



2452-2490 Marine Drive
Transportation Impact
Assessment

Final

Prepared for
Dundarave Beachside LP

Date
May 27, 2021

Project No.
04-18-0416

May 27, 2021
04-18-0416

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Dundarave Beachside LP
c/o Kooouos Real Estate
1550-666 Burrard Street
Vancouver, BC
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Dear Siu Ling Yuen:

**Re: 2452-2490 Marine Drive
Transportation Impact Assessment**

Please find attached our Transportation Impact Assessment (TIA) regarding the proposed mixed-use development at 2452-2490 Marine Drive. This report reviews the site's accessibility by all modes and assesses the development's impact on the adjacent street network.

We trust that this information will assist you in moving forward with your application. Please do not hesitate to contact us should you have any questions about this report.

Yours truly,
Bunt & Associates

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1. INTRODUCTION

1.1 Study Purpose & Objectives

Dundarave Beachside LP (Dundarave Beachside) submitted an application to redevelop the site located at 2452-2490 Marine Drive in West Vancouver, BC. The site is currently zoned C2 and the redevelopment plan intends to maintain this zoning. The proposed development provides ground-floor retail units and both office and residential space on the upper floors. Due to elevation changes, the building will be 3 storeys high fronting Marine Drive and 4 storeys fronting Dundarave Lane. Access to the site will be via Dundarave Lane to the south of the site. Parking provided in an underground parkade intends to meet minimum requirements set out in the District of West Vancouver (DWV) Zoning Bylaw.

1.2 Study Scope & Area

DWV requested that a Level 2 Transportation Impact Assessment (TIA) be prepared as part of the development permit application. **Appendix A** provides the study's terms of reference approved by DWV.

Exhibit 1.1 illustrates the site located in the Dundarave area of West Vancouver. The study area includes the entirety of the mixed-use area of Dundarave, between 24th and 25th Streets from Bellevue Avenue in the south to Mathers Avenue in the north. The site itself is bounded by other commercial and mixed-use sites in all directions, with single-family residential lots to the west.

1.3 Organization of Report

The report is outlined as follows:

- **Section 2** describes existing transportation systems, relevant plans and policies, and the existing operational conditions within the study area;
- **Section 3** outlines the vehicle parking, bicycle parking, and loading spaces required, and reviews the site access and layout;
- **Section 4** assesses future vehicle forecasts with and without the proposed development;
- **Section 5** summarizes the study including all recommendations.

1.4 Proposed Development

Exhibit 1.2 illustrates the proposed site plan while **Table 1.1** summarizes the proposed land uses. Vehicle access to the underground parkade is via Dundarave Lane at the south of the site. As the property exhibits a significant north-south slope down from Marine Drive, the ground floor at Marine Drive is above grade at Dundarave Lane, allowing for a "lower ground" floor, Level 0, accessed from the rear.

Table 1.1: Proposed Land Uses

LAND USE	FLOOR AREA (SQ.FT.)	UNITS
Residential	79,900	55
Retail	16,100	-
Office	11,200	-
TOTAL	107,200	55

The existing single-storey retail buildings on the property cover approximately 21,600 sq ft. Therefore the proposed development will replace most of the existing retail floor area as well as add 11,200 sq ft of office space and 55 residential units.

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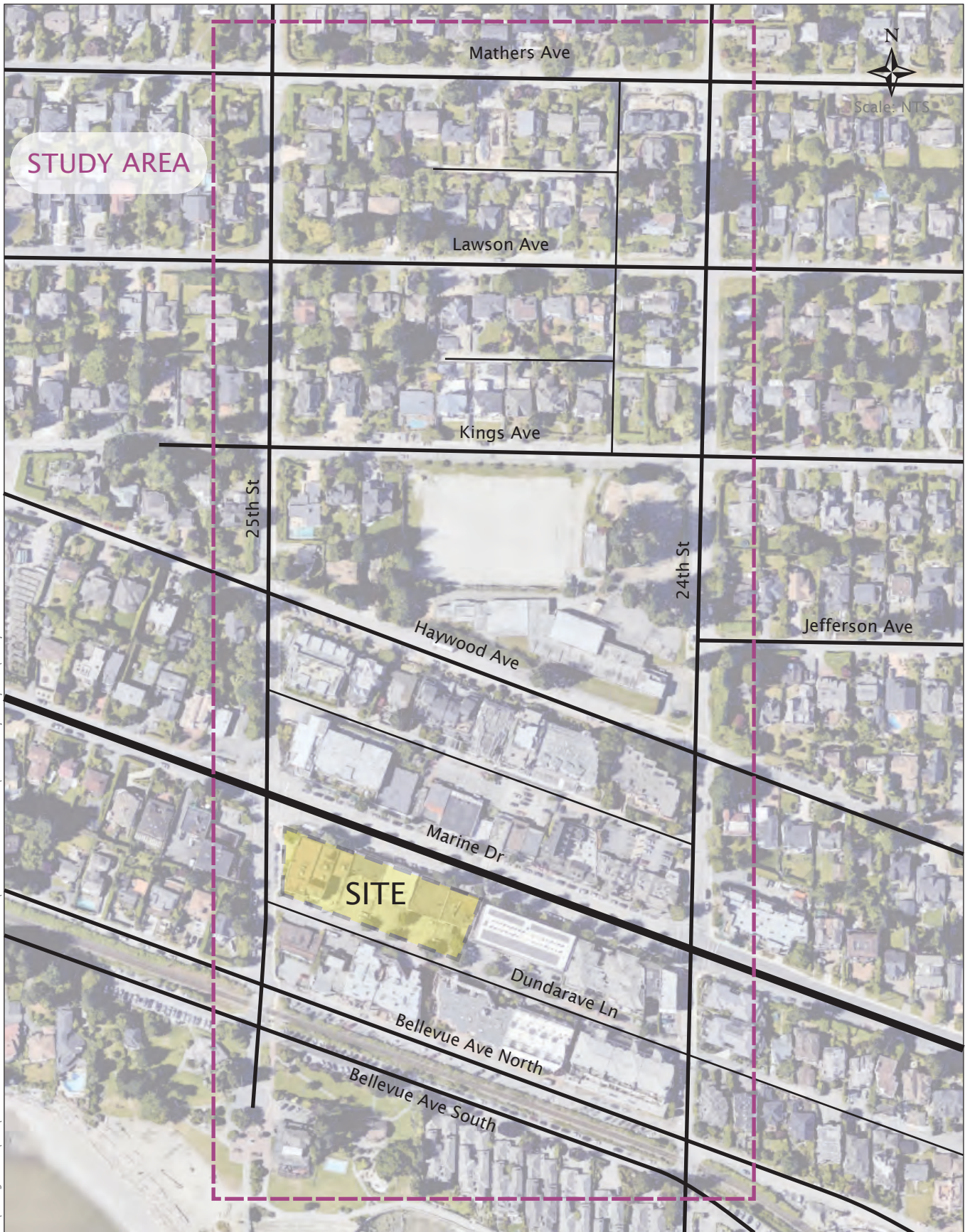
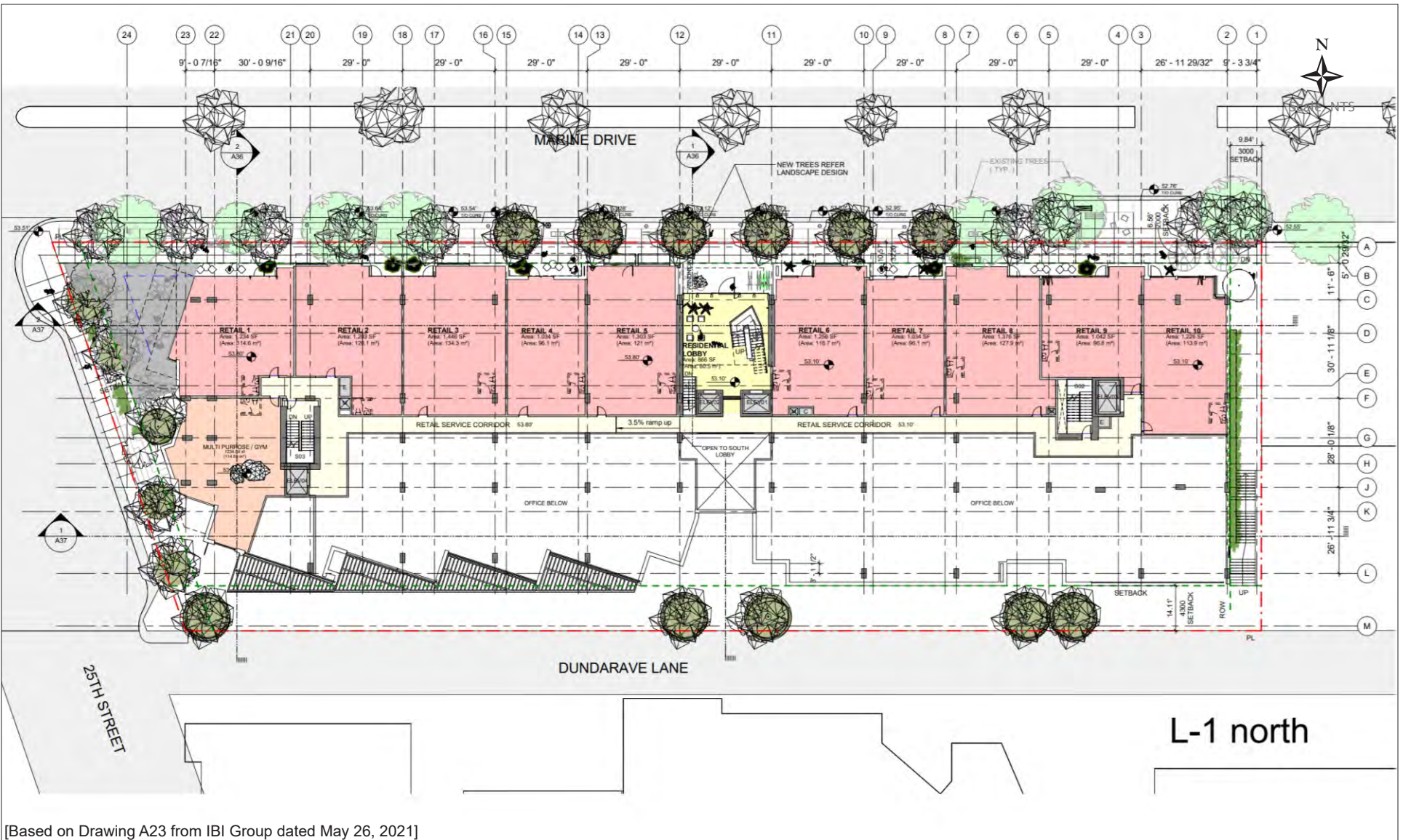


