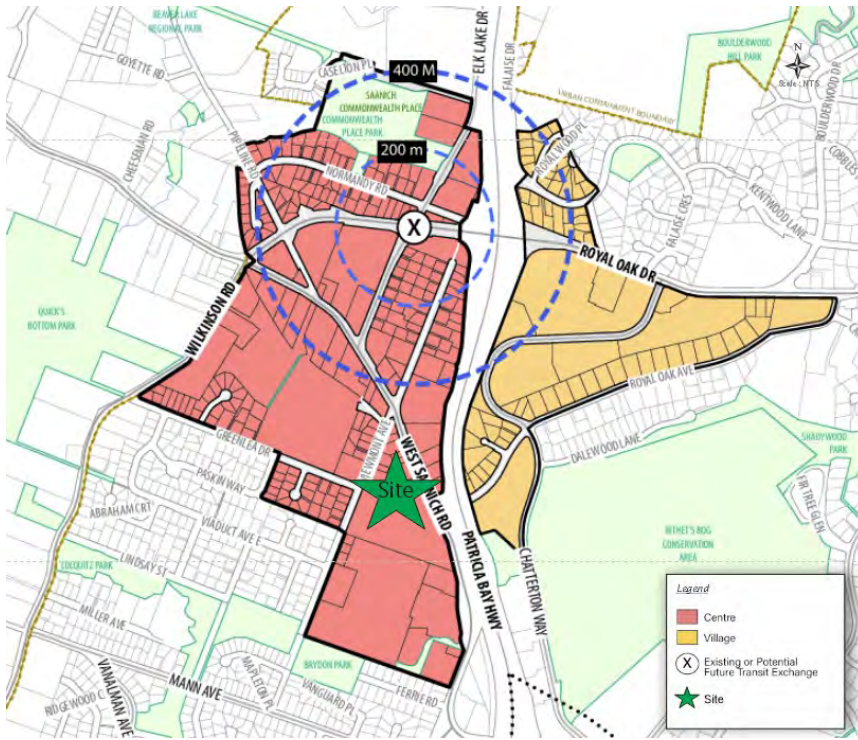
Per the current TDM policy outlined in the *District of Saanich's Zoning Bylaw (No. 8200, Section 7)*, at least two of the four TDM plans must be selected depending on the Official Community Plan (OCP) Land Use Designations:

- TDM Plan A: Transit Package;
- TDM Plan B: Cycling Package;
- TDM Plan C: Carshare Package; and
- TDM Plan D: Unbundled Parking Package.

5.2 Proposed TDM Plan

According to the site location and the OCP Land Use Designations (**Figure 5.1**), TDM Plan A (Transit Package) is required to be adopted. Additionally, the developer is required to implement at least one of the additional TDM Plans B, C, or D. The development will meet TDM requirements.

³ <http://ops.fhwa.dot.gov/tdm/index.htm> FHWA Travel Demand Management home page

Figure 5.1: Site Location & OCP Land Use Designations

Source: <https://www.saanich.ca/assets/Community/Documents/Planning/Strategic~OCP~Update/OCP-adopted-2024%20May-web.pdf>

5.2.1 TDM Plan A: Transit Package

TDM Plan A Transit Package requirements are as follows:

- Provide each dwelling unit with a public transit fund equivalent to one monthly adult pass for a minimum three-year term through the EcoPASS program or a future BC Transit replacement program.
- Provide new residents with a transit welcome package within 30 days of occupancy, including benefit codes and transit route and schedule information.

5.2.2 TDM Plan B: Cycling Package

TDM Plan B Cycling Package requirements are as follows:

- 30% additional Class I bicycle spaces;
- Energized outlets to 50% of Class I bicycle spaces;
- 15% additional non-standard bicycle parking spaces; and,
- Secure and covered bicycle repair station ("Bike Kitchen") with tools and supplies for basic repairs (Figure 5.2).

Figure 5.2: Example of Bicycle Repair Stand



Source: <https://cyclesafe.com/bike-parking/options/public-bike-repair-stand/>

5.2.3 TDM Plan C: Carshare Package

TDM Plan C Carshare Package requirements are as follows:

- Carshare membership for every dwelling unit for the lifetime of the building;
- Minimum number of carshare vehicles and exclusive-use parking spaces:
 - 4 vehicles and spaces for > 199 units;
- Provide Letter of Intent from a two-way carshare operator confirming:
 - Willingness to supply and operate vehicles upon occupancy;
 - Minimum 3-Year commitment; and
 - Acceptance of vehicle space location, configuration, and accessibility.

Car-sharing services have developed significantly in the last 10-15 years. These services allow people to have short term access to a shared vehicle located on or close to their site, without having to buy or maintain their own vehicle. Members usually pay a small monthly administration fee to cover some of the fixed costs of the car and then a “pay as you go” approach is adopted as members pay by the hour and mile when they use a vehicle.

There are two types of car sharing services – “A to B” type services, and “A to B to A” type services. In the former case, car share members can use vehicles from one origin to one destination and do not have to return these vehicles to the trip origin. The car share company repositions the cars regularly to respond to origin demand patterns. In the latter case, the vehicle’s “home” position remains constant, and car share members must return the vehicles to their origin when they have finished using it. The two car share models are directed towards different users and can complement each other when used at the same site. Car sharing operators are various.

To further reduce the need for private vehicle use, Bunt recommends the provision of at least 1 car share vehicles to be located on site. These car share services substantially reduce a common barrier for vehicle ownership which is to have a vehicle for non-regular, non-commuting trips that cannot easily be fulfilled by transit or active modes such as out-of-town trips.

5.2.4 TDM Plan D: Unbundled Parking Package

TDM Plan D Unbundled Parking Package requires that parking be unbundled from all dwelling units, such that spaces are sold or leased separately from the units.

The developer will provide paid vehicle parking for residents, which will be unbundled from the residential units, which would help reduce housing costs for those who do not own or wish to own a vehicle and discourage unnecessary vehicle ownership, given that the residential area is located within the shopping centre site.

5.3 Additional TDM Considerations for Proposed Development

Bunt recommends supplementing the TDM measures described above with additional TDM strategies to support sustainable transportation development, as outlined below.

5.3.1 Ride-Sharing

Ride-sharing involves two or more people sharing a car rather than driving as multiple single-occupant vehicles. The cost of the journey (i.e. fuel, parking) can be split between the driver and passengers, resulting in savings for all. This also reduces the number of vehicle trips and parking demands.

A ride-share initiative can be as simple as the residential complex providing an on-line tool or a public notice board asking for:

- Preferred destination;
- Preferred departure time, date;
- Preferred return time; and,
- Contact information.

Those with a vehicle review the board or website and contact potential passengers if they wish to car-share. Each passenger is asked to share the costs of the trip dependent on trip costs.

With the provision of an erasable public notice board or on-line tool containing areas for residents to input the information listed above, this initiative is self-managing.

5.3.2 Wayfinding Signage

Bunt recommends providing wayfinding signage at each site access on Viewmont Avenue and West Saanich Road to support the District of Saanich's active transportation network. The signage will help residents and visitors navigate to and from the site by walking and cycling and will provide directions to nearby transit options **Figure 5.3** illustrates the example of wayfinding signage.

Figure 5.3: Wayfinding Signage Example



5.3.3 Cycling Access Improvements

A person's willingness to cycle is based on several lifestyle factors, including health benefits, cost savings (compared to automobile use and parking) and convenience. Infrastructure also plays an important role through the safety of routes, presence or absence of steep gradients, availability of cycle storage facilities, etc. Cycling is a realistic transportation option for most people over short to medium distances, i.e. up to 8 kilometres, or a 30–35-minute cycle.

It is recommended that access to the bicycle rooms be clearly marked and provided through widened corridors and automatic-assist doors, and that weather protection be provided for short-term visitor bicycle parking. **Figure 5.4** provides an example of a weather-protected structure for bicycle parking.

Figure 5.4: Weather-Protected Structure for Bicycle Stall



5.3.4 Bus Stop Improvements

The developer will work with BC Transit to implement bus stop improvements along the West Saanich Road frontage. These improvements may include enhanced passenger amenities such as shelters, seating, lighting, and accessible boarding areas, subject to coordination with BC Transit and municipal requirements. The provision of upgraded transit infrastructure is intended to improve the user experience, support increased transit ridership, and reduce reliance on private vehicle travel.

5.3.5 Potential Consultation with the District of Saanich Regarding Speed Limit Reduction

The developer will also explore opportunities with the District of Saanich to reduce the posted vehicle speed limit along West Saanich Road to 40 km/h. Lower vehicle speeds are expected to better accommodate pedestrians and cyclists, and support a more transit-supportive corridor environment. Any changes to posted speed limits would be subject to further review and approval by the District of Saanich.

6. CONCLUSIONS & RECOMMENDATIONS

6.1 Conclusions

1. Hansbraun Investments Inc. plans to redevelop the Royal Oak Shopping Centre, located at 4440 West Saanich Road, in Saanich BC into a comprehensive mixed land use site which will include 676 residential apartment units, 10 residential townhouse units, and 191,230 ft² of commercial and office space.
2. The density was adjusted by applying upshot percentages to maintain flexibility for future development variation during the phased development. Accordingly, an adjusted density of 826 residential apartment units, 10 residential townhouse units, and 199,153 ft² of commercial and office space was applied to the traffic and parking analysis components of this study.
3. The development site is well serviced by transit, is near robust cycling and pedestrian networks. The proposed mixed-use development is anticipated to further support multi-model transportation by increasing density and locating more residents near and retail amenities and services.
4. The existing site was observed to generate approximately 1,709 vehicle trips during the PM peak hour (809 inbound trips and 900 outbound trips).
5. The current development plan consists of two different phasing plans (Options A and B). While two phasing options were considered in this study, traffic operations for both options are expected to be the same as both options now include two ramp accesses to the site's largest parkade area (Lot 4): one from the north via Site Access S2, and one from the south via Site Access S3.
6. A potential variation to the development plan would see one building replaced with a hotel. The two "No-Hotel" and "with Hotel" scenarios are shown to be very similar in terms of vehicle trip generation and hence this potential variation is considered inconsequential to the study's findings.
7. The "with Hotel" scenario was considered in the traffic operation and parking analysis.
8. Constraints at the West Saanich Road & S2 Site Access were found in the existing condition.
9. Under the total traffic scenario for the full build-out opening day (2034) PM peak hour, the introduction of a single lane roundabout at Site Access S2 is shown to operate within acceptable LOS and V/C thresholds under the Full Build-Out Opening Day (2034) Total PM peak hour scenario with the full proposed roundabout in place.
10. The proposed site plan provides a total of 1,007 vehicle parking spaces, including 623 for the non-residential component (554 for the commercial and 69 for the hotel) and 384 for the residential component. This results in a net shortfall of 85 parking spaces relative to the Saanich Bylaw requirements based on the upshot statistics. Specifically, the development falls short of the

commercial shopping centre parking requirement by 422 spaces and the hotel parking requirement by 21 spaces, while meeting Saanich's residential requirements by provided parking ratios of 0.54 spaces per apartment unit and 1.00 space per townhouse unit. The small net shortfall is lower than the commercial shortfall due to the recently adopted low residential parking requirements.

11. If the original proposed statistics were used, the development will provide a total of 453 parking spaces for the residential components of the development, corresponding to parking ratios of 0.65 spaces per apartment unit and 1.00 space per townhouse unit.
12. Although the commercial and hotel parking provisions indicate a variance from bylaw requirements and peak demand forecast based on the upshot statistics, the proposed commercial stalls are considered viable due predominately to the supply being informed by the existing site's commercial parking supply and demand profiles.
13. The proposed residential parking supply is supported by the proposed residential unit types, the site being located in an area with viable non-private vehicle transportation alternatives and the potential for shared parking between land uses, such as commercial spaces being shared with residential visitors.
14. The shared peak parking demand based on the upshot statistics is projected to occur on a weekday at 12 PM, with 668 spaces required, while the weekend peak demand is 742 spaces occurring at 2 PM. The analysis indicates that the proposed non-resident parking supply of 623 spaces may be insufficient to meet peak period demand, resulting in a shortfall of 45 spaces on weekdays and 119 spaces on weekends. However, if the original proposed statistics were used, the estimated weekday peak parking demand would be approximately 568 spaces, which is lower than the proposed non-residential parking supply of 623 spaces and therefore sufficient; the estimated weekend peak parking demand would be approximately 632 spaces, which is slightly higher than the proposed supply.
15. Accessible, small vehicle and electric vehicle parking spaces are anticipated to meet bylaw requirements.
16. Bike parking will meet or exceed bylaw requirements
17. Loading space provisions are anticipated to meet site needs.

6.2 Recommendations

18. To mitigate the operation constraints at the West Saanich Road & S2 Access, Bunt recommends the introduction of a four-leg roundabout. This potential design allows for potential future development to the east of West Saanich Road.
19. Bunt recommends that the traffic signal timing plan at the West Saanich Road & Viewmont Avenue intersection be reviewed and optimized in coordination with the proposed development as well as with potential development at the adjacent 4512 West Saanich Road site.

20. Bunt's analysis indicates that Option A is preferable from a traffic operation perspective as it better distributes vehicles accessing the Lot 4 parkade and also provides an important second access point to this parkade.
21. Bunt recommends that the District of Saanich consider introducing traffic calming measures along Greenlea Drive to help reduce vehicle speeds along this corridor which may see marginally increased traffic volumes due to the proposed development.
22. Bunt recommends that, in addition to implementing a robust TDM package, parking utilization be monitored on a phase-by-phase basis, with adjustments to parking allocation or development scale as needed to ensure adequate on-site parking supply.
23. To reduce the need for private vehicle use, Bunt recommends the following Transportation Demand Management initiatives:
 - a) Provision of at least 1 car share vehicles to be located on site;
 - b) Vehicle parking to be unbundled from residential unit costs;
 - c) Ride-share initiatives;
 - d) Active mode orientated wayfinding;
 - e) Augmented bicycle parking;
 - f) Bus stop improvements; and,
 - g) Potential consultation with the District of Saanich to reduce the posted vehicle speed limit along West Saanich Road to 40 km/h.

*The attached information is provided to support the agency's review process
and shall not be distributed to other parties without written consent from
Bunt & Associates Engineering Ltd.*

APPENDIX A

Traffic Data

Notes:

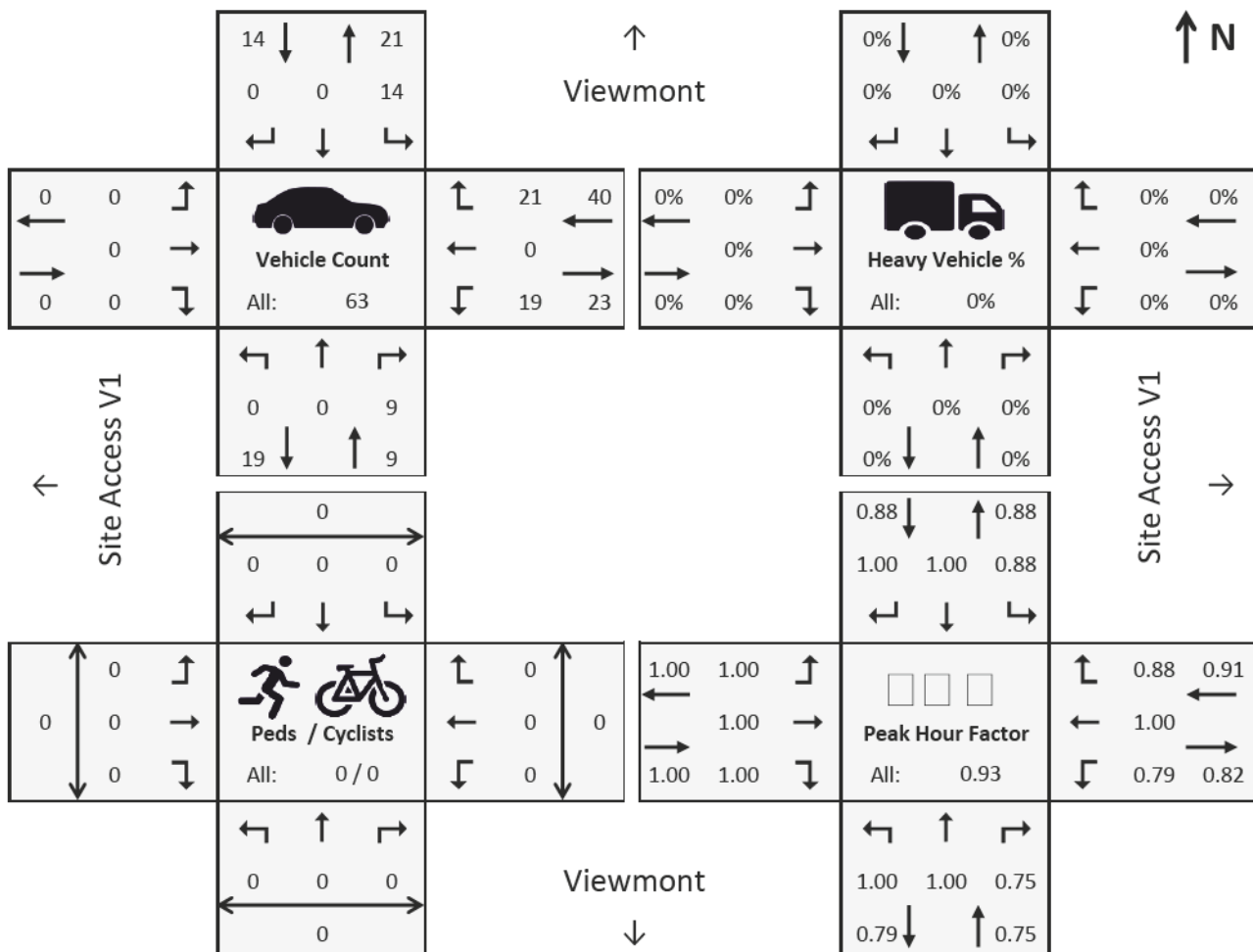
			↑ Viewmont								
			215 ↓ ↑ 166 80 53 82 ↶ ↓ ↷			0% ↓ ↑ 0% 0% 0% 0% ↶ ↓ ↷					
			↑			↑ N					
			139 18 ↗ ← 49 → 71 4 ↘			100 162 ← 55 → 7 139			0% 0% ↗ ← 0% → 0% 0% ↘		
			Vehicle Count All: 508			Heavy Vehicle % All: 0%					
			↗			↗					
			↶ ↑ ↷ 4 48 8 64 ↓ ↑ 60			↶ ↑ ↷ 0% 0% 0% 0% ↓ ↑ 0%					
			↘			↘					
			← 34 → 0 0 0 ↶ ↓ ↷			0.96 ↓ ↑ 0.94 0.95 0.83 0.89 ↶ ↓ ↷					
			↘			↘					
			10 ↑ 0 ↗ 0 0 → ↓ 0 ↘			0 44 ← 0 → ↓ 0			0.91 0.75 ↗ ← 0.88 → 0.93 0.50 ↘		
			Peds / Cyclists All: 88 / 0			Peak Hour Factor All: 0.98					
			↗			↗					
			↶ ↑ ↷ 0 0 0 ← 0 →			↶ ↑ ↷ 0.50 0.86 0.67 0.80 ↓ ↑ 0.88					
			↘			↘					
			↓ Viewmont								

Viewmont @ Site Access V1 – Saanich, BC

Project#: 08-25-0038 Weather: Sunny Analysis Period: 16:15 - 17:15
 Date: Jun 24, 2025 (Tue) Road Cond: Dry Intersection Peak: 16:15 - 17:15
 Notes:



TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
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15:15 - 15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30 - 15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45 - 16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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17:00 - 17:15	0	0	3	4	0	0	0	0	0	4	0	6	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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18:30 - 18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45 - 19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



West Saanich Rd @ Site Access S1 – Saanich, BC

Project#: 08-25-0038

Weather: Sunny

Analysis Period: 16:15 - 17:15

Date: Jun 24, 2025 (Tue)

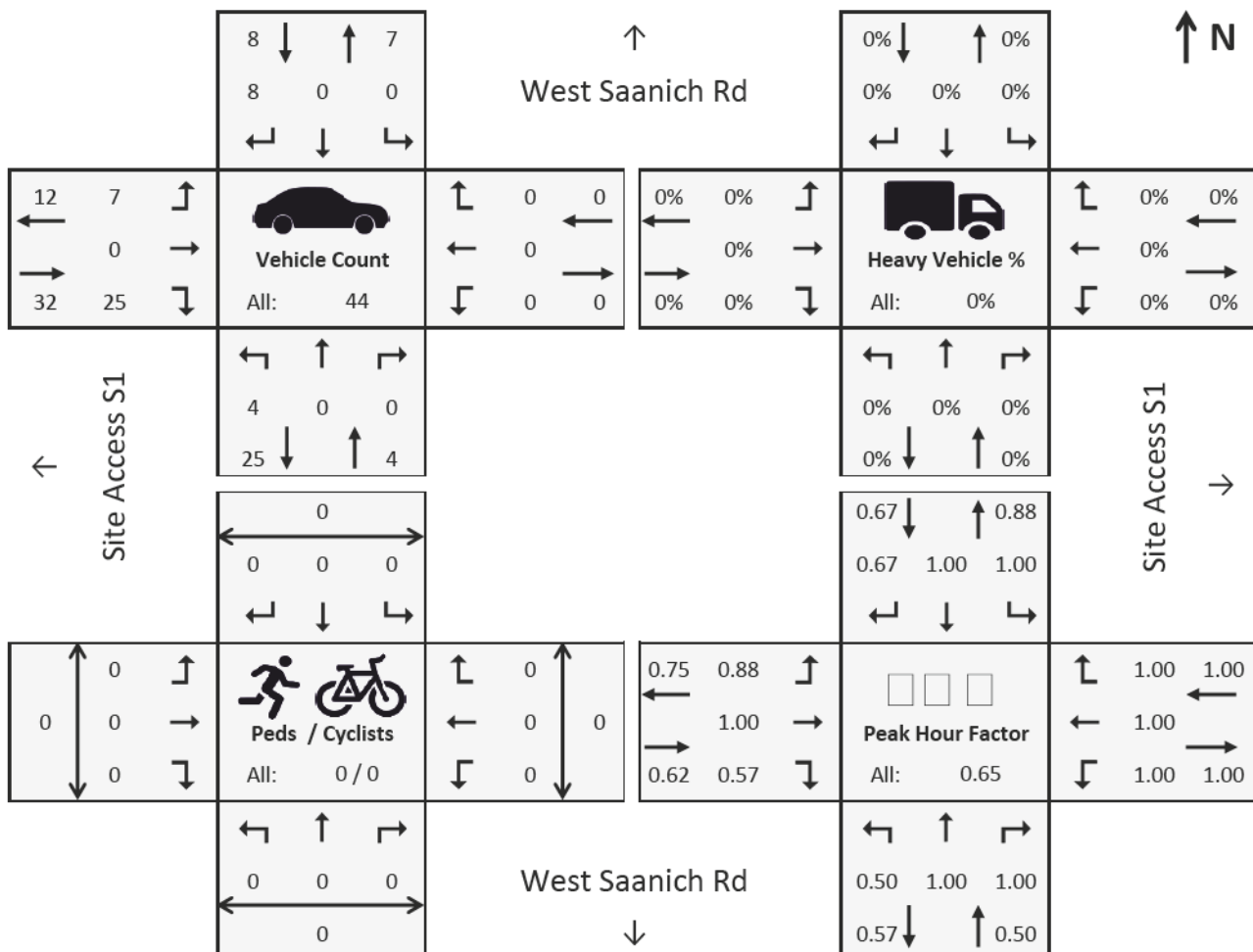
Road Cond: Dry

Intersection Peak: 16:15 - 17:15

Notes:



TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
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16:30 - 16:45	0	0	0	0	0	1	2	0	3	0	0	0	0	0	0	0
16:45 - 17:00	1	0	0	0	0	3	2	0	6	0	0	0	0	0	0	0
17:00 - 17:15	2	0	0	0	0	2	2	0	11	0	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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18:30 - 18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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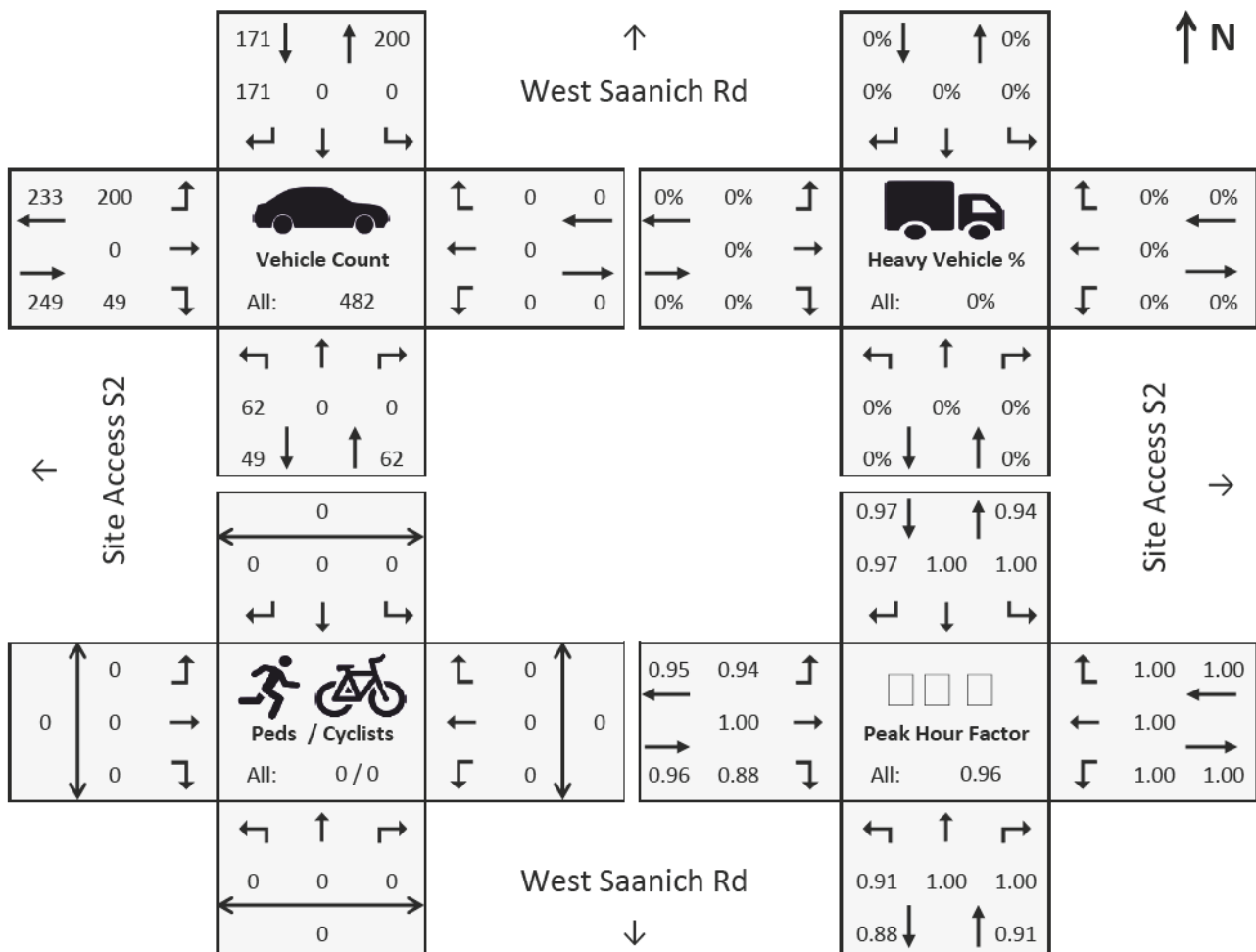


West Saanich Rd @ Site Access S2 – Saanich, BC

Project#: 08-25-0038 Weather: Sunny Analysis Period: 16:15 - 17:15
 Date: Jun 24, 2025 (Tue) Road Cond: Dry Intersection Peak: 16:15 - 17:15
 Notes:



TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
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16:00 - 16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15 - 16:30	15	0	0	0	0	42	51	0	14	0	0	0	0	0	0	0
16:30 - 16:45	17	0	0	0	0	44	47	0	11	0	0	0	0	0	0	0
16:45 - 17:00	13	0	0	0	0	41	49	0	12	0	0	0	0	0	0	0
17:00 - 17:15	17	0	0	0	0	44	53	0	12	0	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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18:30 - 18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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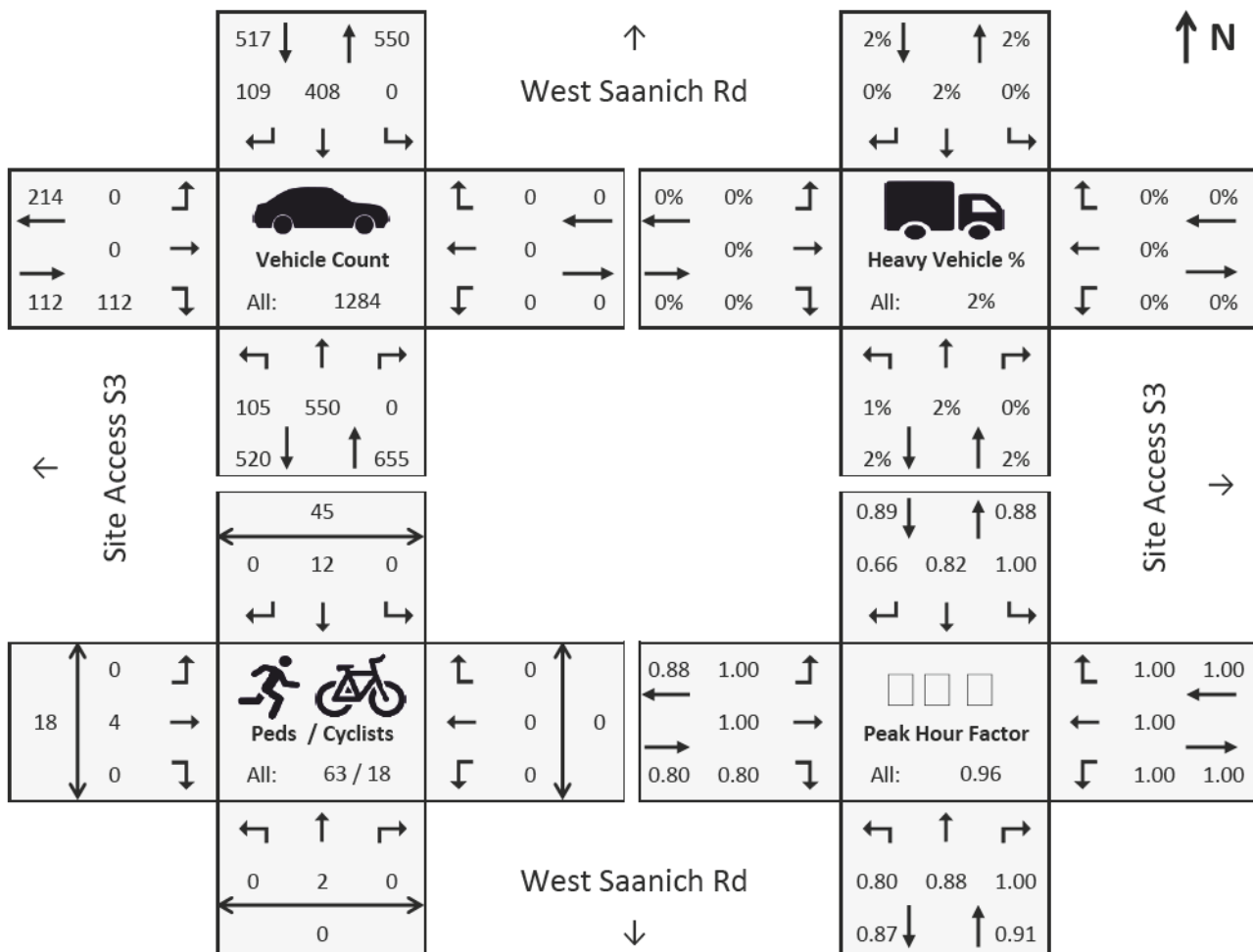


West Saanich Rd @ Site Access S3 – Saanich, BC

Project#: 08-25-0038 Weather: Sunny Analysis Period: 16:15 - 17:15
 Date: Jun 24, 2025 (Tue) Road Cond: Dry Intersection Peak: 16:15 - 17:15
 Notes:



TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
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15:15 - 15:30	22	110	0	0	134	39	0	0	24	0	0	0	11	0	0	3
15:30 - 15:45	18	102	0	0	103	35	0	0	43	0	0	0	11	0	0	3
15:45 - 16:00	12	122	0	0	99	18	1	0	27	0	0	0	8	0	0	1
16:00 - 16:15	22	137	0	0	94	22	1	0	24	0	0	0	8	0	0	4
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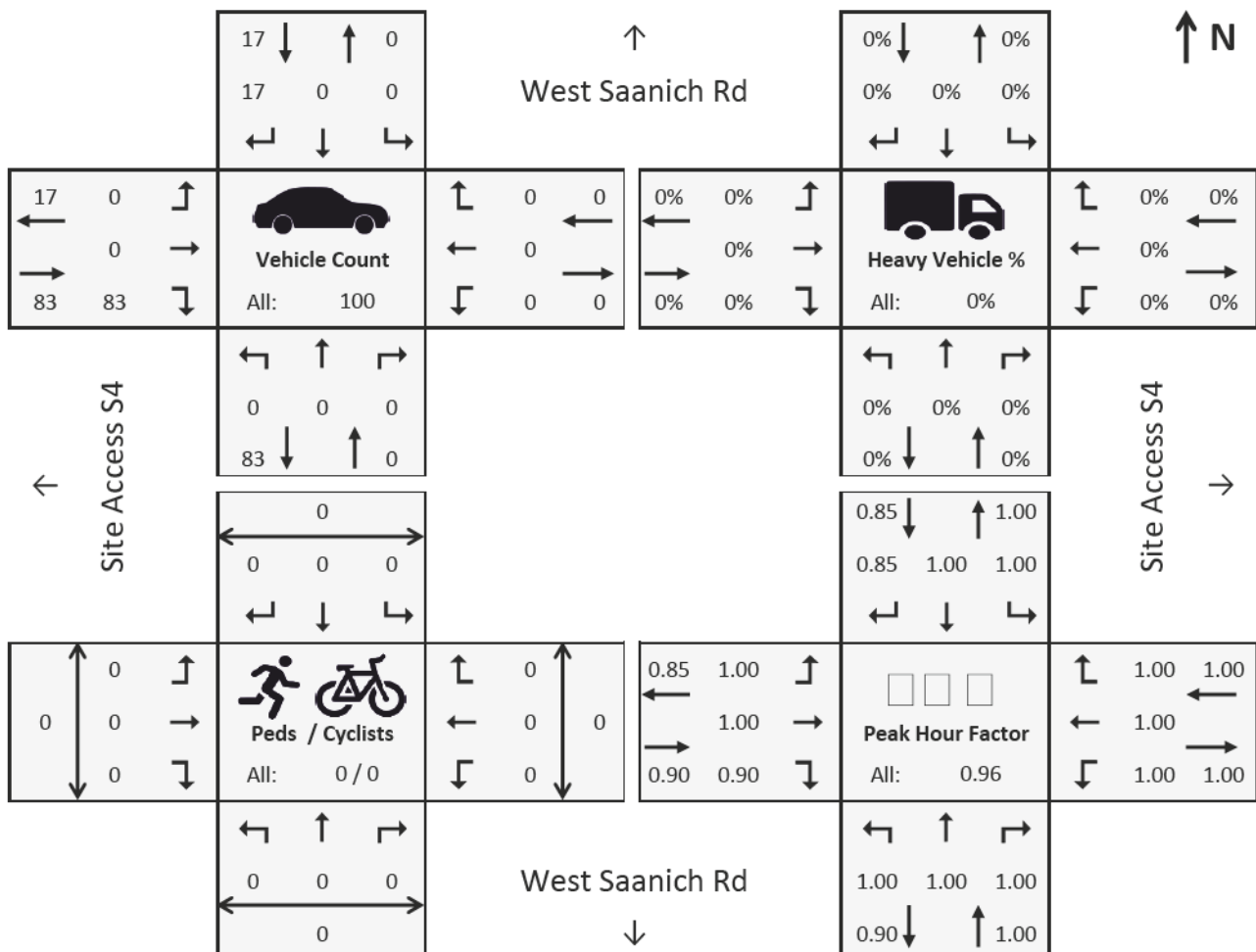