Exhibit 1.1 Site Location & Study Area

2452-2490 Marine Drive
04-18-0416 October 2020





[Based on Drawing A23 from IBI Group dated May 26, 2021]

L-1 north

Exhibit 1.2 Site Plan

2452 - 2490 Marine Drive
May 2021

04-18-0416



2. EXISTING CONDITIONS

2.1 Land Use

The development site is currently zoned C2, “Commercial Zone 2” and is located within the Dundarave neighbourhood centre. The site currently is occupied by a collection of single-storey commercial establishments, including a café, a salon, a dentist, an investment consultant, an art gallery, two clothing boutiques, a home remodeling showroom/office, and a Shoppers Drug Mart. Each of these individual buildings provide minimal on-site parking on surface lots accessed from Dundarave Lane. Some of the buildings also include residential units accessed via Dundarave Lane due to the steep grade exposing an additional storey of space.

Developments along the remainder of the 2400-block of Marine Drive follow a similar pattern of low-rise commercial units with minimal residential space and access via rear-lane surface lots. To the north and south, along the 2400-blocks of Bellevue Avenue and Haywood Avenue, larger multifamily residences dominate. However, farther to the east or west, typical West Vancouver single-family residential zoning accounts for the vast majority of land use.

2.2 Existing Transportation Network

2.2.1 Road Network

Exhibit 2.1 illustrates the existing laning and traffic control within the study area road network consisting of the following study intersections:

- 25th Street & Mathers Avenue
- 25th Street & Haywood Avenue
- 25th Street & Marine Drive
- 25th Street & Dundarave Lane
- 25th Street & Bellevue Avenue
- 24th Street & Mathers Avenue
- 24th Street & Haywood Avenue
- 24th Street & Marine Drive
- 24th Street & Dundarave Lane
- 24th Street & Bellevue Avenue

Note that Bellevue Avenue consists of a one-way pair of roads separated by a train track. Analysis of these roads is considered separately, designated Bellevue Avenue North and Bellevue Avenue South for consistency. **Table 2.1** presents the operation characteristics of each street within the study area.