West Saanich Rd @ Site Access S4 – Saanich, BC

Project#: 08-25-0038 Weather: Sunny Analysis Period: 16:15 - 17:15
 Date: Jun 24, 2025 (Tue) Road Cond: Dry Intersection Peak: 16:15 - 17:15
 Notes:



TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
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15:15 - 15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30 - 15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45 - 16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00 - 16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	4	0	0	21	0	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	3	0	0	23	0	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	5	0	0	18	0	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	5	0	0	21	0	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15 - 18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30 - 18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45 - 19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

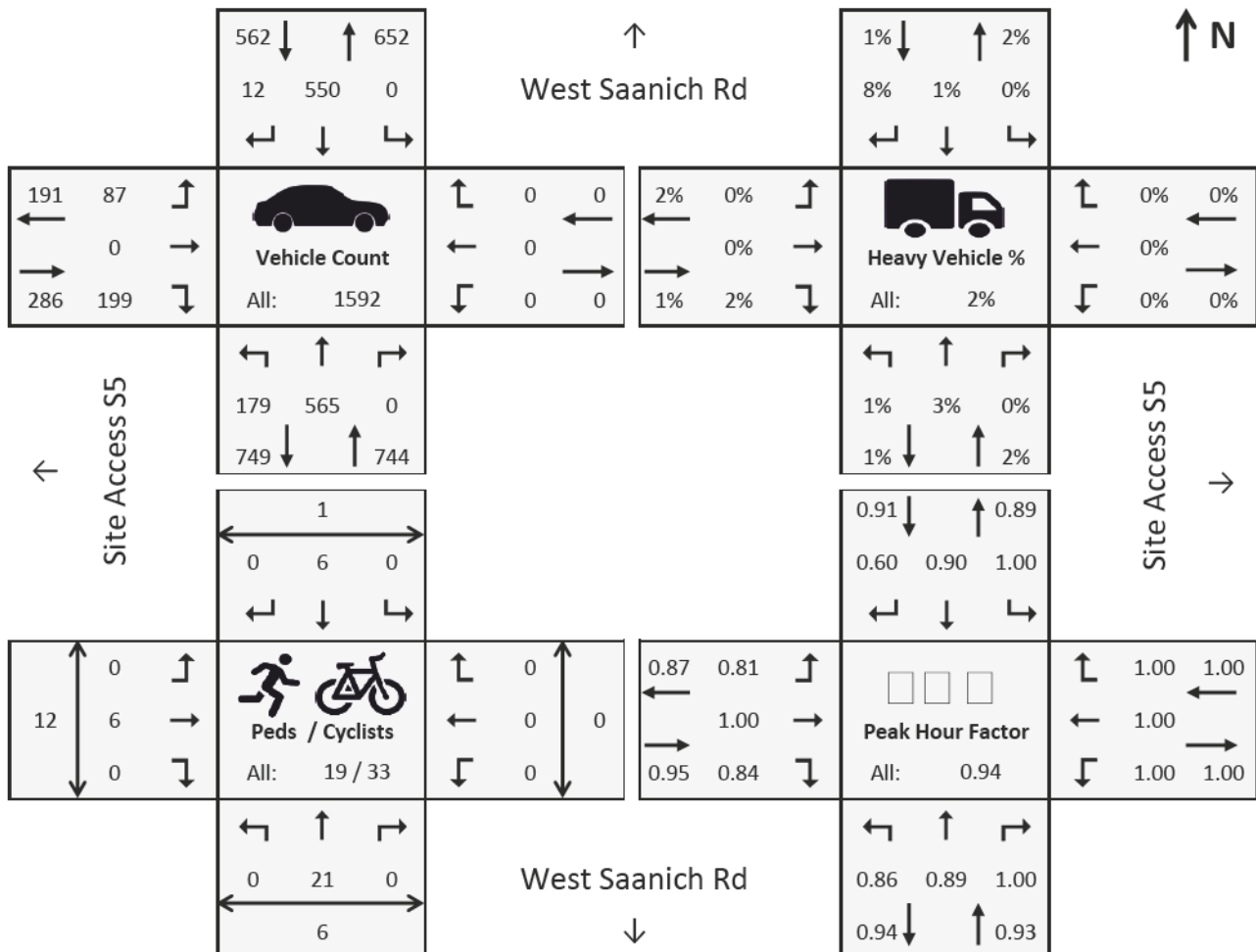


West Saanich Rd @ Site Access S5 – Saanich, BC

Project#: 08-25-0038 **Weather:** Sunny **Analysis Period:** 16:15 - 17:15
Date: Jun 24, 2025 (Tue) **Road Cond:** Dry **Intersection Peak:** 16:00 - 17:00
Notes:



TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
15:00 - 15:15	38	155	0	0	146	2	27	0	37	0	0	0	0	0	0	5
15:15 - 15:30	52	112	0	0	165	5	20	0	41	0	0	0	1	0	0	4
15:30 - 15:45	42	105	0	0	161	3	13	0	48	0	0	0	0	0	0	3
15:45 - 16:00	48	121	0	0	138	6	13	0	36	0	0	0	0	0	0	2
16:00 - 16:15	56	138	0	0	136	4	22	0	47	0	0	0	0	0	0	6
16:15 - 16:30	37	140	0	0	123	2	20	0	46	0	0	0	0	0	0	1
16:30 - 16:45	50	135	0	0	147	5	27	0	48	0	0	0	1	1	0	2
16:45 - 17:00	40	159	0	0	153	2	24	0	46	0	0	0	0	1	0	1
17:00 - 17:15	52	131	0	0	127	3	16	0	59	0	0	0	0	4	0	8
17:15 - 17:30	46	125	0	0	120	4	24	0	38	0	0	0	3	0	0	4
17:30 - 17:45	28	117	0	0	134	7	19	0	36	0	0	0	0	0	0	0
17:45 - 18:00	36	99	0	0	129	5	18	0	32	0	0	0	0	1	0	2
18:00 - 18:15	41	89	0	0	123	3	12	0	40	0	0	0	0	0	0	2
18:15 - 18:30	32	71	0	0	87	3	19	0	32	0	0	0	0	0	0	0
18:30 - 18:45	21	73	0	0	79	2	12	0	26	0	0	0	0	0	0	2
18:45 - 19:00	34	83	0	0	78	3	7	0	16	0	0	0	0	1	0	0

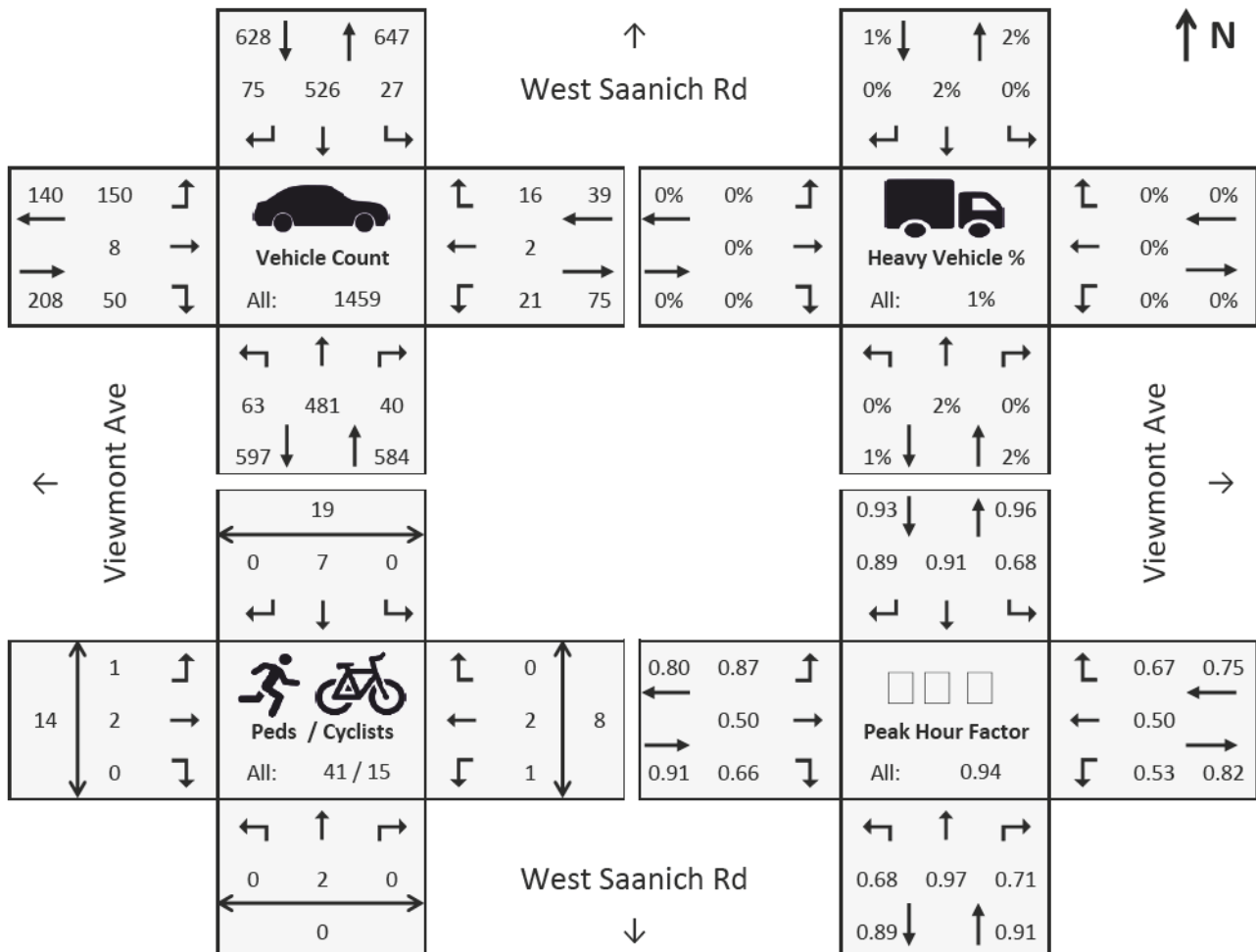


West Saanich Rd @ Viewmont Ave – Saanich, BC

Project#: 08-25-0038 Weather: Sunny Analysis Period: 16:15 - 17:15
 Date: Jun 24, 2025 (Tue) Road Cond: Dry Intersection Peak: 16:15 - 17:15
 Notes:



TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
15:00 - 15:15	23	114	5	5	121	32	34	2	18	2	2	6	19	0	0	6
15:15 - 15:30	14	89	2	6	142	19	50	3	19	4	1	7	7	0	0	1
15:30 - 15:45	9	105	9	9	117	20	35	3	15	8	0	10	4	0	0	4
15:45 - 16:00	14	98	15	14	122	19	44	4	13	4	0	6	1	0	1	1
16:00 - 16:15	13	126	9	6	114	14	25	2	14	5	2	5	2	0	1	1
16:15 - 16:30	13	118	7	10	113	21	37	0	7	4	0	6	1	0	1	3
16:30 - 16:45	11	117	11	5	144	16	33	2	19	5	1	5	9	0	1	4
16:45 - 17:00	23	124	14	7	142	20	37	2	14	2	1	2	6	0	2	5
17:00 - 17:15	16	122	8	5	127	18	43	4	10	10	0	3	3	0	4	2
17:15 - 17:30	13	106	13	11	117	21	23	1	7	4	1	6	9	0	1	7
17:30 - 17:45	16	107	7	7	127	17	29	2	13	8	0	4	2	0	7	2
17:45 - 18:00	15	105	7	6	122	21	30	5	10	5	3	3	3	0	6	5
18:00 - 18:15	9	79	6	9	95	13	27	1	16	8	0	4	5	0	6	0
18:15 - 18:30	7	79	8	10	81	15	27	3	15	6	1	3	3	0	0	3
18:30 - 18:45	10	62	6	3	86	10	19	0	4	4	1	2	7	0	2	12
18:45 - 19:00	16	64	9	5	81	13	22	0	8	5	1	4	6	0	2	5





*The attached information is provided to support the agency's review process
and shall not be distributed to other parties without written consent from
Bunt & Associates Engineering Ltd.*

APPENDIX B

Synchro & SimTraffic & SIDRA Report

HCM Unsignalized Intersection Capacity Analysis
20: W Saanich Rd & Site Access S1

Existing 2025 PM
01-16-2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	25	4	684	614	8
Future Volume (Veh/h)	7	25	4	684	614	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	7	26	4	712	640	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				296	149	
pX, platoon unblocked	0.75	0.75	0.75			
vC, conflicting volume	1364	644	648			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1316	361	366			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	95	100			
cM capacity (veh/h)	130	514	896			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	33	4	712	648		
Volume Left	7	4	0	0		
Volume Right	26	0	0	8		
cSH	316	896	1700	1700		
Volume to Capacity	0.10	0.00	0.42	0.38		
Queue Length 95th (m)	2.6	0.1	0.0	0.0		
Control Delay (s)	17.7	9.0	0.0	0.0		
Lane LOS	C	A				
Approach Delay (s)	17.7	0.1		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay				0.4		
Intersection Capacity Utilization				46.0%	ICU Level of Service	A
Analysis Period (min)				15		

HCM Unsignalized Intersection Capacity Analysis

1: W Saanich Rd & Site Access S2

Existing 2025 PM
01-16-2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	200	49	62	488	468	171
Future Volume (Veh/h)	200	49	62	488	468	171
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	208	51	65	508	488	178
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				249	197	
pX, platoon unblocked	0.78	0.76	0.76			
vC, conflicting volume	1215	577	666			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1022	281	399			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	91	93			
cM capacity (veh/h)	188	574	878			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	259	65	508	666		
Volume Left	208	65	0	0		
Volume Right	51	0	0	178		
cSH	217	878	1700	1700		
Volume to Capacity	1.20	0.07	0.30	0.39		
Queue Length 95th (m)	97.6	1.8	0.0	0.0		
Control Delay (s)	169.8	9.4	0.0	0.0		
Lane LOS	F	A				
Approach Delay (s)	169.8	1.1		0.0		
Approach LOS	F					
Intersection Summary						
Average Delay	29.8					
Intersection Capacity Utilization	62.5%			ICU Level of Service	B	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

2: W Saanich Rd & Site Access S3

Existing 2025 PM
01-16-2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	112	105	550	408	109
Future Volume (Veh/h)	0	112	105	550	408	109
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	117	109	573	425	114
Pedestrians	18					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	2					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				117	329	
pX, platoon unblocked	0.90	0.94	0.94			
vC, conflicting volume	1291	500	557			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1104	431	492			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	80	89			
cM capacity (veh/h)	183	574	985			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	117	109	573	539		
Volume Left	0	109	0	0		
Volume Right	117	0	0	114		
cSH	574	985	1700	1700		
Volume to Capacity	0.20	0.11	0.34	0.32		
Queue Length 95th (m)	5.8	2.8	0.0	0.0		
Control Delay (s)	12.9	9.1	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	12.9	1.5		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			42.1%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
30: W Saanich Rd & Site Access S4

Existing 2025 PM
01-16-2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	83	0	655	503	17
Future Volume (Veh/h)	0	83	0	655	503	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	86	0	682	524	18
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				62	384	
pX, platoon unblocked	0.80					
vC, conflicting volume	1215	533	542			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1145	533	542			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	84	100			
cM capacity (veh/h)	177	547	1027			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	86	682	542			
Volume Left	0	0	0			
Volume Right	86	0	18			
cSH	547	1700	1700			
Volume to Capacity	0.16	0.40	0.32			
Queue Length 95th (m)	4.2	0.0	0.0			
Control Delay (s)	12.8	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	12.8	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		0.8				
Intersection Capacity Utilization		39.3%		ICU Level of Service		A
Analysis Period (min)		15				



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	93	212	190	604	624
v/c Ratio	0.31	0.49	0.43	0.49	0.76
Control Delay	25.5	8.3	7.0	6.7	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.5	8.3	7.0	6.7	22.5
Queue Length 50th (m)	8.5	0.0	5.2	21.8	46.5
Queue Length 95th (m)	22.1	15.1	16.8	61.8	132.4
Internal Link Dist (m)	74.3			147.4	37.6
Turn Bay Length (m)	45.0		40.0		
Base Capacity (vph)	594	656	711	1678	1045
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.32	0.27	0.36	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: W Saanich Rd & Site Access S5

Existing 2025 PM
01-16-2026



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	87	199	179	568	574	12
Future Volume (vph)	87	199	179	568	574	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1786	1554	1788	1865	1874	
Flt Permitted	0.95	1.00	0.18	1.00	1.00	
Satd. Flow (perm)	1786	1554	348	1865	1874	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	93	212	190	604	611	13
RTOR Reduction (vph)	0	176	0	0	1	0
Lane Group Flow (vph)	93	36	190	604	623	0
Confl. Peds. (#/hr)	1	6	12			12
Heavy Vehicles (%)	2%	2%	2%	3%	2%	8%
Turn Type	Perm	Perm	pm+pt	NA	NA	
Protected Phases			1	6	2	
Permitted Phases	4	4	6			
Actuated Green, G (s)	9.5	9.5	37.9	37.9	24.9	
Effective Green, g (s)	9.5	9.5	37.9	37.9	24.9	
Actuated g/C Ratio	0.17	0.17	0.67	0.67	0.44	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	300	261	450	1253	827	
v/s Ratio Prot			0.06	c0.32	c0.33	
v/s Ratio Perm	c0.05	0.02	0.22			
v/c Ratio	0.31	0.14	0.42	0.48	0.75	
Uniform Delay, d1	20.6	20.0	6.6	4.5	13.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	0.2	0.6	0.3	3.9	
Delay (s)	21.2	20.2	7.3	4.8	17.1	
Level of Service	C	C	A	A	B	
Approach Delay (s)	20.5			5.4	17.1	
Approach LOS	C			A	B	
Intersection Summary						
HCM 2000 Control Delay			12.3		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.62			
Actuated Cycle Length (s)			56.4		Sum of lost time (s)	13.5
Intersection Capacity Utilization			58.8%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis
5: Viewmont Ave & Site Access V1

Existing 2025 PM
01-16-2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	19	21	157	9	14	196
Future Volume (Veh/h)	19	21	157	9	14	196
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	20	23	169	10	15	211
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage veh)						
Upstream signal (m)	144					
pX, platoon unblocked						
vC, conflicting volume	415	174	179			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	415	174	179			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	97	99			
cM capacity (veh/h)	587	869	1397			
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	43	179	226			
Volume Left	20	0	15			
Volume Right	23	10	0			
cSH	711	1700	1397			
Volume to Capacity	0.06	0.11	0.01			
Queue Length 95th (m)	1.5	0.0	0.2			
Control Delay (s)	10.4	0.0	0.6			
Lane LOS	B		A			
Approach Delay (s)	10.4	0.0	0.6			
Approach LOS	B					
Intersection Summary						
Average Delay	1.3					
Intersection Capacity Utilization	31.8%		ICU Level of Service		A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
40: Viewmont Ave & Greenlea Dr/Site Access V2

Existing 2025 PM
01-16-2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	49	4	7	55	100	4	48	8	82	53	80
Future Volume (Veh/h)	18	49	4	7	55	100	4	48	8	82	53	80
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	18	50	4	7	56	102	4	49	8	84	54	82
Pedestrians	10			44						34		
Lane Width (m)	3.7			3.7						3.7		
Walking Speed (m/s)	1.1			1.1						1.1		
Percent Blockage	1			4						3		
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (m)												241
pX, platoon unblocked												
vC, conflicting volume	498	382	105	397	419	131	146				101	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	498	382	105	397	419	131	146				101	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	95	90	100	98	88	88	100				94	
cM capacity (veh/h)	339	490	940	453	467	850	1422				1427	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	72	165	61	220								
Volume Left	18	7	4	84								
Volume Right	4	102	8	82								
cSH	451	646	1422	1427								
Volume to Capacity	0.16	0.26	0.00	0.06								
Queue Length 95th (m)	4.3	7.7	0.1	1.4								
Control Delay (s)	14.5	12.5	0.5	3.2								
Lane LOS	B	B	A	A								
Approach Delay (s)	14.5	12.5	0.5	3.2								
Approach LOS	B	B										
Intersection Summary												
Average Delay				7.4								
Intersection Capacity Utilization				38.7%	ICU Level of Service				A			
Analysis Period (min)				15								

							
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	169	53	41	67	669	29	666
v/c Ratio	0.68	0.12	0.14	0.16	0.53	0.07	0.65
Control Delay	41.5	0.6	17.3	5.5	8.3	10.5	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.5	0.6	17.3	5.5	8.3	10.5	16.8
Queue Length 50th (m)	21.4	0.0	2.7	2.6	39.2	1.9	63.0
Queue Length 95th (m)	40.9	0.0	10.1	6.9	71.3	6.4	112.1
Internal Link Dist (m)	120.2		248.3		125.0		198.4
Turn Bay Length (m)		20.0		30.0		30.0	
Base Capacity (vph)	312	507	605	633	1534	428	1028
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.10	0.07	0.11	0.44	0.07	0.65
Intersection Summary							

HCM Signalized Intersection Capacity Analysis
10: W Saanich Rd & Viewmont Ave

Existing 2025 PM
01-16-2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	8	50	21	2	16	63	588	40	27	551	75
Future Volume (vph)	150	8	50	21	2	16	63	588	40	27	551	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	1.00		0.98		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		0.96	1.00		1.00		1.00	1.00		0.99	1.00	
Frt		1.00	0.85		0.94		1.00	0.99		1.00	0.98	
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1735	1601		1690		1789	1861		1778	1839	
Flt Permitted		0.71	1.00		0.82		0.23	1.00		0.41	1.00	
Satd. Flow (perm)		1286	1601		1414		441	1861		768	1839	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	160	9	53	22	2	17	67	626	43	29	586	80
RTOR Reduction (vph)	0	0	43	0	14	0	0	2	0	0	3	0
Lane Group Flow (vph)	0	169	10	0	27	0	67	667	0	29	663	0
Confl. Peds. (#/hr)	19					19	14		8	8		14
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8		7	4		1	6			2	
Permitted Phases	8		8	4			6			2		
Actuated Green, G (s)		14.4	14.4		14.4		50.8	50.8		40.9	40.9	
Effective Green, g (s)		14.4	14.4		14.4		50.8	50.8		40.9	40.9	
Actuated g/C Ratio		0.19	0.19		0.19		0.68	0.68		0.55	0.55	
Clearance Time (s)		4.5	4.5		4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		249	310		274		400	1274		423	1013	
v/s Ratio Prot							0.01	c0.36			c0.36	
v/s Ratio Perm		c0.13	0.01		0.02		0.10			0.04		
v/c Ratio		0.68	0.03		0.10		0.17	0.52		0.07	0.65	
Uniform Delay, d1		27.8	24.3		24.6		6.7	5.8		7.8	11.7	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		7.2	0.0		0.2		0.2	0.4		0.1	1.5	
Delay (s)		34.9	24.3		24.7		6.9	6.1		7.8	13.2	
Level of Service		C	C		C		A	A		A	B	
Approach Delay (s)		32.4			24.7			6.2			13.0	
Approach LOS		C			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			12.9				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			74.2				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			63.2%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	13	2	704	644	4
Future Volume (Veh/h)	4	13	2	704	644	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	4	14	2	733	671	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				296	149	
pX, platoon unblocked	0.74	0.73	0.73			
vC, conflicting volume	1410	673	675			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1314	368	371			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	97	100			
cM capacity (veh/h)	129	495	868			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	18	2	733	675		
Volume Left	4	2	0	0		
Volume Right	14	0	0	4		
cSH	304	868	1700	1700		
Volume to Capacity	0.06	0.00	0.43	0.40		
Queue Length 95th (m)	1.4	0.1	0.0	0.0		
Control Delay (s)	17.6	9.2	0.0	0.0		
Lane LOS	C	A				
Approach Delay (s)	17.6	0.0		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay				0.2		
Intersection Capacity Utilization				47.1%	ICU Level of Service	A
Analysis Period (min)				15		

HCM Unsignalized Intersection Capacity Analysis

1: W Saanich Rd & Site Access S2

Background 2034 PM
02-27-2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	200	49	62	506	486	171
Future Volume (Veh/h)	200	49	62	506	486	171
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	208	51	65	527	506	178
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				249	197	
pX, platoon unblocked	0.76	0.73	0.73			
vC, conflicting volume	1252	595	684			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1012	268	389			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	91	92			
cM capacity (veh/h)	187	566	859			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	259	65	527	684		
Volume Left	208	65	0	0		
Volume Right	51	0	0	178		
cSH	215	859	1700	1700		
Volume to Capacity	1.20	0.08	0.31	0.40		
Queue Length 95th (m)	98.6	1.9	0.0	0.0		
Control Delay (s)	173.2	9.5	0.0	0.0		
Lane LOS	F	A				
Approach Delay (s)	173.2	1.0		0.0		
Approach LOS	F					
Intersection Summary						
Average Delay				29.6		
Intersection Capacity Utilization				63.5%	ICU Level of Service	B
Analysis Period (min)				15		

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	112	105	568	426	109
Future Volume (Veh/h)	0	112	105	568	426	109
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	117	109	592	444	114
Pedestrians	18					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	2					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				117	329	
pX, platoon unblocked	0.90	0.90	0.90			
vC, conflicting volume	1329	519	576			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1064	411	474			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	79	89			
cM capacity (veh/h)	194	567	963			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	117	109	592	558		
Volume Left	0	109	0	0		
Volume Right	117	0	0	114		
cSH	567	963	1700	1700		
Volume to Capacity	0.21	0.11	0.35	0.33		
Queue Length 95th (m)	5.8	2.9	0.0	0.0		
Control Delay (s)	13.0	9.2	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	13.0	1.4		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay		1.8				
Intersection Capacity Utilization		43.0%		ICU Level of Service		A
Analysis Period (min)		15				

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	83	0	673	521	17
Future Volume (Veh/h)	0	83	0	673	521	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	86	0	701	543	18
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)				62	384	
pX, platoon unblocked	0.80					
vC, conflicting volume	1253	552	561			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1192	552	561			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	84	100			
cM capacity (veh/h)	166	533	1010			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	86	701	561			
Volume Left	0	0	0			
Volume Right	86	0	18			
cSH	533	1700	1700			
Volume to Capacity	0.16	0.41	0.33			
Queue Length 95th (m)	4.3	0.0	0.0			
Control Delay (s)	13.0	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	13.0	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		0.8				
Intersection Capacity Utilization		40.3%		ICU Level of Service	A	
Analysis Period (min)		15				



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	82	170	176	634	643
v/c Ratio	0.29	0.44	0.40	0.50	0.75
Control Delay	25.2	8.3	6.6	6.7	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	8.3	6.6	6.7	21.2
Queue Length 50th (m)	7.7	0.0	4.6	22.6	47.5
Queue Length 95th (m)	19.6	13.5	15.7	66.5	136.5
Internal Link Dist (m)	74.3			147.4	37.6
Turn Bay Length (m)	45.0		40.0		
Base Capacity (vph)	574	613	704	1682	1011
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.28	0.25	0.38	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: W Saanich Rd & Site Access S5

Background 2034 PM
02-27-2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	77	160	165	596	592	12
Future Volume (vph)	77	160	165	596	592	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.97	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1786	1554	1788	1865	1875	
Flt Permitted	0.95	1.00	0.19	1.00	1.00	
Satd. Flow (perm)	1786	1554	357	1865	1875	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	82	170	176	634	630	13
RTOR Reduction (vph)	0	143	0	0	1	0
Lane Group Flow (vph)	82	27	176	634	642	0
Confl. Peds. (#/hr)	1	6	12			12
Heavy Vehicles (%)	2%	2%	2%	3%	2%	8%
Turn Type	Perm	Perm	pm+pt	NA	NA	
Protected Phases			1	6	2	
Permitted Phases	4	4	6			
Actuated Green, G (s)	9.2	9.2	39.3	39.3	26.7	
Effective Green, g (s)	9.2	9.2	39.3	39.3	26.7	
Actuated g/C Ratio	0.16	0.16	0.68	0.68	0.46	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	285	248	445	1274	870	
v/s Ratio Prot			0.06	c0.34	c0.34	
v/s Ratio Perm	c0.05	0.02	0.21			
v/c Ratio	0.29	0.11	0.40	0.50	0.74	
Uniform Delay, d1	21.3	20.6	6.5	4.4	12.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	0.2	0.6	0.3	3.3	
Delay (s)	21.8	20.8	7.1	4.7	15.9	
Level of Service	C	C	A	A	B	
Approach Delay (s)	21.2			5.2	15.9	
Approach LOS	C			A	B	
Intersection Summary						
HCM 2000 Control Delay			11.6		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.62			
Actuated Cycle Length (s)			57.5		Sum of lost time (s)	13.5
Intersection Capacity Utilization			58.5%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis 5: Viewmont Ave & Site Access V1

Background 2034 PM
02-27-2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	19	21	160	9	14	202
Future Volume (Veh/h)	19	21	160	9	14	202
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	20	23	172	10	15	217
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)				144		
pX, platoon unblocked						
vC, conflicting volume	424	177			182	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	424	177			182	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	97			99	
cM capacity (veh/h)	580	866			1393	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	43	182	232			
Volume Left	20	0	15			
Volume Right	23	10	0			
cSH	705	1700	1393			
Volume to Capacity	0.06	0.11	0.01			
Queue Length 95th (m)	1.5	0.0	0.2			
Control Delay (s)	10.4	0.0	0.6			
Lane LOS	B		A			
Approach Delay (s)	10.4	0.0	0.6			
Approach LOS	B					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			32.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
40: Viewmont Ave & Greenlea Dr/Site Access V2

Background 2034 PM
02-27-2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	49	4	7	55	100	4	50	8	82	55	84
Future Volume (Veh/h)	19	49	4	7	55	100	4	50	8	82	55	84
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	19	50	4	7	56	102	4	51	8	84	56	86
Pedestrians	10			44						34		
Lane Width (m)	3.7			3.7						3.7		
Walking Speed (m/s)	1.1			1.1						1.1		
Percent Blockage	1			4						3		
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (m)												241
pX, platoon unblocked												
vC, conflicting volume	504	388	109	403	427	133	152				103	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	504	388	109	403	427	133	152				103	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	94	90	100	98	88	88	100				94	
cM capacity (veh/h)	335	486	935	449	462	848	1415				1425	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	73	165	63	226								
Volume Left	19	7	4	84								
Volume Right	4	102	8	86								
cSH	446	642	1415	1425								
Volume to Capacity	0.16	0.26	0.00	0.06								
Queue Length 95th (m)	4.4	7.8	0.1	1.4								
Control Delay (s)	14.7	12.5	0.5	3.2								
Lane LOS	B	B	A	A								
Approach Delay (s)	14.7	12.5	0.5	3.2								
Approach LOS	B	B										
Intersection Summary												
Average Delay				7.4								
Intersection Capacity Utilization				39.1%	ICU Level of Service				A			
Analysis Period (min)				15								

							
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	176	55	43	70	684	30	694
v/c Ratio	0.70	0.13	0.15	0.18	0.54	0.07	0.68
Control Delay	42.6	0.6	17.2	5.7	8.6	10.7	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.6	0.6	17.2	5.7	8.6	10.7	18.0
Queue Length 50th (m)	22.4	0.0	2.8	2.8	41.7	2.0	68.7
Queue Length 95th (m)	42.6	0.0	10.4	7.2	74.1	6.5	120.3
Internal Link Dist (m)	120.2		248.3		125.0		198.4
Turn Bay Length (m)		20.0		30.0		30.0	
Base Capacity (vph)	309	506	600	613	1526	418	1022
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.11	0.07	0.11	0.45	0.07	0.68
Intersection Summary							

HCM Signalized Intersection Capacity Analysis

10: W Saanich Rd & Viewmont Ave

Background 2034 PM
02-27-2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	8	52	22	2	17	66	601	42	28	574	78
Future Volume (vph)	157	8	52	22	2	17	66	601	42	28	574	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	1.00		0.98		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		0.96	1.00		1.00		1.00	1.00		0.99	1.00	
Frt		1.00	0.85		0.94		1.00	0.99		1.00	0.98	
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1735	1601		1688		1789	1860		1778	1839	
Flt Permitted		0.71	1.00		0.81		0.21	1.00		0.40	1.00	
Satd. Flow (perm)		1282	1601		1409		404	1860		754	1839	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	167	9	55	23	2	18	70	639	45	30	611	83
RTOR Reduction (vph)	0	0	44	0	14	0	0	2	0	0	3	0
Lane Group Flow (vph)	0	176	11	0	29	0	70	682	0	30	691	0
Confl. Peds. (#/hr)	19					19	14		8	8		14
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8		7	4		1	6			2	
Permitted Phases	8		8	4			6			2		
Actuated Green, G (s)		14.8	14.8		14.8		50.8	50.8		40.9	40.9	
Effective Green, g (s)		14.8	14.8		14.8		50.8	50.8		40.9	40.9	
Actuated g/C Ratio		0.20	0.20		0.20		0.68	0.68		0.55	0.55	
Clearance Time (s)		4.5	4.5		4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		254	317		279		375	1266		413	1008	
v/s Ratio Prot							0.01	c0.37			c0.38	
v/s Ratio Perm		c0.14	0.01		0.02		0.11			0.04		
v/c Ratio		0.69	0.03		0.10		0.19	0.54		0.07	0.69	
Uniform Delay, d1		27.8	24.1		24.5		7.3	6.0		7.9	12.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		7.9	0.0		0.2		0.2	0.4		0.1	1.9	
Delay (s)		35.7	24.2		24.6		7.5	6.4		8.0	14.1	
Level of Service		D	C		C		A	A		A	B	
Approach Delay (s)		33.0			24.6			6.5			13.9	
Approach LOS		C			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			13.5				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			74.6				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			65.2%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

2: W Saanich Rd & Site Access S3

Total 2034 PM (Option A)
03-02-2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	94	143	642	744	143
Future Volume (Veh/h)	0	94	143	642	744	143
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	98	149	669	775	149
Pedestrians	18					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	2					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				117	329	
pX, platoon unblocked	0.82					
vC, conflicting volume	1834	868	942			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1907	868	942			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	72	79			
cM capacity (veh/h)	48	346	715			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	0	98	149	669	924	
Volume Left	0	0	149	0	0	
Volume Right	0	98	0	0	149	
cSH	1700	346	715	1700	1700	
Volume to Capacity	0.00	0.28	0.21	0.39	0.54	
Queue Length 95th (m)	0.0	8.7	5.9	0.0	0.0	
Control Delay (s)	0.0	19.5	11.4	0.0	0.0	
Lane LOS	A	C	B			
Approach Delay (s)	19.5		2.1		0.0	
Approach LOS	C					
Intersection Summary						
Average Delay	2.0					
Intersection Capacity Utilization	62.7%		ICU Level of Service		B	
Analysis Period (min)	15					