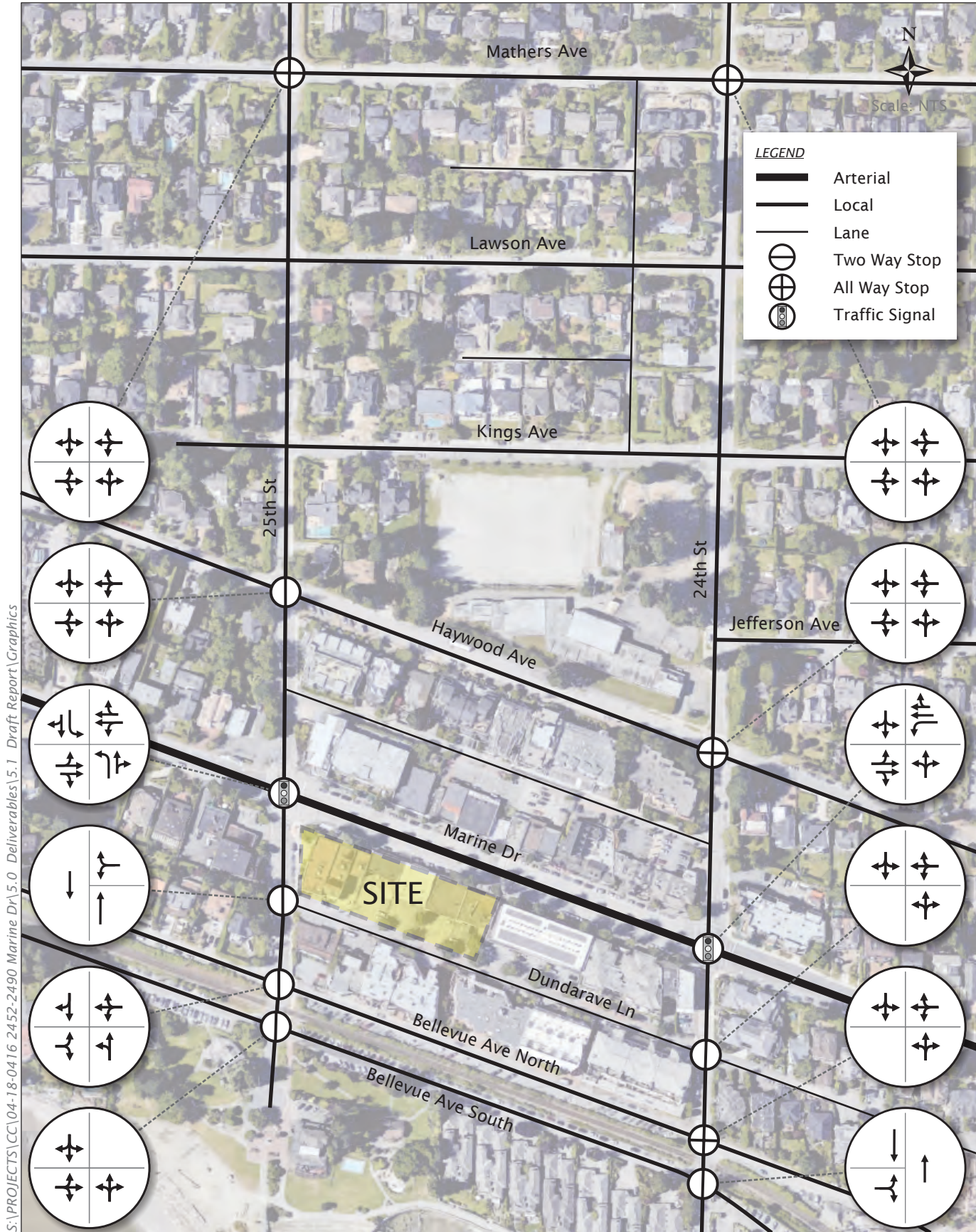


Exhibit 2.1 Existing Laning and Traffic Control

2452-2490 Marine Drive
04-18-0416 October 2020



Table 2.1: Existing Street Characteristics

STREET	CLASSIFICATION	NUMBER OF TRAVEL LANES	POSTED SPEED (KM/H)	PARKING FACILITIES
Marine Drive	Arterial/MRN	4	50	Both sides: 2hr, 9-6
Mathers Avenue	Collector	2	50	Some unofficial
Haywood Avenue	Local	2	50/30 (school zone)	South side: 2hr, 9-6
Bellevue Avenue	Local	2	30	Various, including parallel, angle, and perpendicular stalls, 4hr 6am-midnight, 2hr 9-6
25 th Street	Local	2	50	East side: 2hr, 9-6 West side: unrestricted
24 th Street	Local	2	50/30 (school zone)	West side: 2hr, 9-6
Dundarave Lane	Local	1	20	None

2.2.2 Transit Network

The site is at the edge of TransLink's Frequent Transit Network (FTN). While bus routes provide service in all directions from the site, FTN service (15 minutes or better 7 days a week) is only provided on Route 250 to/from the east. However, as this route connects to Downtown Vancouver via the Lion's Gate Bridge, the site is reasonably well connected to the regional transit network.

Table 2.2 tabulates the nearest bus stops for each route within 800m of the site and **Table 2.3** highlights the frequency and span of service for each of these routes. The development site is directly adjacent to the eastbound bus stop on Marine Dr and across the street from the westbound stop.

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

STOP LOCATION	DIRECTION	STOP #	AMENITY	ROUTES SERVICED	WALKING DISTANCE
EB Marine Dr far-side 25 th St	East	54592	Bench, trash bin	250, 251, 252, 253, 255, 258	10m
WB Marine Dr far-side 25 th St	West	54622	Shelter, bench, trash bin	250, 251, 253	100m

Table 2.3: Existing Transit Service Frequency

ROUTE		STOP	WEEKDAY SERVICE SPAN		HEADWAY (MIN.)				
#	DIRECTION		START	END	AM	MID-DAY	PM	EVENING	WEEKEND
250	Vancouver	54592	05:32	00:28	7-10	10	7-10	15-30	10
	Horseshoe Bay	54622	05:23	01:33	15-30	30	15	30	30
251	Park Royal	54592	06:20	22:50	30	60	30	60	60
252	Park Royal	54592	06:40	23:46	30	60	30	60	60
253	Park Royal / Vancouver	54592	06:49	22:59	30	60	30	60-120	60
	Caulfeild	54622	06:23	22:35	30	60	30	60-120	60
255	Capilano U via Lynn Valley	54592	06:40	21:00	20	30	15-20	30	30
258*	UBC Express	54592	07:00	09:00	30-60	-	-	-	-

*Suspended at the time of writing due to the COVID-19 pandemic.

2.2.3 Active Transportation

The pedestrian network in the study area is relatively complete. Marine Dr, Haywood Ave, and 24th St all provide sidewalks on both sides within the study area. 25th St and Bellevue Ave provide a sidewalk on one side. Marine Drive is easy to cross, with signalized crossings at 24th St and 25th Street and a marked crossing with centre refuge island midblock between the two signals. Marked pedestrian crossings are also provided on the north and east legs of 25th & Haywood and all legs of 24th & Haywood, representing significant pedestrian traffic from nearby Irwin Park Elementary. A midblock crosswalk is also present on Haywood Ave directly in front of the school. The east leg of 25th & Bellevue north of the train tracks is also marked as a pedestrian crossing, representing the main desire line from Marine Drive to Dundarave Park on the shore.

Existing cycling routes in the area mostly consist of signed routes along low-volume neighbourhood streets. While Marine Dr is signed as a bicycle route in the study area, no designated cycling facilities are currently provided and people cycling must share the lane with vehicles. The neighbourhood street bikeway along Bellevue Ave connects to the Spirit Trail in the east, an off-street shoreline trail connecting to the District and City of North Vancouver. As with many locations in West Vancouver, cycling in all directions except along the shore is challenged by excessively steep grades. However, cycling is prohibited on the Centennial Seawalk, which hugs the shore from the study area to Ambleside.

2.3 Car Share

Modo is the only two-way car share operator in West Vancouver. Currently, the nearest vehicle is located on Haywood Ave near 21st St approximately 1 kilometre (10-12 minute walk) from the development site. While this is a reasonable walking distance it may not be close enough to be regularly used by many residents of the proposed development.

Evo is currently the only one-way car share operator in Greater Vancouver but does not include West Vancouver in its 'Home Zone'.

2.4 Relevant Policies & Plans

2.4.1 Municipal Plans

West Vancouver Official Community Plan

The West Vancouver Official Community Plan (OCP), 2018, provides insight into the character of the study area, such as a policy to “regenerate Dundarave [Village Centre] with small-scale, street-level retail, service and restaurants, secondary office use, and mixed residential and commercial uses that reflect their respective characters and contexts”.

The OCP also includes a policy prioritizing frequent transit service “between Park Royal and Dundarave by expending bus priority measures and transit-supportive road treatments along Marine Drive”, which is important given that the terminus stop of this frequent service is directly outside the development site.

West Vancouver Strategic Transportation Plan

The Strategic Transportation Plan, 2010, provides high-level transportation visions for the District. Of note is the long-term vision for Marine Drive in the Dundarave area. While these concepts have not been implemented, they would represent a significant change to the transportation fabric in the site area.

Figures 1a and **1b** provide images from the plan. The Marine Drive vision includes a significant improvement to active transportation including a more pedestrian-focused town centre street.

The Plan also mentions the possibility of providing passenger ferry services from Dundarave to various points in the City of Vancouver, which would likely connect to 25th St and thus increase the accessibility of the site to pedestrians.



Figure 2.1a: Marine Drive Corridor Vision 1, Two-way (Looking East)



Figure 2.1b: Marine Drive Corridor Vision 2, One-Way Couplet (Looking East)

2.4.2 Regional Plans

Plans for a RapidBus express bus route operated by TransLink from Dundarave along Marine Drive to Phibbs Exchange have been cancelled following public consultation in West Vancouver. However, rapid transit to Dundarave is still possible in the future, and the District has noted that the existing bus bay on the site's Marine Drive frontage may need expanding should this happen.

2.5 Multi-modal Data Collection

2.5.1 Data Collection Program

To accurately account for existing conditions within the study area, Bunt collected multi-modal transportation data during the AM (7:00 – 9:00 am), PM (3:00 – 5:00 PM), and Saturday (12:00 – 2:00 pm) peak periods at the study intersections. The raw data is provided in **Appendix B**. The majority of the data collection took place in June 2019. However, the scope of this study was later expanded to include the AM peak hour and the two intersections on Mathers Avenue, which necessitated an additional count program in September 2020. School was in session at the nearby Irwin Park Elementary during all weekday counts which dismissal occurring between 2:40 and 3:00 pm. Therefore, the PM data collection period would have covered the tail end of the pick-up period while also covering the entire street peak period which typically occurs between 3:00 and 5:00 pm. **Table 2.4** lists the peak hours observed for each intersection for each count day.