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	107	428	213	728	892
v/c Ratio	0.38	0.71	0.57	0.56	1.03
Control Delay	28.1	10.0	14.2	7.6	58.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	10.0	14.2	7.6	58.2
Queue Length 50th (m)	11.0	0.0	6.2	30.4	89.8
Queue Length 95th (m)	25.4	21.4	29.8	82.1	#230.7
Internal Link Dist (m)	74.3			147.4	92.6
Turn Bay Length (m)	45.0		40.0		
Base Capacity (vph)	514	751	603	1570	869
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.57	0.35	0.46	1.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: W Saanich Rd & Site Access S5

Total 2034 PM (Option A)
03-02-2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	101	402	200	684	638	200
Future Volume (vph)	101	402	200	684	638	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.97	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1786	1552	1789	1865	1780	
Flt Permitted	0.95	1.00	0.11	1.00	1.00	
Satd. Flow (perm)	1786	1552	214	1865	1780	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	107	428	213	728	679	213
RTOR Reduction (vph)	0	360	0	0	12	0
Lane Group Flow (vph)	107	68	213	728	880	0
Confl. Peds. (#/hr)	1	6	12			12
Heavy Vehicles (%)	2%	2%	2%	3%	2%	8%
Turn Type	Perm	Perm	pm+pt	NA	NA	
Protected Phases			1	6	2	
Permitted Phases	4	4	6			
Actuated Green, G (s)	10.1	10.1	44.3	44.3	30.7	
Effective Green, g (s)	10.1	10.1	44.3	44.3	30.7	
Actuated g/C Ratio	0.16	0.16	0.70	0.70	0.48	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	284	247	375	1303	861	
v/s Ratio Prot			0.08	c0.39	c0.49	
v/s Ratio Perm	c0.06	0.04	0.31			
v/c Ratio	0.38	0.28	0.57	0.56	1.02	
Uniform Delay, d1	23.8	23.4	11.9	4.7	16.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.8	0.6	2.0	0.5	36.4	
Delay (s)	24.7	24.0	13.9	5.2	52.8	
Level of Service	C	C	B	A	D	
Approach Delay (s)	24.2			7.2	52.8	
Approach LOS	C			A	D	
Intersection Summary						
HCM 2000 Control Delay			28.2		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.83			
Actuated Cycle Length (s)			63.4		Sum of lost time (s)	13.5
Intersection Capacity Utilization			79.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis
5: Viewmont Ave & Site Access V3

Total 2034 PM (Option A)
03-02-2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	63	63	69	57	57	139
Future Volume (Veh/h)	63	63	69	57	57	139
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	68	75	62	62	151
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)	144					
pX, platoon unblocked						
vC, conflicting volume	381	106	137			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	381	106	137			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	93	96			
cM capacity (veh/h)	595	948	1447			
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	136	137	213			
Volume Left	68	0	62			
Volume Right	68	62	0			
cSH	731	1700	1447			
Volume to Capacity	0.19	0.08	0.04			
Queue Length 95th (m)	5.2	0.0	1.0			
Control Delay (s)	11.0	0.0	2.5			
Lane LOS	B		A			
Approach Delay (s)	11.0	0.0	2.5			
Approach LOS	B					
Intersection Summary						
Average Delay			4.2			
Intersection Capacity Utilization			34.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
40: Viewmont Ave & Greenlea Dr

Total 2034 PM (Option A)
03-02-2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	76	61	98	50	55	147
Future Volume (Veh/h)	76	61	98	50	55	147
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	78	62	100	51	56	150
Pedestrians	10			34		
Lane Width (m)	3.7			3.7		
Walking Speed (m/s)	1.1			1.1		
Percent Blockage	1			3		
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)	241					
pX, platoon unblocked						
vC, conflicting volume	426	141	216			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	426	141	216			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	93	93			
cM capacity (veh/h)	518	898	1341			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	140	151	206			
Volume Left	78	100	0			
Volume Right	62	0	150			
cSH	638	1341	1700			
Volume to Capacity	0.22	0.07	0.12			
Queue Length 95th (m)	6.3	1.8	0.0			
Control Delay (s)	12.2	5.4	0.0			
Lane LOS	B	A				
Approach Delay (s)	12.2	5.4	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	5.1					
Intersection Capacity Utilization	38.9%			ICU Level of Service	A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

4: Viewmont Ave & Site Access V4

Total 2034 PM (Option A)
03-02-2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	94	94	54	57	57	60
Future Volume (Veh/h)	94	94	54	57	57	60
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	102	102	59	62	62	65
Pedestrians	2					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None		None	
Median storage veh)						
Upstream signal (m)	289					
pX, platoon unblocked						
vC, conflicting volume	281	92	123			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	281	92	123			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	89	96			
cM capacity (veh/h)	678	963	1461			
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	204	121	127			
Volume Left	102	0	62			
Volume Right	102	62	0			
cSH	796	1700	1461			
Volume to Capacity	0.26	0.07	0.04			
Queue Length 95th (m)	7.8	0.0	1.0			
Control Delay (s)	11.1	0.0	3.9			
Lane LOS	B		A			
Approach Delay (s)	11.1	0.0	3.9			
Approach LOS	B					
Intersection Summary						
Average Delay	6.1					
Intersection Capacity Utilization	30.6%		ICU Level of Service		A	
Analysis Period (min)	15					

	→	↘	←	↙	↑	↗	↓
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	243	55	71	70	727	30	969
v/c Ratio	0.79	0.11	0.25	0.28	0.61	0.09	1.01
Control Delay	47.4	0.5	21.5	7.8	10.4	11.2	52.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.4	0.5	21.5	7.8	10.4	11.2	52.2
Queue Length 50th (m)	32.7	0.0	6.1	3.3	52.8	2.2	~155.9
Queue Length 95th (m)	#67.9	0.0	16.5	7.2	82.2	6.7	#229.1
Internal Link Dist (m)	120.2		248.3		125.0		198.4
Turn Bay Length (m)		20.0		30.0		30.0	
Base Capacity (vph)	323	503	496	506	1504	347	963
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.11	0.14	0.14	0.48	0.09	1.01
Intersection Summary							
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.							
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.							

HCM Signalized Intersection Capacity Analysis
10: W Saanich Rd & Viewmont Ave

Total 2034 PM (Option A)
03-02-2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	15	52	45	5	17	66	609	74	28	778	133
Future Volume (vph)	213	15	52	45	5	17	66	609	74	28	778	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	1.00		0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		0.97	1.00		1.00		1.00	1.00		0.99	1.00	
Frt		1.00	0.85		0.97		1.00	0.98		1.00	0.98	
Flt Protected		0.96	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1740	1601		1733		1789	1845		1779	1829	
Flt Permitted		0.74	1.00		0.65		0.09	1.00		0.35	1.00	
Satd. Flow (perm)		1347	1601		1162		173	1845		662	1829	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	227	16	55	48	5	18	70	648	79	30	828	141
RTOR Reduction (vph)	0	0	42	0	14	0	0	3	0	0	4	0
Lane Group Flow (vph)	0	243	13	0	57	0	70	724	0	30	965	0
Confl. Peds. (#/hr)	19					19	14		8	8		14
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8		7	4		1	6			2	
Permitted Phases	8		8	4			6			2		
Actuated Green, G (s)		17.4	17.4		17.4		48.9	48.9		39.1	39.1	
Effective Green, g (s)		17.4	17.4		17.4		48.9	48.9		39.1	39.1	
Actuated g/C Ratio		0.23	0.23		0.23		0.65	0.65		0.52	0.52	
Clearance Time (s)		4.5	4.5		4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		311	369		268		226	1198		343	949	
v/s Ratio Prot							0.02	c0.39			c0.53	
v/s Ratio Perm		c0.18	0.01		0.05		0.18			0.05		
v/c Ratio		0.78	0.03		0.21		0.31	0.60		0.09	1.02	
Uniform Delay, d1		27.2	22.4		23.4		15.6	7.6		9.1	18.1	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		12.0	0.0		0.4		0.8	0.9		0.1	33.5	
Delay (s)		39.2	22.5		23.8		16.4	8.5		9.2	51.6	
Level of Service		D	C		C		B	A		A	D	
Approach Delay (s)		36.1			23.8			9.2			50.4	
Approach LOS		D			C			A			D	
Intersection Summary												
HCM 2000 Control Delay			32.4				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			75.3				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			78.9%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

MOVEMENT SUMMARY

 Site: 08-25-0038 [Total 2034 PM - Option A (Site Folder: General)]

Royal Oak Shopping Centre
Site Access S2 & West Saanich Road
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: West Saanich Road														
1	L2	114	2.0	120	2.0	0.727	13.9	LOS B	9.4	66.8	0.89	0.87	1.06	51.2
2	T1	528	2.0	556	2.0	0.727	9.9	LOS A	9.4	66.8	0.89	0.87	1.06	51.4
3	R2	50	2.0	53	2.0	0.727	9.6	LOS A	9.4	66.8	0.89	0.87	1.06	50.4
Approach		692	2.0	728	2.0	0.727	10.5	LOS B	9.4	66.8	0.89	0.87	1.06	51.3
East: Potential New Road														
4	L2	50	2.0	53	2.0	0.297	15.5	LOS B	2.1	15.2	0.91	0.91	0.91	49.6
5	T1	50	2.0	53	2.0	0.297	11.5	LOS B	2.1	15.2	0.91	0.91	0.91	49.8
6	R2	50	2.0	53	2.0	0.297	11.3	LOS B	2.1	15.2	0.91	0.91	0.91	48.8
Approach		150	2.0	158	2.0	0.297	12.8	LOS B	2.1	15.2	0.91	0.91	0.91	49.4
North: West Saanich Road														
7	L2	50	2.0	53	2.0	0.824	13.7	LOS B	13.8	98.2	0.90	0.79	1.05	51.6
8	T1	761	2.0	801	2.0	0.824	9.7	LOS A	13.8	98.2	0.90	0.79	1.05	51.8
9	R2	114	2.0	120	2.0	0.824	9.4	LOS A	13.8	98.2	0.90	0.79	1.05	50.7
Approach		925	2.0	974	2.0	0.824	9.9	LOS A	13.8	98.2	0.90	0.79	1.05	51.7
West: Access														
10	L2	220	2.0	232	2.0	0.850	39.9	LOS D	13.7	97.2	1.00	1.41	2.07	37.1
11	T1	50	2.0	53	2.0	0.850	35.9	LOS D	13.7	97.2	1.00	1.41	2.07	37.2
12	R2	126	2.0	133	2.0	0.850	35.7	LOS D	13.7	97.2	1.00	1.41	2.07	36.6
Approach		396	2.0	417	2.0	0.850	38.1	LOS D	13.7	97.2	1.00	1.41	2.07	37.0
All Vehicles		2163	2.0	2277	2.0	0.850	15.5	LOS B	13.8	98.2	0.92	0.94	1.23	47.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

3: W Saanich Rd & Site Access S5 Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	4.7	2.5	3.1	1.4	5.1	11.4	3.6
Total Del/Veh (s)	30.8	29.2	28.8	10.9	43.2	38.5	27.3

Intersection: 3: W Saanich Rd & Site Access S5

Movement	EB	EB	NB	NB	SB
Directions Served	L	R	L	T	TR
Maximum Queue (m)	52.5	78.9	46.2	98.4	90.7
Average Queue (m)	28.8	58.5	31.8	54.8	87.1
95th Queue (m)	62.0	96.6	51.8	104.6	95.6
Link Distance (m)		78.8		163.4	86.4
Upstream Blk Time (%)		10			31
Queuing Penalty (veh)		0			269
Storage Bay Dist (m)	45.0		40.0		
Storage Blk Time (%)	0	26	3	8	
Queuing Penalty (veh)	1	28	25	16	

10: W Saanich Rd & Viewmont Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.4	0.5	3.6	0.1	0.1	0.2	1.7	0.6	0.6	46.5	43.6	41.7
Total Del/Veh (s)	43.6	38.5	22.1	25.0	27.8	3.0	29.2	8.9	5.1	76.8	66.5	59.2

10: W Saanich Rd & Viewmont Ave Performance by movement

Movement	All
Denied Del/Veh (s)	21.2
Total Del/Veh (s)	40.8

Intersection: 10: W Saanich Rd & Viewmont Ave

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	TR
Maximum Queue (m)	64.8	27.5	19.1	25.7	55.5	34.1	217.3
Average Queue (m)	40.9	12.4	8.8	7.7	26.4	9.6	183.5
95th Queue (m)	72.4	31.4	19.8	24.9	57.1	33.6	264.4
Link Distance (m)	106.4		255.5		108.0		206.4
Upstream Blk Time (%)							40
Queuing Penalty (veh)							0
Storage Bay Dist (m)		20.0		30.0		30.0	
Storage Blk Time (%)	38	1			5	0	47
Queuing Penalty (veh)	21	1			3	0	14

HCM Unsignalized Intersection Capacity Analysis
2: W Saanich Rd & Site Access S3

Total 2034 PM (Option B)
02-27-2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	94	86	671	804	86
Future Volume (Veh/h)	0	94	86	671	804	86
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	98	90	699	838	90
Pedestrians	18					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	2					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				117	329	
pX, platoon unblocked	0.81					
vC, conflicting volume	1780	901	946			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1845	901	946			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	70	87			
cM capacity (veh/h)	57	331	713			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	0	98	90	699	928	
Volume Left	0	0	90	0	0	
Volume Right	0	98	0	0	90	
cSH	1700	331	713	1700	1700	
Volume to Capacity	0.00	0.30	0.13	0.41	0.55	
Queue Length 95th (m)	0.0	9.2	3.3	0.0	0.0	
Control Delay (s)	0.0	20.4	10.8	0.0	0.0	
Lane LOS	A	C	B			
Approach Delay (s)	20.4		1.2		0.0	
Approach LOS	C					
Intersection Summary						
Average Delay	1.6					
Intersection Capacity Utilization	60.2%			ICU Level of Service		B
Analysis Period (min)	15					

					
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	107	428	244	698	956
v/c Ratio	0.38	0.71	0.62	0.53	1.12
Control Delay	28.9	10.2	16.8	7.1	90.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.9	10.2	16.8	7.1	90.0
Queue Length 50th (m)	11.3	0.0	9.9	28.7	~125.3
Queue Length 95th (m)	26.1	22.0	36.4	76.3	#261.6
Internal Link Dist (m)	74.3			147.4	92.6
Turn Bay Length (m)	45.0		40.0		
Base Capacity (vph)	506	746	597	1548	855
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.57	0.41	0.45	1.12

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: W Saanich Rd & Site Access S5

Total 2034 PM (Option B)
02-27-2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	101	402	229	656	669	229
Future Volume (vph)	101	402	229	656	669	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.97	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1786	1552	1789	1865	1773	
Flt Permitted	0.95	1.00	0.11	1.00	1.00	
Satd. Flow (perm)	1786	1552	213	1865	1773	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	107	428	244	698	712	244
RTOR Reduction (vph)	0	360	0	0	13	0
Lane Group Flow (vph)	107	68	244	698	943	0
Confl. Peds. (#/hr)	1	6	12			12
Heavy Vehicles (%)	2%	2%	2%	3%	2%	8%
Turn Type	Perm	Perm	pm+pt	NA	NA	
Protected Phases			1	6	2	
Permitted Phases	4	4	6			
Actuated Green, G (s)	10.2	10.2	45.3	45.3	30.8	
Effective Green, g (s)	10.2	10.2	45.3	45.3	30.8	
Actuated g/C Ratio	0.16	0.16	0.70	0.70	0.48	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	282	245	393	1309	846	
v/s Ratio Prot			0.10	c0.37	c0.53	
v/s Ratio Perm	c0.06	0.04	0.34			
v/c Ratio	0.38	0.28	0.62	0.53	1.11	
Uniform Delay, d1	24.3	23.9	13.6	4.6	16.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.9	0.6	3.0	0.4	67.4	
Delay (s)	25.2	24.5	16.6	5.0	84.2	
Level of Service	C	C	B	A	F	
Approach Delay (s)	24.6			8.0	84.2	
Approach LOS	C			A	F	
Intersection Summary						
HCM 2000 Control Delay			41.6		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.87			
Actuated Cycle Length (s)			64.5		Sum of lost time (s)	13.5
Intersection Capacity Utilization			82.5%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis
5: Viewmont Ave & Site Access V3

Total 2034 PM (Option B)
02-27-2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	63	63	69	57	57	139
Future Volume (Veh/h)	63	63	69	57	57	139
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	68	75	62	62	151
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				144		
pX, platoon unblocked						
vC, conflicting volume	381	106	137			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	381	106	137			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	93	96			
cM capacity (veh/h)	595	948	1447			
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	136	137	213			
Volume Left	68	0	62			
Volume Right	68	62	0			
cSH	731	1700	1447			
Volume to Capacity	0.19	0.08	0.04			
Queue Length 95th (m)	5.2	0.0	1.0			
Control Delay (s)	11.0	0.0	2.5			
Lane LOS	B		A			
Approach Delay (s)	11.0	0.0	2.5			
Approach LOS	B					
Intersection Summary						
Average Delay			4.2			
Intersection Capacity Utilization			34.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
40: Viewmont Ave & Greenlea Dr

Total 2034 PM (Option B)
02-27-2026

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	76	61	67	50	55	147
Future Volume (Veh/h)	76	61	67	50	55	147
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	78	62	68	51	56	150
Pedestrians	10				34	
Lane Width (m)	3.7				3.7	
Walking Speed (m/s)	1.1				1.1	
Percent Blockage	1				3	
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)					241	
pX, platoon unblocked						
vC, conflicting volume	362	141	216			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	362	141	216			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	93	95			
cM capacity (veh/h)	579	898	1341			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	140	119	206			
Volume Left	78	68	0			
Volume Right	62	0	150			
cSH	687	1341	1700			
Volume to Capacity	0.20	0.05	0.12			
Queue Length 95th (m)	5.8	1.2	0.0			
Control Delay (s)	11.6	4.6	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.6	4.6	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			4.7			
Intersection Capacity Utilization			37.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Viewmont Ave & Site Access V4

Total 2034 PM (Option B)
02-27-2026

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	63	63	54	57	57	60
Future Volume (Veh/h)	63	63	54	57	57	60
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	68	59	62	62	65
Pedestrians	2					
Lane Width (m)	3.7					
Walking Speed (m/s)	1.1					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None		None	
Median storage veh)						
Upstream signal (m)	289					
pX, platoon unblocked						
vC, conflicting volume	281	92	123			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	281	92	123			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	93	96			
cM capacity (veh/h)	678	963	1461			
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	136	121	127			
Volume Left	68	0	62			
Volume Right	68	62	0			
cSH	796	1700	1461			
Volume to Capacity	0.17	0.07	0.04			
Queue Length 95th (m)	4.7	0.0	1.0			
Control Delay (s)	10.5	0.0	3.9			
Lane LOS	B		A			
Approach Delay (s)	10.5	0.0	3.9			
Approach LOS	B					
Intersection Summary						
Average Delay	5.0					
Intersection Capacity Utilization	27.0%		ICU Level of Service		A	
Analysis Period (min)	15					

	→	↘	←	↙	↑	↗	↓
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	243	55	71	70	760	30	970
v/c Ratio	0.79	0.11	0.25	0.28	0.64	0.09	1.01
Control Delay	47.5	0.5	21.5	7.8	11.0	11.4	52.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.5	0.5	21.5	7.8	11.0	11.4	52.4
Queue Length 50th (m)	32.7	0.0	6.1	3.3	56.9	2.2	~156.2
Queue Length 95th (m)	#67.9	0.0	16.5	7.2	89.0	6.7	#229.4
Internal Link Dist (m)	120.2		248.3		125.0		198.4
Turn Bay Length (m)		20.0		30.0		30.0	
Base Capacity (vph)	323	503	494	506	1506	325	964
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.11	0.14	0.14	0.50	0.09	1.01
Intersection Summary							
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.							
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.							

HCM Signalized Intersection Capacity Analysis
10: W Saanich Rd & Viewmont Ave

Total 2034 PM (Option B)
02-27-2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	15	52	45	5	17	66	637	77	28	779	133
Future Volume (vph)	213	15	52	45	5	17	66	637	77	28	779	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	1.00		0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes		0.97	1.00		1.00		1.00	1.00		0.99	1.00	
Frt		1.00	0.85		0.97		1.00	0.98		1.00	0.98	
Flt Protected		0.96	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1740	1601		1733		1789	1846		1780	1829	
Flt Permitted		0.74	1.00		0.65		0.09	1.00		0.33	1.00	
Satd. Flow (perm)		1348	1601		1158		173	1846		618	1829	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	227	16	55	48	5	18	70	678	82	30	829	141
RTOR Reduction (vph)	0	0	42	0	14	0	0	3	0	0	4	0
Lane Group Flow (vph)	0	243	13	0	57	0	70	757	0	30	966	0
Confl. Peds. (#/hr)	19					19	14		8	8		14
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8		7	4		1	6			2	
Permitted Phases	8		8	4			6			2		
Actuated Green, G (s)		17.3	17.3		17.3		48.9	48.9		39.1	39.1	
Effective Green, g (s)		17.3	17.3		17.3		48.9	48.9		39.1	39.1	
Actuated g/C Ratio		0.23	0.23		0.23		0.65	0.65		0.52	0.52	
Clearance Time (s)		4.5	4.5		4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		310	368		266		226	1200		321	950	
v/s Ratio Prot							0.02	c0.41			c0.53	
v/s Ratio Perm		c0.18	0.01		0.05		0.18			0.05		
v/c Ratio		0.78	0.03		0.21		0.31	0.63		0.09	1.02	
Uniform Delay, d1		27.2	22.5		23.4		15.6	7.8		9.1	18.1	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		12.2	0.0		0.4		0.8	1.1		0.1	33.5	
Delay (s)		39.4	22.5		23.9		16.4	8.9		9.2	51.6	
Level of Service		D	C		C		B	A		A	D	
Approach Delay (s)		36.3			23.9			9.5			50.3	
Approach LOS		D			C			A			D	
Intersection Summary												
HCM 2000 Control Delay			32.2				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			75.2				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			78.9%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

MOVEMENT SUMMARY

 **Site: 08-25-0038 [Total 2034 PM - Option B (Site Folder: General)]**

Royal Oak Shopping Centre
Site Access S2 & West Saanich Road
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: West Saanich Road														
1	L2	143	2.0	151	2.0	0.785	16.1	LOS B	11.8	84.1	0.97	0.98	1.26	49.6
2	T1	528	2.0	556	2.0	0.785	12.1	LOS B	11.8	84.1	0.97	0.98	1.26	49.8
3	R2	50	2.0	53	2.0	0.785	11.8	LOS B	11.8	84.1	0.97	0.98	1.26	48.8
Approach		721	2.0	759	2.0	0.785	12.8	LOS B	11.8	84.1	0.97	0.98	1.26	49.7
East: Potential New Road														
4	L2	50	2.0	53	2.0	0.331	16.6	LOS B	2.4	17.4	0.95	0.95	0.95	48.9
5	T1	50	2.0	53	2.0	0.331	12.6	LOS B	2.4	17.4	0.95	0.95	0.95	49.1
6	R2	50	2.0	53	2.0	0.331	12.3	LOS B	2.4	17.4	0.95	0.95	0.95	48.1
Approach		150	2.0	158	2.0	0.331	13.8	LOS B	2.4	17.4	0.95	0.95	0.95	48.7
North: West Saanich Road														
7	L2	50	2.0	53	2.0	0.858	15.9	LOS B	16.7	118.7	0.99	0.90	1.26	50.0
8	T1	733	2.0	772	2.0	0.858	11.9	LOS B	16.7	118.7	0.99	0.90	1.26	50.2
9	R2	143	2.0	151	2.0	0.858	11.7	LOS B	16.7	118.7	0.99	0.90	1.26	49.2
Approach		926	2.0	975	2.0	0.858	12.1	LOS B	16.7	118.7	0.99	0.90	1.26	50.1
West: Access														
10	L2	251	2.0	264	2.0	0.975	69.9	LOS E	25.8	183.5	1.00	1.87	3.26	28.5
11	T1	50	2.0	53	2.0	0.975	65.9	LOS E	25.8	183.5	1.00	1.87	3.26	28.6
12	R2	157	2.0	165	2.0	0.975	65.6	LOS E	25.8	183.5	1.00	1.87	3.26	28.3
Approach		458	2.0	482	2.0	0.975	68.0	LOS E	25.8	183.5	1.00	1.87	3.26	28.5
All Vehicles		2255	2.0	2374	2.0	0.975	23.8	LOS C	25.8	183.5	0.98	1.13	1.64	43.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

3: W Saanich Rd & Site Access S5 Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	5.3	3.5	3.4	1.6	8.3	25.9	6.0
Total Del/Veh (s)	28.3	23.0	27.2	10.8	45.8	41.1	26.6

Intersection: 3: W Saanich Rd & Site Access S5

Movement	EB	EB	NB	NB	SB
Directions Served	L	R	L	T	TR
Maximum Queue (m)	51.8	80.2	47.2	96.8	90.5
Average Queue (m)	21.1	46.8	36.4	55.6	87.6
95th Queue (m)	50.1	85.6	51.8	105.4	92.2
Link Distance (m)		78.8		163.4	86.4
Upstream Blk Time (%)		5		0	36
Queuing Penalty (veh)		0		0	339
Storage Bay Dist (m)	45.0		40.0		
Storage Blk Time (%)		14	4	7	
Queuing Penalty (veh)		15	28	16	

10: W Saanich Rd & Viewmont Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.0	0.2	6.3	0.1	0.1	0.2	1.9	0.5	0.6	36.8	35.6	37.3
Total Del/Veh (s)	39.5	42.8	25.1	22.0	34.9	2.8	27.5	9.1	5.3	74.2	63.8	55.9

10: W Saanich Rd & Viewmont Ave Performance by movement

Movement	All
Denied Del/Veh (s)	17.7
Total Del/Veh (s)	39.5

Intersection: 10: W Saanich Rd & Viewmont Ave

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	TR
Maximum Queue (m)	59.5	27.3	17.1	25.8	51.1	26.0	200.9
Average Queue (m)	34.2	13.1	8.5	6.6	26.3	7.5	176.7
95th Queue (m)	68.6	29.8	19.9	21.6	53.6	28.1	262.1
Link Distance (m)	106.4		255.5		108.0		206.4
Upstream Blk Time (%)							37
Queuing Penalty (veh)							0
Storage Bay Dist (m)		20.0		30.0		30.0	
Storage Blk Time (%)	28	1			4		46
Queuing Penalty (veh)	16	2			3		14



*The attached information is provided to support the agency's review process
and shall not be distributed to other parties without written consent from
Bunt & Associates Engineering Ltd.*

APPENDIX C

Swept Path Analysis

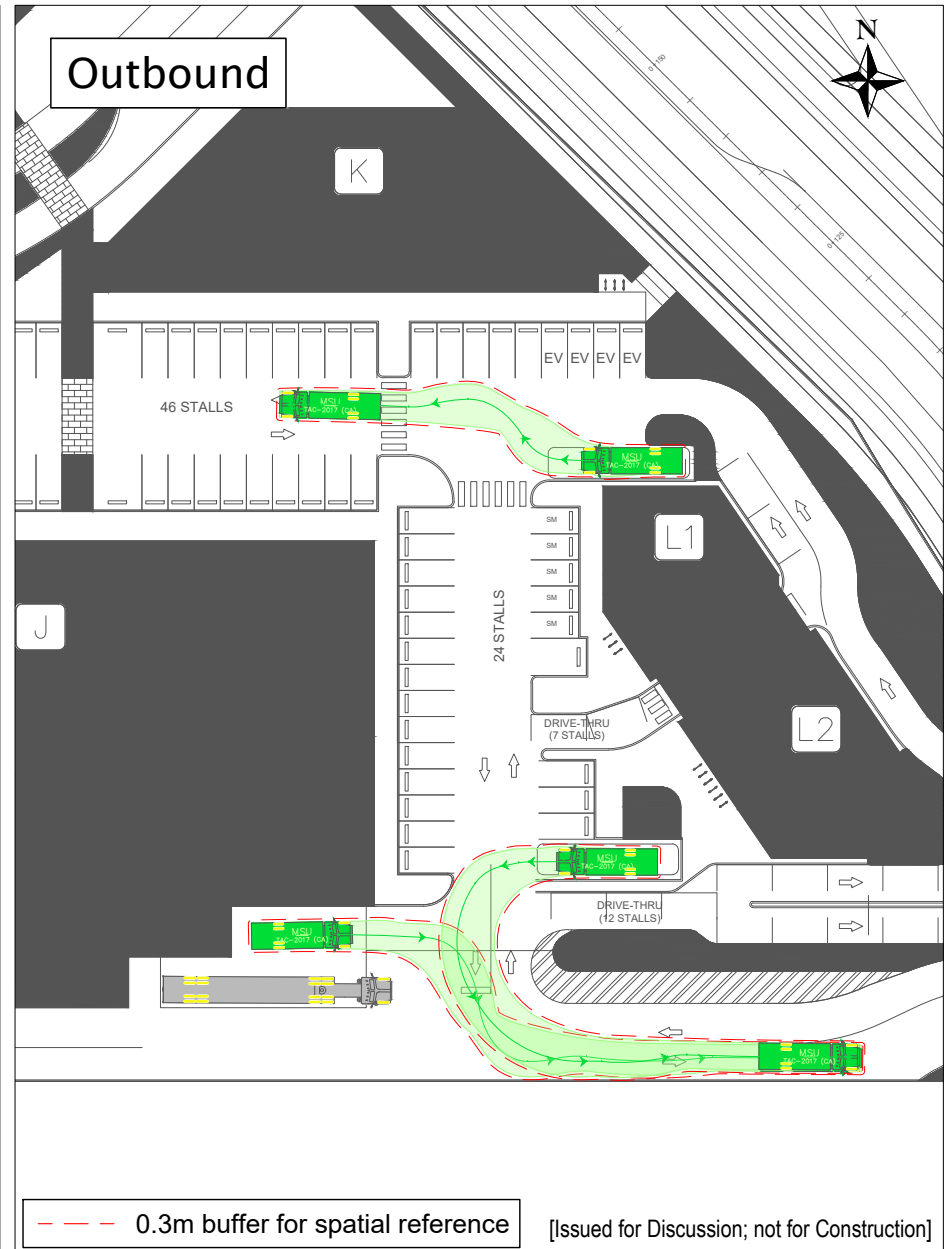
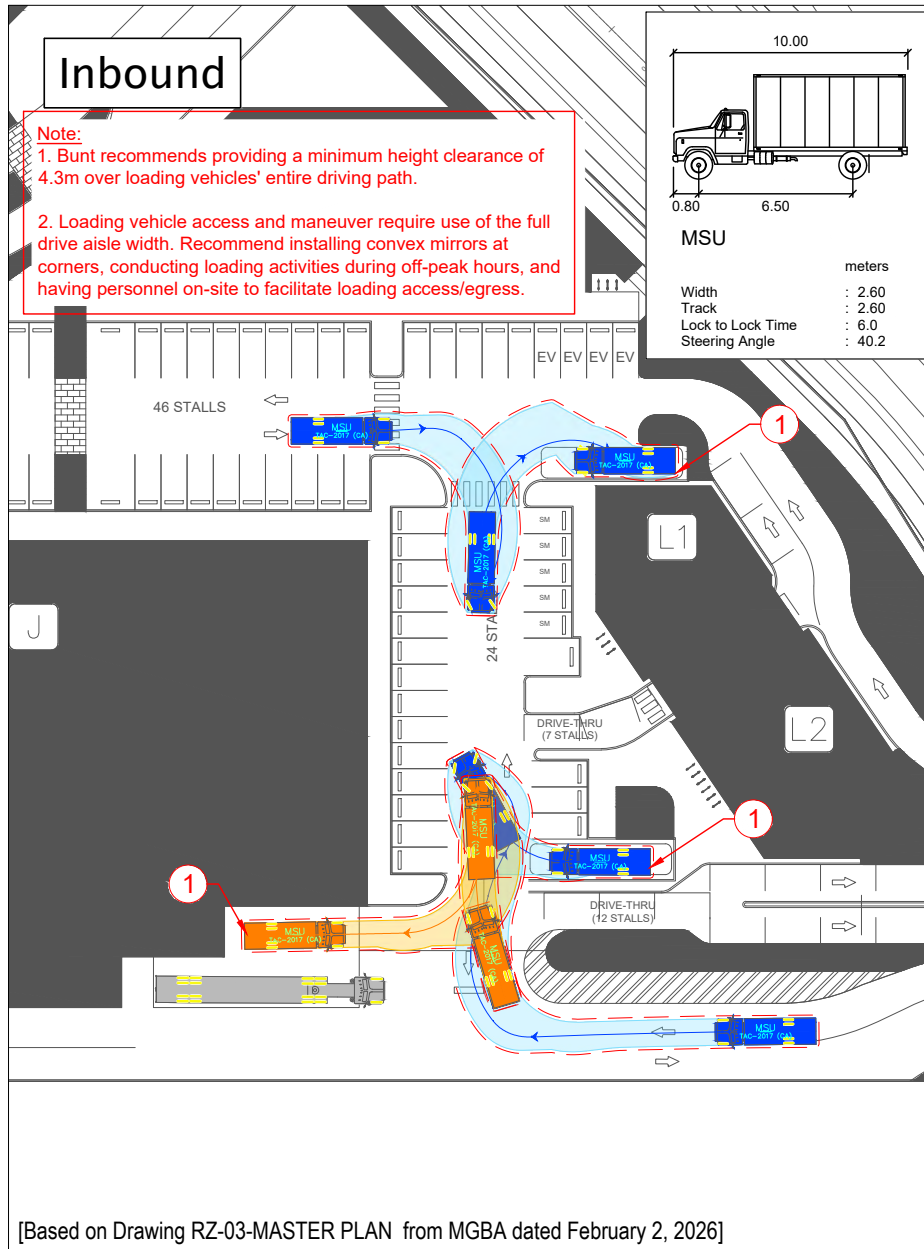


Exhibit C1.1 Class B (MSU) Loading Vehicle Maneuver (1/3)