Table 2.4: Summary of Counted Traffic Data

INTERSECTION	DATE	PEAK HOURS		
		AM	PM	SAT
25 th St & Mathers Ave	September 22, 2020	8:00	15:30	
	September 19, 2020			13:00
25 th St & Haywood Ave	September 23, 2020	8:00		
	June 12, 2019		15:00	
	June 29, 2019			13:30
25 th St & Marine Dr	September 22, 2020	8:00	15:00	
	June 12, 2019		15:00	
	June 29, 2019			14:15
	September 19, 2020			13:00
25 th St & Dundarave Ln	September 23, 2020	8:00		
	June 12, 2019		15:00	
	June 29, 2019			12:15
25 th St & Bellevue Ave N	September 23, 2020	8:00		
	June 12, 2019		15:00	
	June 29, 2019			14:00
25 th St & Bellevue Ave S	September 23, 2020	8:00		
	June 12, 2019		15:00	
	June 29, 2019			13:15
24 th St & Mathers Ave	September 22, 2020	8:00	15:00	
	September 19, 2020			12:00
24 th St & Haywood Ave	September 23, 2020	8:00		
	June 12, 2019		15:00	
	June 29, 2019			12:15
24 th St & Marine Dr	September 22, 2020	8:00	15:00	
	June 12, 2019		15:00	
	June 29, 2019			12:45
	September 19, 2020			13:00
24 th St & Dundarave Ln	September 23, 2020	8:00		
	June 12, 2019		15:00	
	June 29, 2019			13:15
24 th St & Bellevue Ave (N & S)	September 23, 2020	8:00		
	June 12, 2019		15:00	
	June 29, 2019			14:30
OVERALL STUDY AREA PEAK HOUR		8:00	15:00	12:45

2.5.2 Peak Hour Pedestrian Volumes

The number of crossing pedestrians was highest at the Marine Drive intersections with 80 to 130 people crossing per hour in all four directions. Moderate volumes are maintained around the Marine Drive corridor with 50 to 80 people crossing per hour at the intersections immediately north and south of Marine Drive. Pedestrian volumes significantly decrease north of Haywood Avenue.

2.5.3 Peak Hour Vehicle Volumes

The 2019 data is considered the most accurate, so where possible the 2019 data was used and increased by 1% to account for potential vehicle volume growth between 2019 and 2020. Since the 2020 data was collected during the COVID-19 pandemic, it was adjusted by evaluating the change in vehicle volumes on Marine Drive between June 2019 and September 2020. **Table 2.5** summarizes the vehicle volumes on Marine Drive during these two periods. Data collected during the PM peak hour in 2020 was 8% lower than the 2019 data indicates. Therefore, all weekday 2020 data used (AM – all intersections, PM – Mathers Ave only) were increased by 9% (1 divided by 0.92). The Saturday data collected in 2020 was 5% higher than the 2019 data indicates. All Saturday data used (Mathers Ave only) was directly applied due to the only minor increase in vehicle use from 2019.

Table 2.5: Marine Drive Vehicle Volumes - 2019 and 2020

PEAK HOUR	June 2019 + 1% Growth	September 2020 (COVID-19)	Estimated COVID-19 Impact	ASSUMED ADJUSTMENT FACTOR FOR 2020 DATA
AM	-	660	-	+9%
PM	1,020	940	-8%	+9%
Saturday	740	780	+5%	None

Exhibit 2.2 illustrates the estimated 2020 typical vehicle volumes at all study intersections based on the assumptions discussed above.

2.5.4 Existing Site Vehicle Trip Generation

The existing site contains approximately 22,000 sq.ft. of retail and office space. As there is no centralized parkade for these businesses, people destined for the site could park in the off-street spaces behind the stores, on-street on Marine Drive, or in any number of other at-grade parking facilities in the area. As it is difficult to collect data about the destinations of people parking on-street, the exact number of vehicles on the adjacent streets due to the existing building occupants could not be easily observed.

Table 2.6 summarizes the estimated trip generation based by applying the ITE Shopping Centre (code 820) trip rates for a “General Urban/Suburban” location to the entirety of the existing building area. Land use code 820 is defined as an integrated group of commercial establishments which could include retail, services, restaurants, and offices.

Table 2.6: Estimated Existing Site Trip Generation

LAND USE	UNITS	AM PEAK HOUR			PM PEAK HOUR			SAT PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Trip Rate	Trips/ 1000 SF	62%	38%	0.94	48%	52%	3.81	52%	48%	4.50
Trip Generation	Trips	13	7	20	40	43	83	57	41	98

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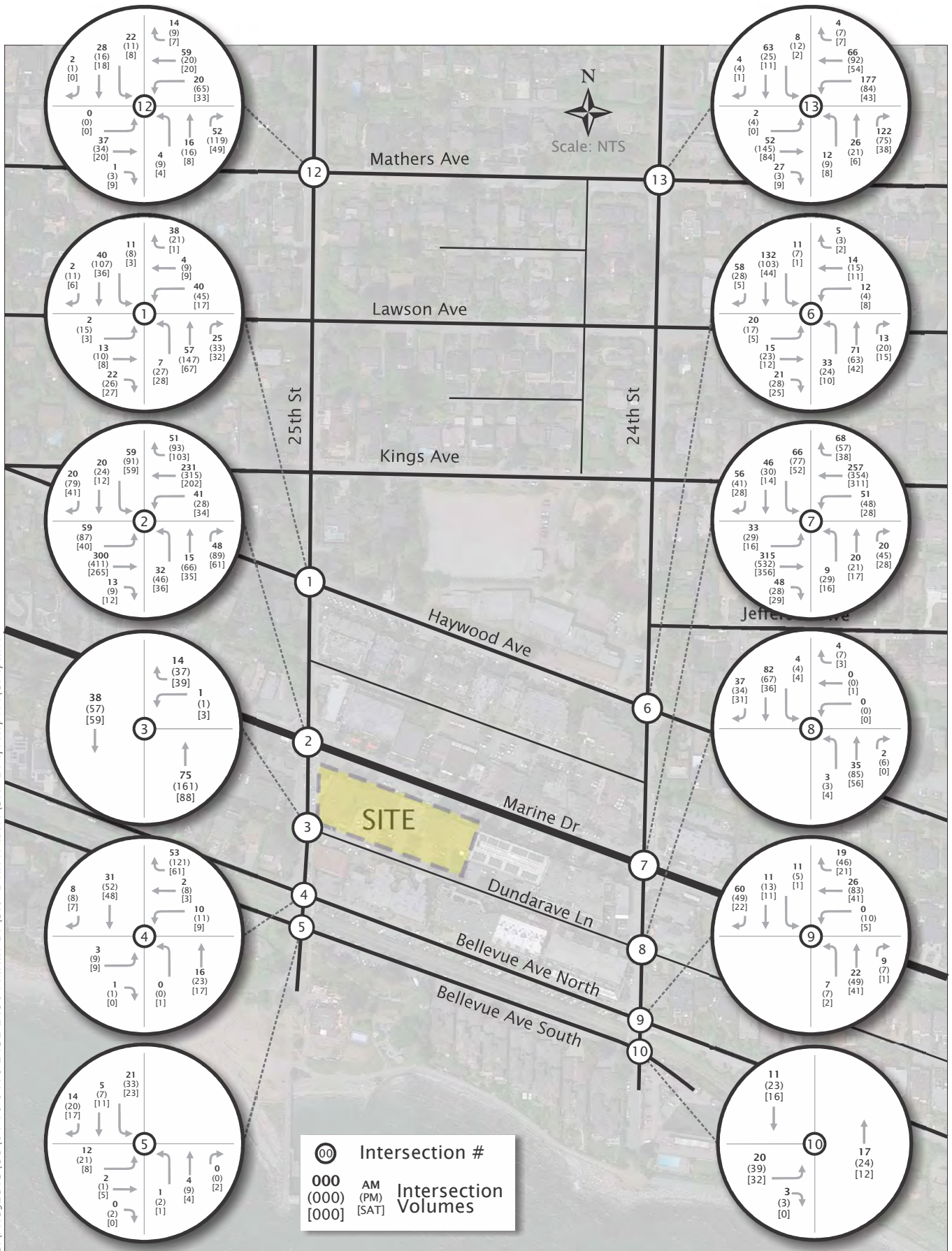


Exhibit 2.2 Existing 2020 Peak Hour Vehicle Traffic Volumes

2452-2490 Marine Drive
04-18-0416 November 2020



The assumed trip rates result in 20, 85, and 100 vehicle trips during the AM, PM, and Saturday peak hours respectively. This is quite a bit higher than the existing number of vehicles using Dundarave Lane. Therefore, either the existing buildings generate fewer vehicle trips per square foot than typical suburban shopping centres or a significant number of drivers destined for the existing development site are parking off-site.