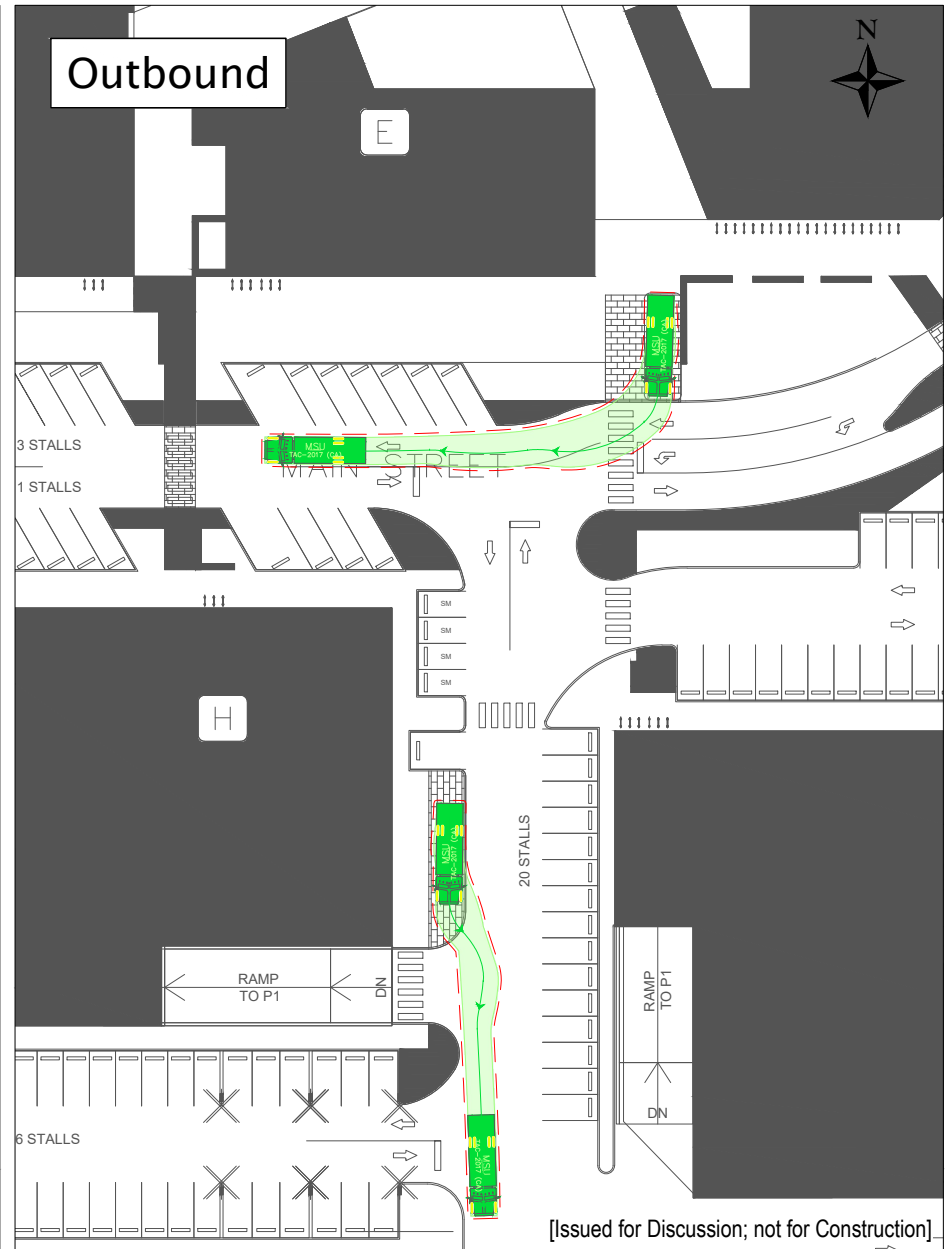
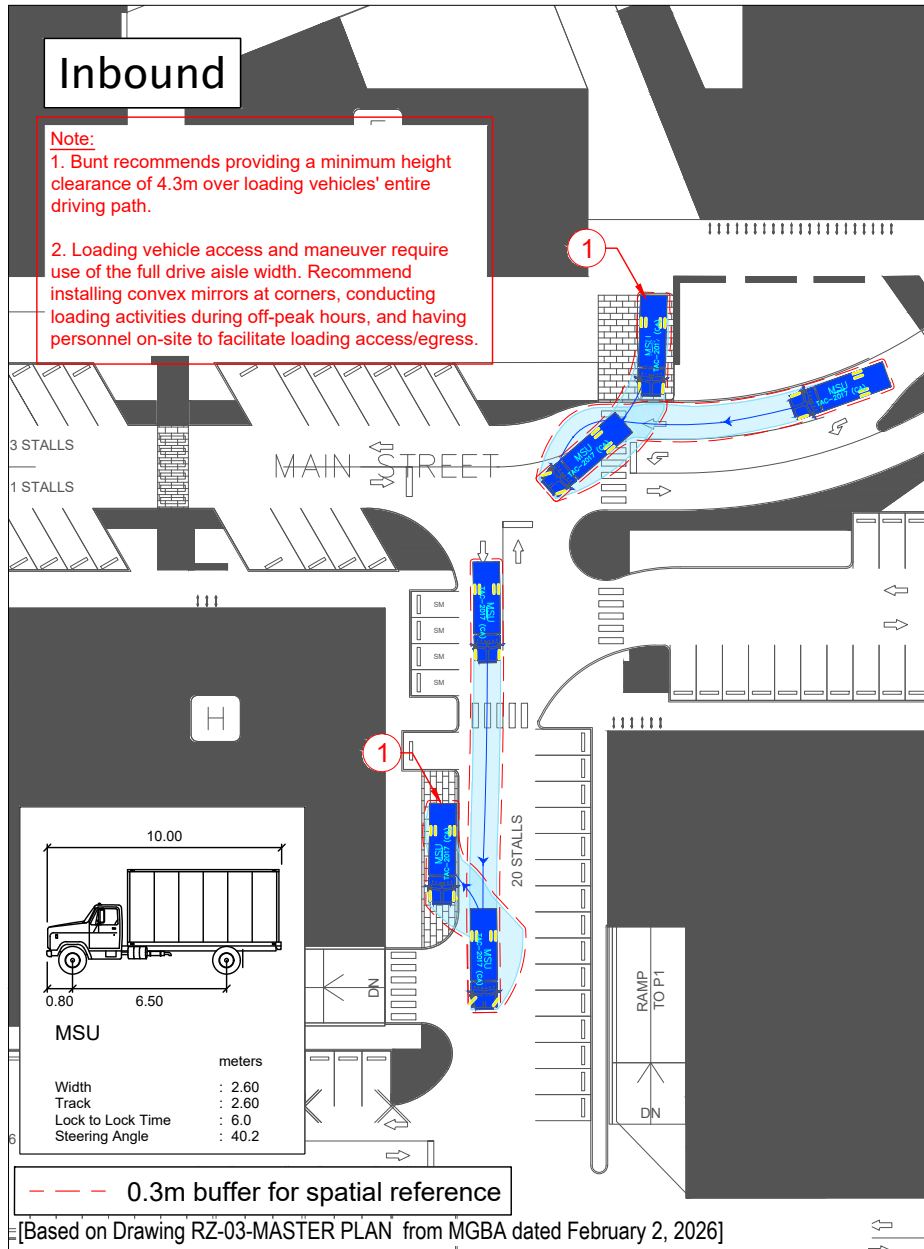


Exhibit C1.2 Class B (MSU) Loading Vehicle Maneuver (2/3)

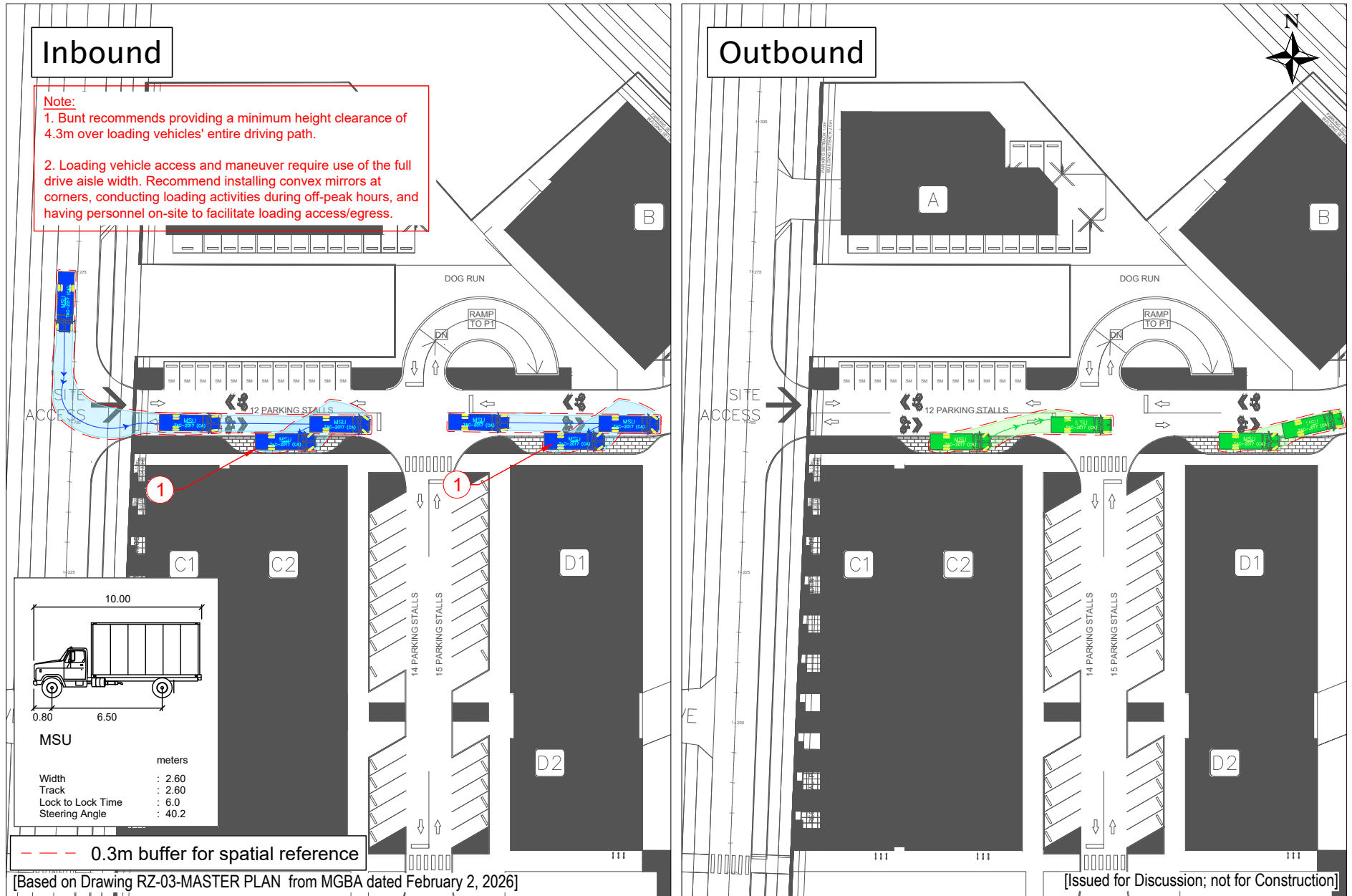


Exhibit C1.3 Class B (MSU) Loading Vehicle Maneuver (3/3)

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2026/03/16 1:55:56, Plotted by Gordon Lu

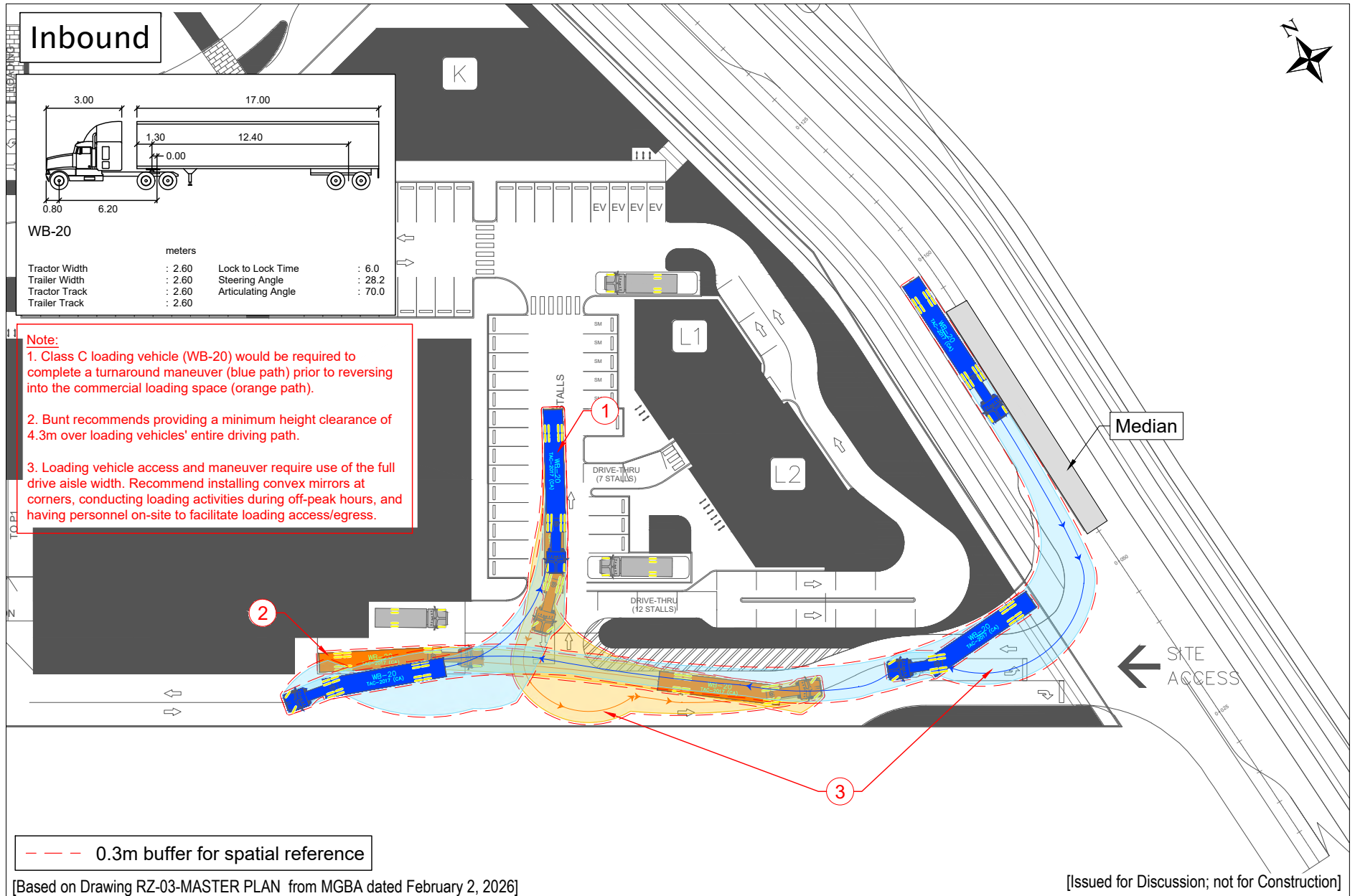
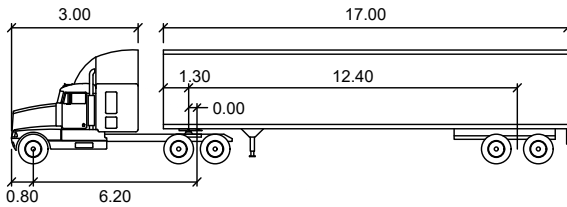


Exhibit C2.1.1 Class C (WB20) Loading Vehicle Inbound Maneuver (1/2)

O:\Dept BC\Projects\2025\08-25-0038 Royal Oak Shopping Centre\4.0 Analysis & Design\4.1 ACAD\08-25-0038_Royal Oak SC_AT_V3-3.dwg
2026/03/16 15:56, Plotted by Gordon Lu

Outbound

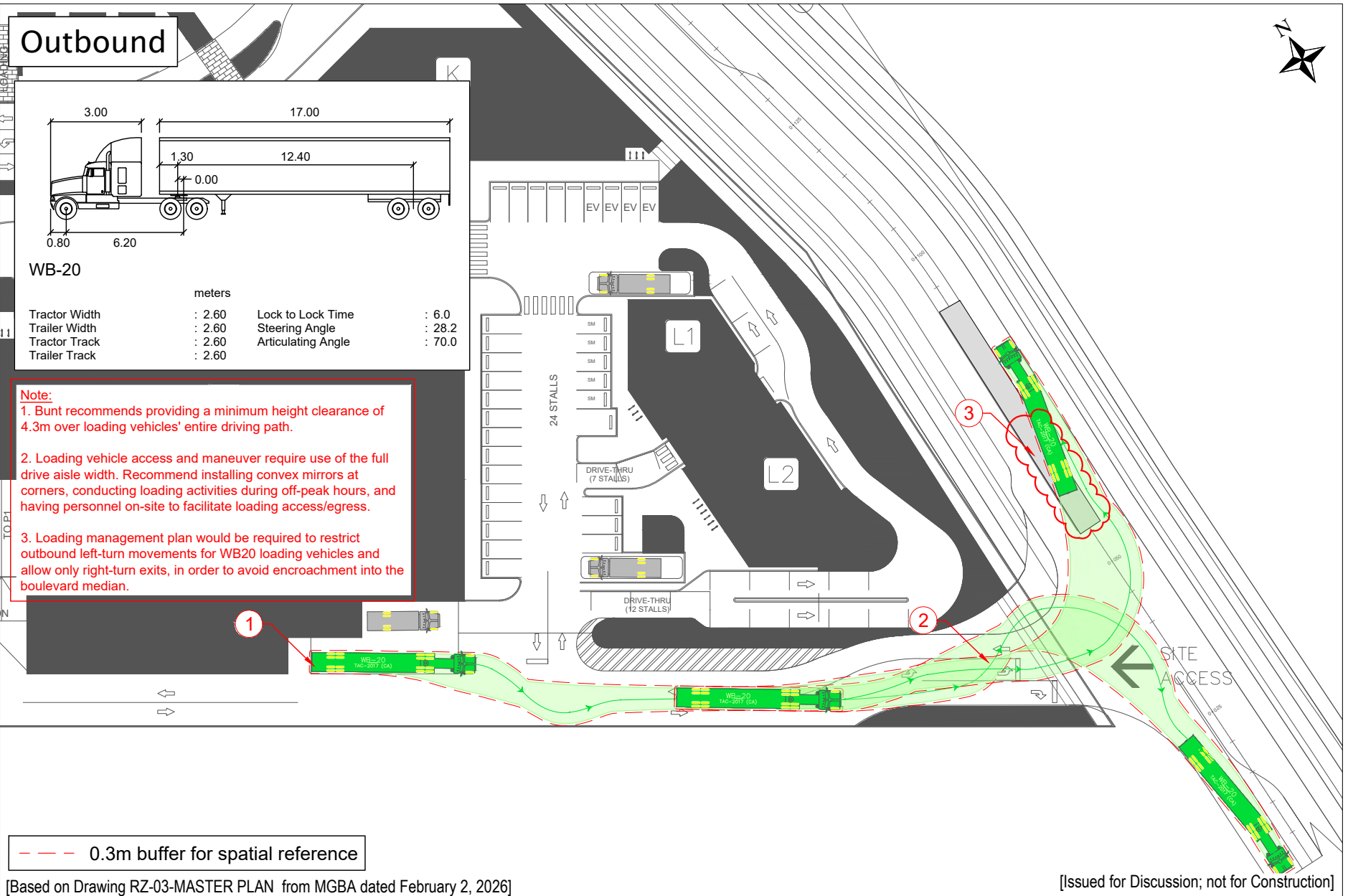


WB-20

	meters		
Tractor Width	: 2.60	Lock to Lock Time	: 6.0
Trailer Width	: 2.60	Steering Angle	: 28.2
Tractor Track	: 2.60	Articulating Angle	: 70.0
Trailer Track	: 2.60		

Note:

1. Bunt recommends providing a minimum height clearance of 4.3m over loading vehicles' entire driving path.
2. Loading vehicle access and maneuver require use of the full drive aisle width. Recommend installing convex mirrors at corners, conducting loading activities during off-peak hours, and having personnel on-site to facilitate loading access/egress.
3. Loading management plan would be required to restrict outbound left-turn movements for WB20 loading vehicles and allow only right-turn exits, in order to avoid encroachment into the boulevard median.



--- 0.3m buffer for spatial reference

[Based on Drawing RZ-03-MASTER PLAN from MGBA dated February 2, 2026]

[Issued for Discussion; not for Construction]

Exhibit C2.2 Class C (WB20) Loading Vehicle Outbound Maneuver

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2026/03/16 1:55:56, Plotted by Gordon Lu

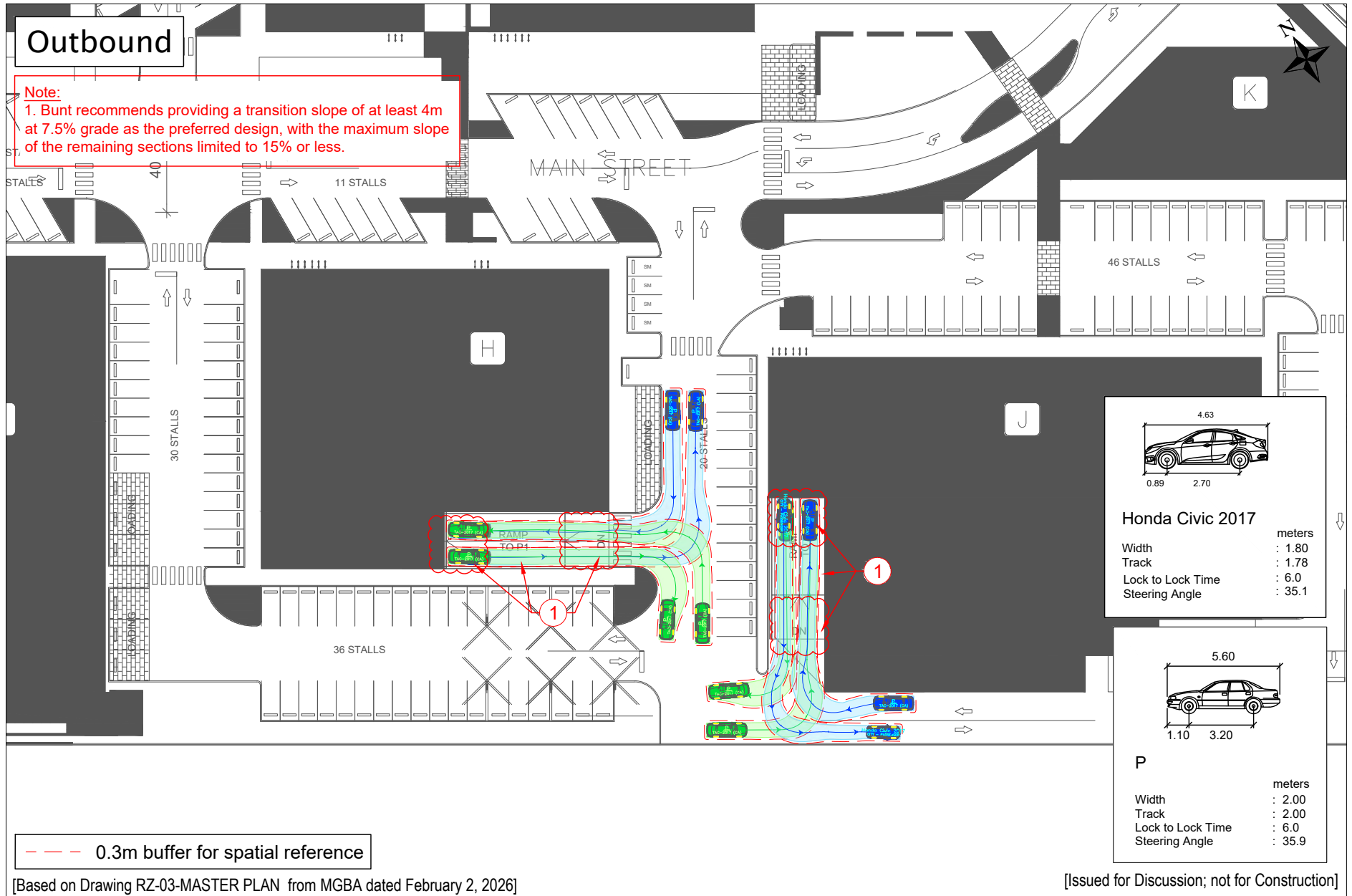


Exhibit C3.1 Passenger Vehicle Ramp Access (1/2)

Outbound

Note:

1. Bunt recommends providing a transition slope of at least 4m at 7.5% grade as the preferred design, with the maximum slope of the remaining sections limited to 15% or less.

2. Install convex mirrors at turning corners to improve sightlines for passenger vehicles and to accommodate two-way concurrent passenger vehicle movements along the 180-degree ramp.

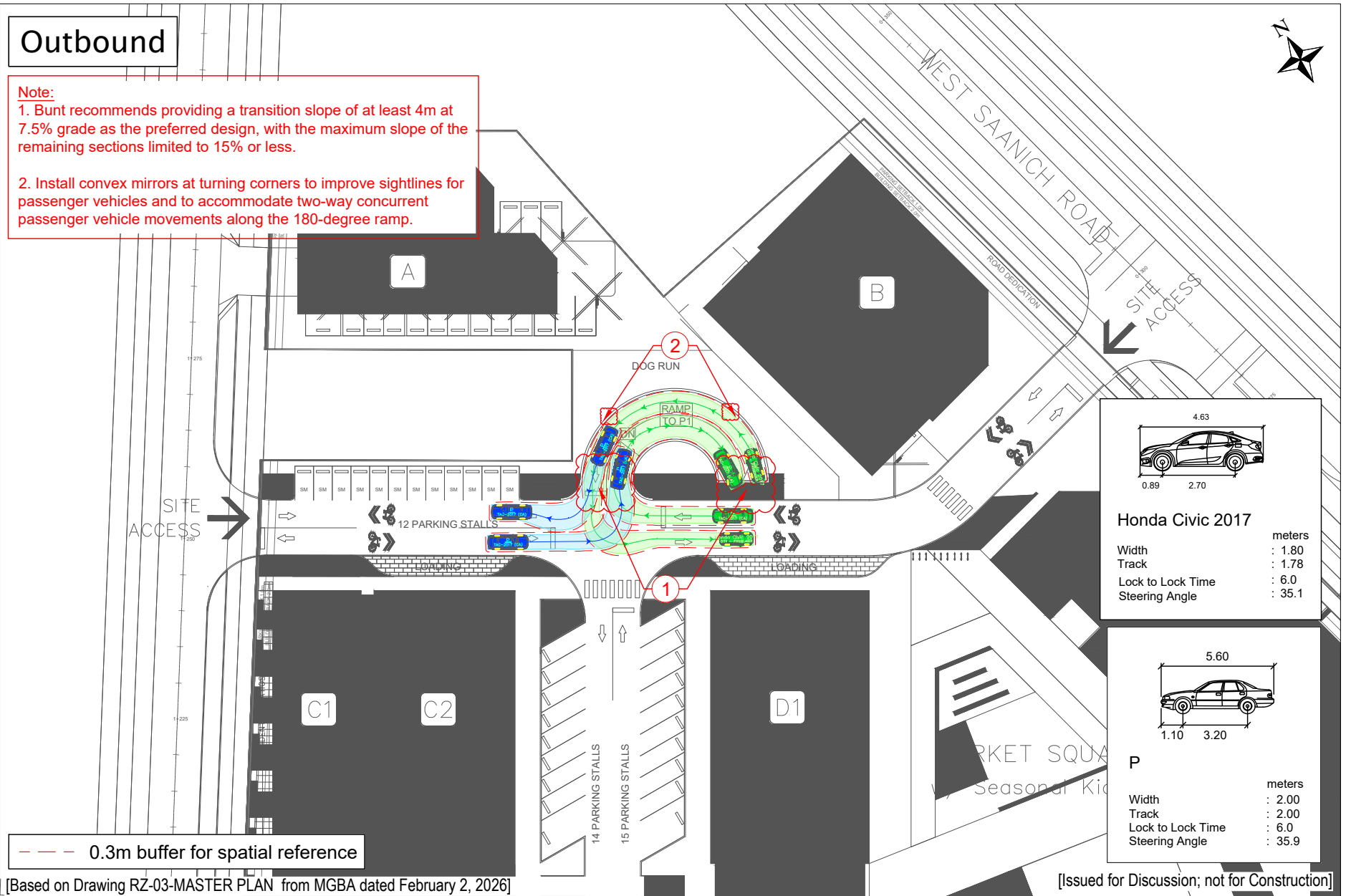


Exhibit C3.2 Passenger Vehicle Ramp Access (2/2)

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2026/03/16 15:56, Plotted by Gordon Lu

Inbound

Note:
1. Modify landscape and ensure the areas are drivable/mountable.

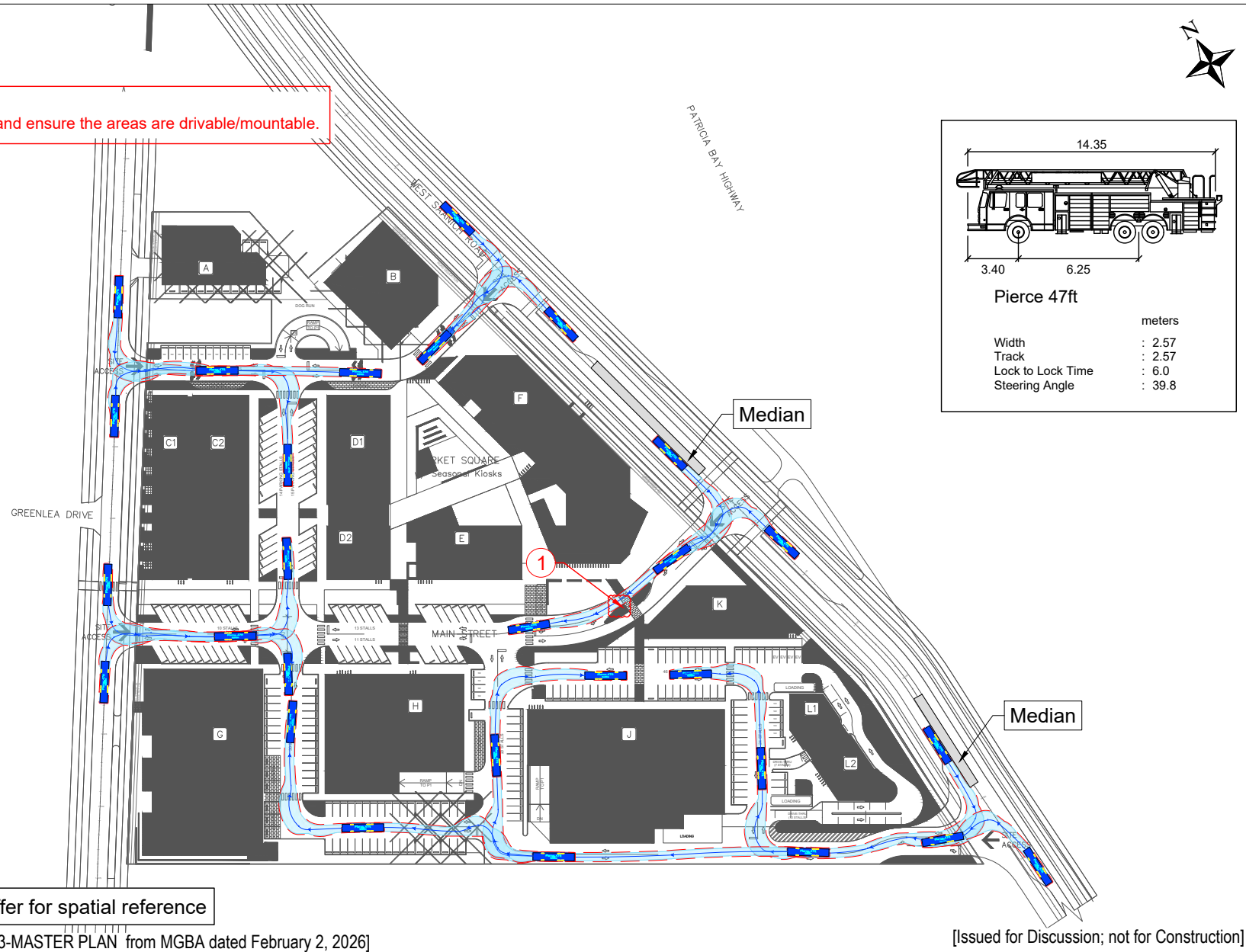


Exhibit C4.1 Fire Truck Inbound Circulation

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2026/03/16 15:56, Plotted by Gordon Lu

Outbound

Note:

1. Modify landscape and ensure the areas are drivable/mountable.

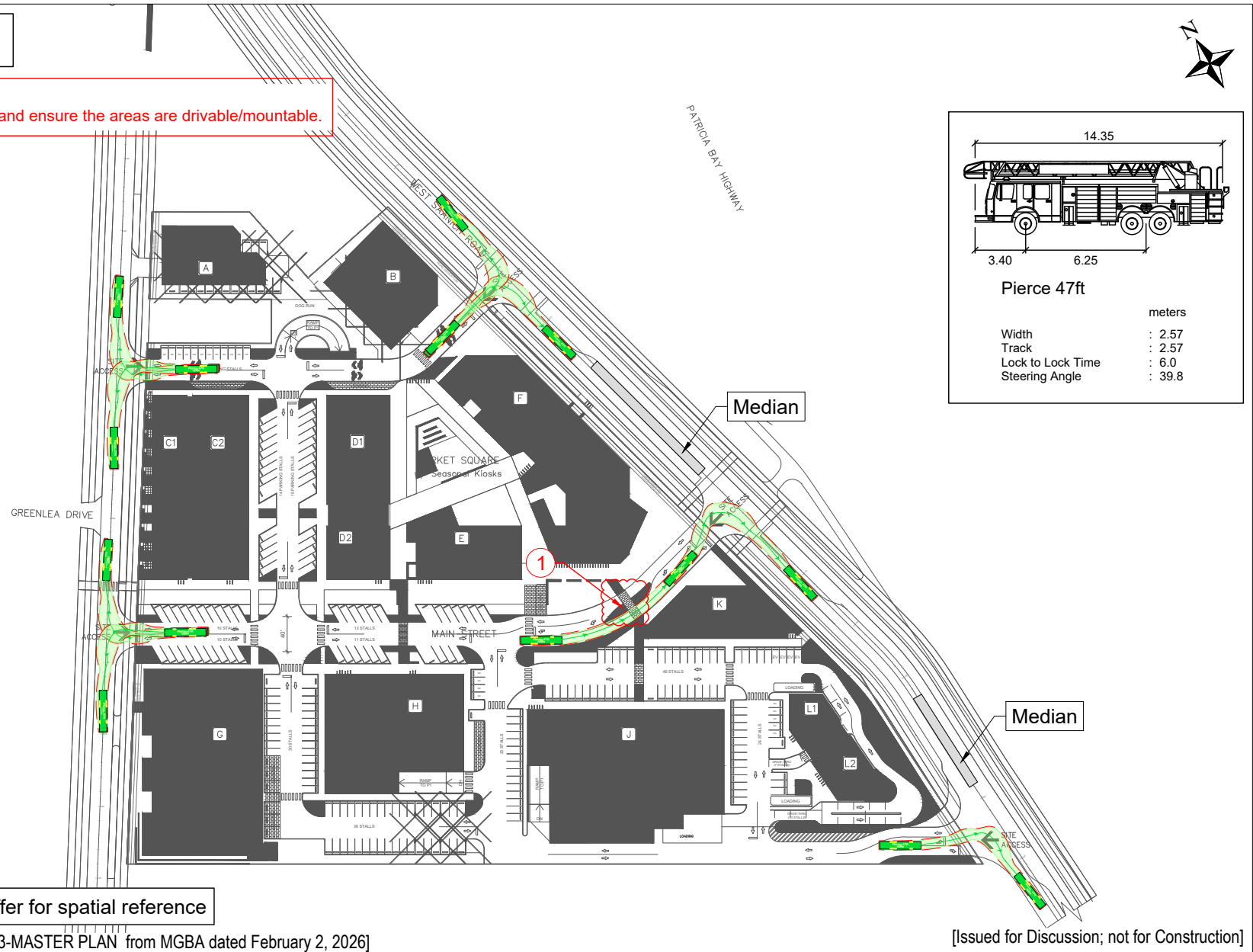


Exhibit C4.2 Fire Truck Outbound Circulation