2.6 Existing Parking Demand & Supply

A parking demand survey was conducted on Saturday, June 29, 2019, to understand current on-site and on-street parking characteristics during the weekend peak. Parking demand was recorded in 30-minute intervals at all on-site parking spaces and the on-street parking spaces within the study area (see **Exhibit 2.3**).

Key aspects regarding the parking supply include:

- Bellevue Ave (both north and south) are designed for dense street parking, with both perpendicular and angle stalls present within the study area. Total supply along these blocks exceeds 160 stalls, split between a 4hr 6am-midnight restriction on Bellevue Ave South and a 2hr 9am-6pm restriction on Bellevue Ave North.
- Approximately 54 spaces are available on Marine Drive between 24th St and 25th St, with a 2hr 9am-6pm restriction.
- 10 accessible on-street spaces were found at various points within the study area.
- 58 spaces are currently available on -ite; many of which have varying restrictions such as “reserved for x business only” or “staff parking only” or “owner”.

Figure 2.2 illustrates the parking demand with key findings including:

- Demand throughout the study area remained relatively constant during the study at 47-50% occupancy.
- Parking along Marine Drive was in high demand, ranging from a low of 78% occupancy at 15:30 to a high of 96% occupancy at 12:30.
- Significant excess supply was available on Bellevue Ave at all times, with occupancy ranging from 33 to 39%.
- On-site parking demand was similarly low, with occupancy ranging from 36% at 13:30 to 52% at 15:00.

Based on the existing conditions, the District may wish to further investigate patterns along Marine Drive and consider higher levels of parking management measures (i.e. shorter time restrictions or paid parking) if it wishes to have lower occupancy levels.



Exhibit 2.3 Parking Data Collection Areas

04-18-0416

2452 Marine Drive
May 2021



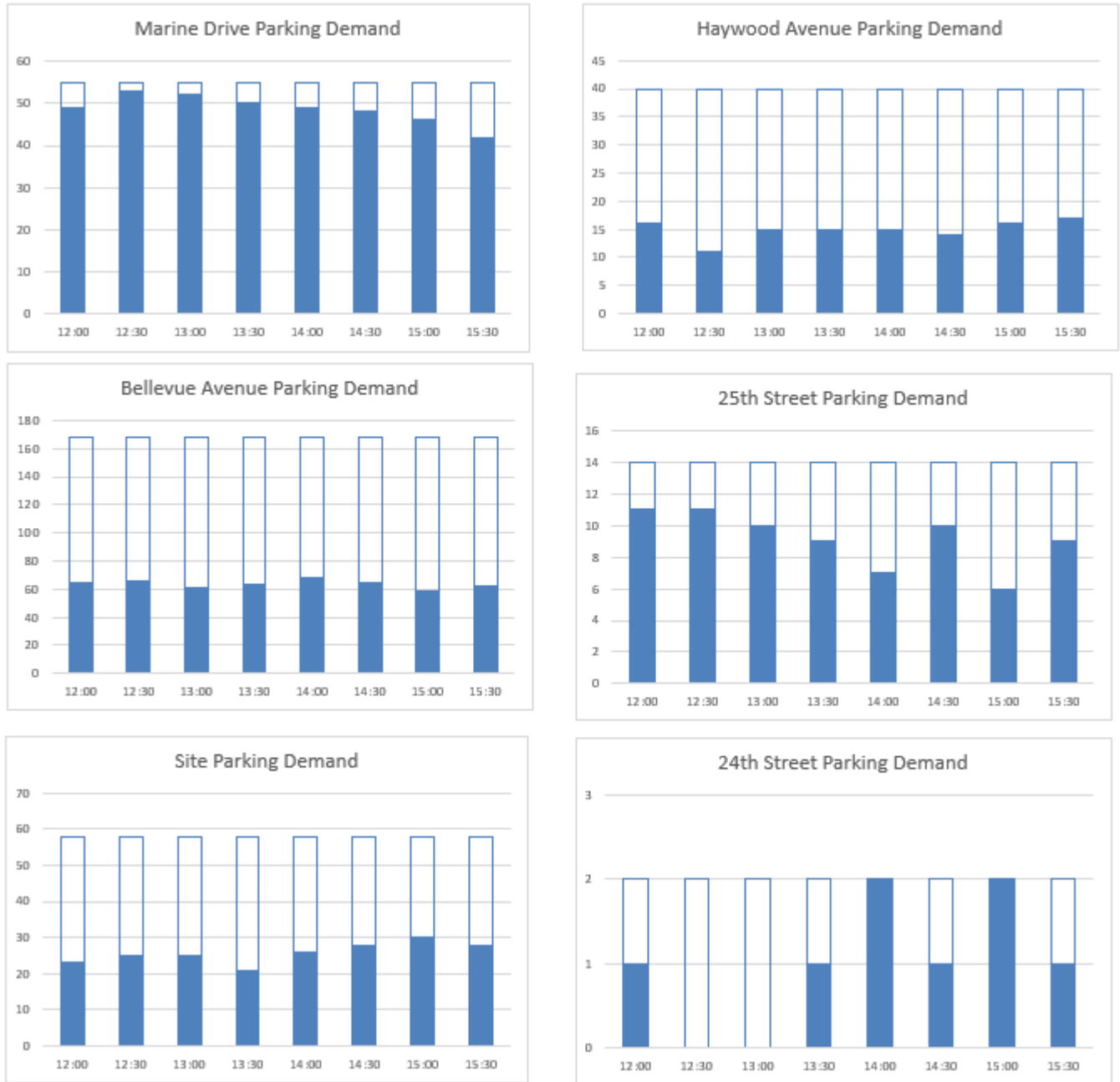


Figure 2.2: Existing Parking Occupancy

2.7 Existing Operations

2.7.1 Performance Thresholds

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 9.2 analysis software (Build 914). The traffic operations were assessed using the performance measures of Level of Service (LOS) and volume-to-capacity (V/C) ratio.

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

Table 2.7: 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 consider 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:

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

In interpreting 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 V/C ratios for all-way stop-controlled intersections.

2.7.2 Existing Conditions Analysis Assumptions

Signal Timing:

Signal timing plans for the two Marine Drive intersections were obtained from DWV. The two intersections are not coordinated with each other; each operates independently as an actuated uncoordinated signal. The same timing plan is used throughout the day.

Synchro Parameters

Synchro's default parameters were generally retained for this traffic analysis. Exceptions include:

- Peak hour factors were taken from the traffic counts;
- Heavy vehicle percentages were kept at the Synchro default of 2% unless count data showed higher percentages; and
- Pedestrian and cyclist volumes were taken from count data.

2.7.3 Existing Operational Analysis Results

Given the large number of study intersections, **Table 2.8** summarizes the overall intersection and critical movement results for the weekday AM, weekday PM, and Saturday midday peak hours. Detailed tables and HCM 2000 outputs have been attached in **Appendix B** for reference. All study intersections operate well from a vehicle capacity perspective with minimal delay and queues.

Table 2.8: Existing Operation Results Summary

INTERSECTION/ TRAFFIC CONTROL	CRITICAL MOVEMENT	AM			PM			SAT		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
25 th St & Haywood Ave <i>(minor road stop)</i>	WB LTR	B	0.21	6	B	0.19	5	B	0.05	1
25 th St & Marine Dr <i>(signalized)</i>	OVERALL	A	0.34		B	0.38		A	0.23	
	EB LTR	A	0.40	24	A	0.42	35	A	0.28	22
	SB L	B	0.25	10	B	0.32	16	B	0.18	10
25 th St & Dunderave Ln <i>(minor road stop)</i>	WB LR	A	0.02	1	B	0.06	1	B	0.07	2
25 th St & Bellevue Ave N <i>(minor road stop)</i>	WB LTR	A	0.09	2	B	0.18	5	B	0.12	3
25 th St & Bellevue Ave S <i>(minor road stop)</i>	EB LTR	A	0.02	1	A	0.03	1	A	0.02	1
24 th St & Haywood Ave <i>(all-way stop)</i>	SB LTR	B	0.43		A	0.27		A	0.08	
24 th St & Marine Dr <i>(signalized)</i>	OVERALL	B	0.53		B	0.51		A	0.36	
	EB LTR	B	0.58	34	B	0.62	53	B	0.37	34
24 th St & Dunderave Ln <i>(minor road stop)</i>	WB LTR	A	0.01	0	A	0.01	0	A	0.00	0
24 th St & Bellevue Ave N <i>(all-way stop)</i>	WB LTR	A	0.08		A	0.17		A	0.09	
24 th St & Bellevue Ave S <i>(minor road stop)</i>	EB LR	A	0.04	1	A	0.05	1	A	0.04	1
25 th St & Mathers Ave <i>(all-way stop)</i>	WB LTR	A	0.16		A	0.15		A	0.08	
24 th St & Mathers Ave <i>(all-way stop)</i>	WB LTR	B	0.52		A	0.32		A	0.13	

3. DEVELOPMENT PLAN REVIEW

3.1 Bicycle Parking

Well managed, secure, accessible and covered bicycle parking will be provided as part of the development plan. **Table 3.1** summarizes the Zoning Bylaw requirements for bicycle parking which the development complies with. The development currently slightly oversupplies secure commercial bicycle parking while slightly undersupplying residential. The total short term bicycle parking requirement is 21 spaces and the location of the 22 spaces provided are illustrated in the landscape drawings.

Table 3.1: Bicycle Parking Supply Requirement & Provision

LAND USE	QUANTITY	BYLAW RATE	MINIMUM SUPPLY REQUIREMENT	PROVIDED	DIFFERENCE
Secure Bicycle Parking					
Commercial	2,540 m ²	0.3 per 100 m ²	8	8	0
Residential	55 units	1.5 per unit	83	83	0
Short Term Bicycle Parking					
Commercial	2,540 m ²	0.4 per 100 m ²	10	22	+1
Residential	55 units	0.2 per unit	11		

3.2 Vehicle Parking

Table 3.2 summarizes the development's minimum vehicle parking requirement based on the site's existing C2 Zone. The proposed commercial parking supply equals the minimum Bylaw requirement and the residential parking supply exceeds the minimum requirement. Although no residential visitor parking spaces are required, 3 of the residential spaces will be reserved for visitors. Residential parking spaces will have electric-vehicle receptacles ready for charging.

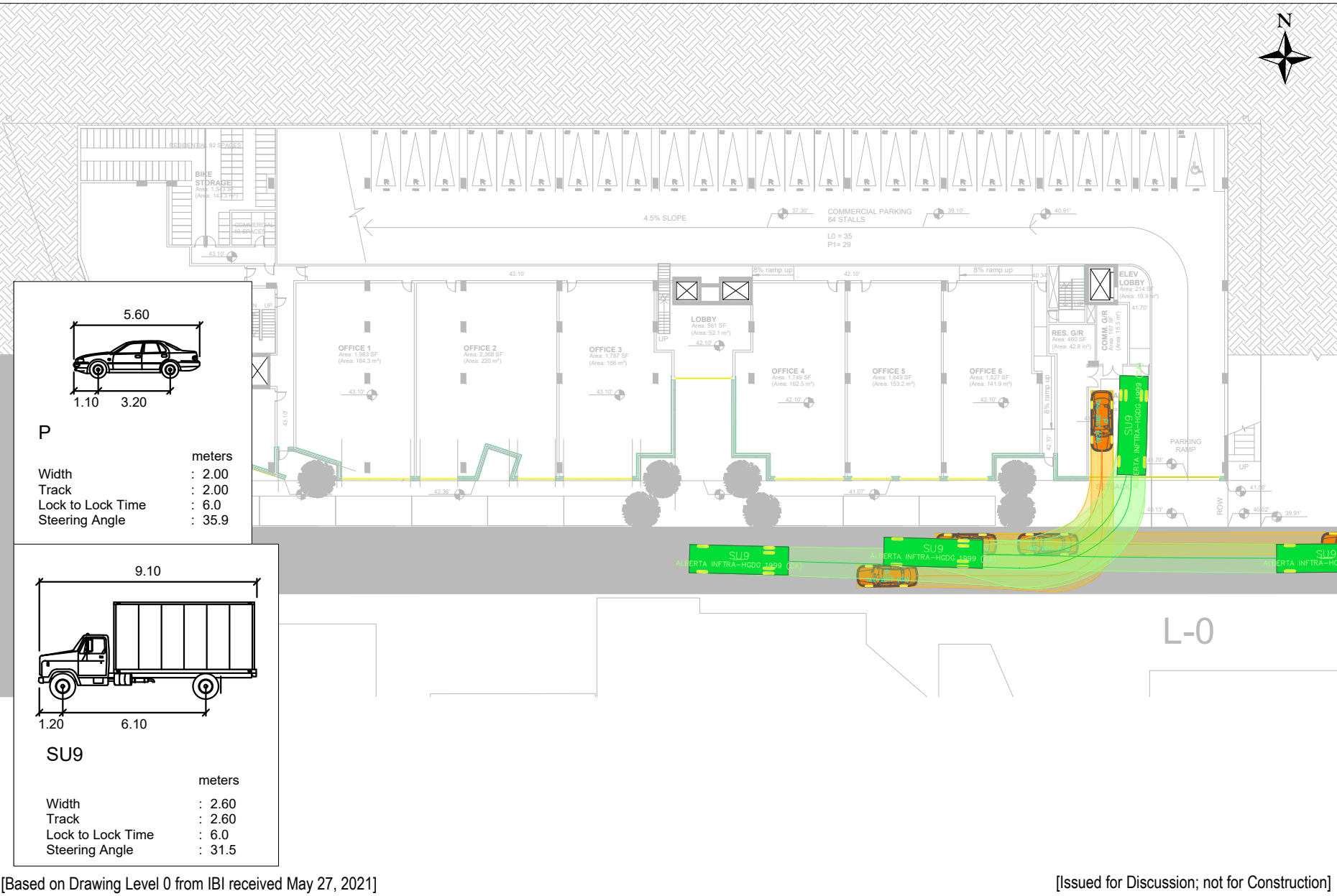
Table 3.2: Vehicle Parking Supply Requirement & Provision

LAND USE	QUANTITY	BYLAW RATE	MINIMUM SUPPLY REQUIREMENT	PROVIDED	DIFFERENCE
Commercial	2,540 m ²	1 per 37.5 m ²	68	68	0
Residential	55 units 6,223 m ²	1 per unit or 1 per 83.6 m ² (whichever is lesser)	55	81	+26

3.3 Service Vehicle Operations

The development includes two loading spaces accessed perpendicularly off Dundarave Lane. This loading space will be used for goods loading and waste collection for both commercial and residential land uses. **Exhibit 3.1** illustrates an SU9 design vehicle successfully accessing the Class B loading space and a Passenger Vehicle accessing the Class A loading space (City of Vancouver designations).

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 2021/05/27 10:40, Plotted by Julia Curt



P

Width	: 2.00	meters
Track	: 2.00	
Lock to Lock Time	: 6.0	
Steering Angle	: 35.9	

SU9

Width	: 2.60	meters
Track	: 2.60	
Lock to Lock Time	: 6.0	
Steering Angle	: 31.5	

[Based on Drawing Level 0 from IBI received May 27, 2021]

[Issued for Discussion; not for Construction]

Exhibit 3.1 Loading AutoTURN Review



4. TRIP GENERATION

4.1 Total Trips

The site’s multi-modal trip generation was estimated by combining data from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition) and TransLink’s 2017 Trip Diary.

Table 4.1 provides the ITE trip rates referenced in this study broken down by land use. The rates listed are for “General Urban/Suburban” locations, where essentially all trips made are by vehicle.

Table 4.1: ITE Peak Hour Vehicle Trip Rates

LAND USE	UNITS	AM PEAK HOUR			PM PEAK HOUR			SAT PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Mid-rise residential (ITE 221)	Per unit	26%	74%	0.36	61%	39%	0.44	49%	51%	0.44
Office (ITE 710)	Per 1000 SF	86%	14%	1.16	16%	84%	1.15	54%	46%	0.53
Retail (ITE 820)	Per 1000 SF	62%	38%	0.94	48%	52%	3.81	52%	48%	4.50

Table 4.2 provides the estimated person trip rates for each land use. Each trip rate was adjusted based on an assumption of 1.2 passengers per vehicle and 10% walk/bike/transit trips at the locations where the ITE data was collected.

Table 4.2: Estimated Peak Hour Person Trip Rates

LAND USE	UNITS	AM PEAK HOUR			PM PEAK HOUR			SAT PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Mid-rise residential (ITE 221)	Per unit	26%	74%	0.48	61%	39%	0.59	49%	51%	0.59
Office (ITE 710)	Per 1000 SF	86%	14%	1.55	16%	84%	1.53	54%	46%	0.71
Retail (ITE 820)	Per 1000 SF	62%	38%	1.25	48%	52%	5.08	52%	48%	6.00

Table 4.3 summarizes the additional person trips generated by the proposed redevelopment based on the above rates. Since the amount of retail floor area is slightly decreasing (the existing building area is 21,600 sq ft and the proposed retail floor area is 16,300 sq ft), additional trips are assumed to only be generated by the residential and office components.

Table 4.3: Estimated Additional Peak Hour Person Trips

LAND USE	NET INCREASE	AM PEAK HOUR			PM PEAK HOUR			SAT PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Mid-rise residential (ITE 221)	55 units	7	19	26	20	12	32	16	16	32
Office (ITE 710)	11,247 SF	15	3	18	3	14	17	4	4	8
Retail (ITE 820)	0	0	0	0	0	0	0	0	0	0
TOTAL	-	22	22	44	23	26	49	20	20	40

These assumptions result in the development generating 40 to 50 additional person trips per peak hour (and a lower impact during off-peak hours) compared to the existing conditions.

4.2 Trips by Mode

Data from TransLink's 2017 Travel Diary was used to estimate the number of trips by mode. **Table 4.4** summarizes the mode share distribution for trips originating and/or terminating in West Vancouver. From 2011 to 2017 there was an eleven-percentage point drop in the proportion of trips being made by vehicle (from 71.8 to 60.6%). It is anticipated that this trend will continue and that the proposed development may have a lower vehicle mode share than West Vancouver's 2017 average.

Table 4.4: West Vancouver Mode Share - 2017

MODE	SHARE
Auto Driver	60.6%
Auto Passenger	19.6%
Transit	9.0%
Walk	9.6%
Bike	1.2%
TOTAL	100%

Source: TransLink 2017 Trip Diary

Table 4.5 summarizes the estimated number of additional trips by mode generated by the proposed redevelopment. The study's assumptions result in 25 to 30 additional vehicle trips per peak hour (one every two minutes) beyond the site's existing trip generation.

Table 4.5: Additional Development Generated Trips

MODE	AM PEAK HOUR			PM PEAK HOUR			SATURDAY PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Auto Driver	13	14	27	14	16	30	12	12	24
Auto Passenger	4	4	8	5	5	10	4	4	8
Transit	2	2	4	2	2	4	2	2	4
Walk	2	2	4	2	2	4	2	2	4
Bike	0	1	1	1	0	1	0	0	0
TOTAL PERSON-TRIPS	21	23	44	24	25	49	20	20	40

4.3 Impact of Additional Trips

This quantity of additional trip generation for each mode is unlikely to have a significant impact on the local street network. The addition of 30 vehicle trips per peak hour is relatively modest compared to the

existing vehicle volumes on Marine Drive, 24th Street, and 25th Street and will be analyzed in more detail in **Section 5**.

The additional trips made by foot, bicycle, and transit are also not anticipated to have a noticeable impact. Since the development is not increasing the amount of retail area, the more modestly-trip-generating office and residential land uses will have a humble impact on the surrounding area.

It is possible that the number of trips generated by the retail component may increase or decrease depending on the future tenants which are not known at this time. In addition, the proposed development will have substantially more on-site commercial parking than the existing buildings which may cause more of the shoppers and staff travelling by vehicle to park on-site instead of searching for a parking space on-street. This could lead to fewer vehicles circulating the adjacent streets looking for on-street parking and to reduced on-street parking demand. Therefore, no changes to on-street parking are recommended to accommodate the proposed development.

4.4 Maximum Trip Generation – Existing Zoning

The proposed development scheme fully utilizes the allowable buildable floor area within the existing C2 zone. The C2 zone allows for a variety of commercial land uses which have a higher vehicle trip generation rate than residential use. For example, if additional retail floor area were proposed instead of the proposed 70,000 sq. ft. of residential area, the site's vehicle trip generation would increase by 55 trips during the AM peak, 215 during the PM peak, and 255 during the Saturday peak based on the trip rates in Table 4.3 and mode share in Table 4.4. Therefore, by focussing on adding office and residential space, the development is minimizing its additional trip generation compared to adding additional retail space.

5. FUTURE VEHICLE CONDITIONS

5.1 Background Vehicle Forecasts

Background forecasts are the quantity of vehicles that would be present on the street network if the site did not redevelop. The opening day for this project is estimated to be 2023. Consequently, the analysis described in the section assesses the future traffic conditions for an “Opening Day (2023)” scenario and an “Opening Day + 10 (2033)” scenario during the weekday AM & PM and Saturday midday peak hours.

The background 2023 and 2033 scenarios were estimated by applying a linear 1% annual growth rate to account for increases in vehicle use in the study area not related to the proposed development.

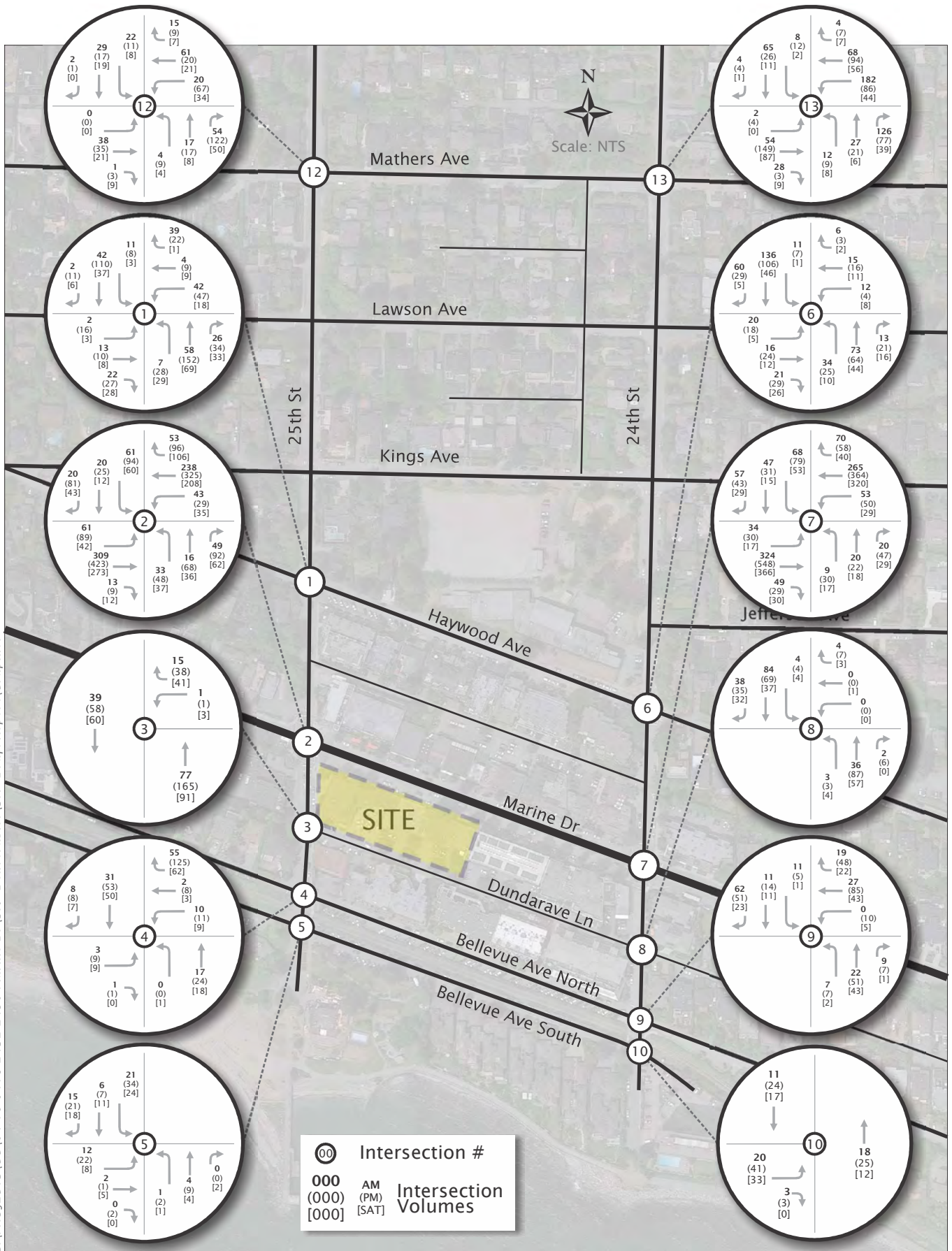
Exhibits 5.1 and 5.2 illustrate the 2023 and 2033 background vehicle forecasts, respectively.

5.2 Site Vehicle Forecasts

Exhibit 5.3 summarizes the assumed distributions the additional vehicle trips would use to enter/exit the study area. The trip distributions are based on the existing traffic patterns on the adjacent road network and **Exhibit 5.4** illustrates the resulting additional peak hour vehicle trips are illustrated on the study area street network.

Exhibits 5.5 and 5.6 present the total future vehicle forecasts with additional vehicle trips generated by the redevelopment added to the background vehicle forecasts.

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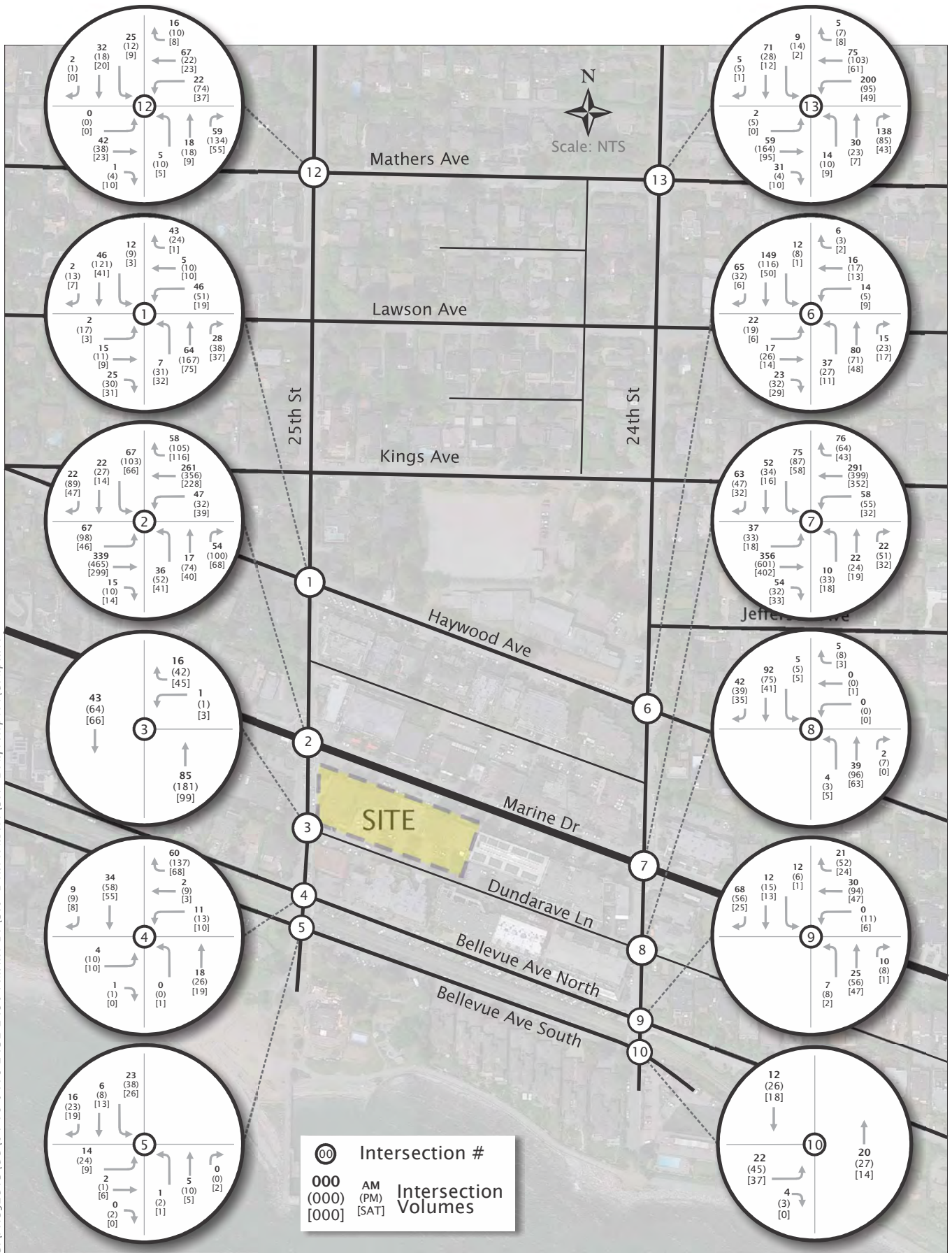
Opening Day (2023) Background Vehicle Traffic Forecasts

Exhibit 5.1

2452-2490 Marine Drive
04-18-0416 November 2020



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Opening Day + 10 (2033) Background Vehicle Traffic Forecasts

Exhibit 5.2





Exhibit 2.3 Parking Data Collection Areas

04-18-0416

2452 Marine Drive
May 2021





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⊙ Intersection #
 ⇄ 0% Estimated Trip Distribution

Exhibit 5.3 Estimated Trip Distribution

2452-2490 Marine Drive
 04-18-0416 May 2021



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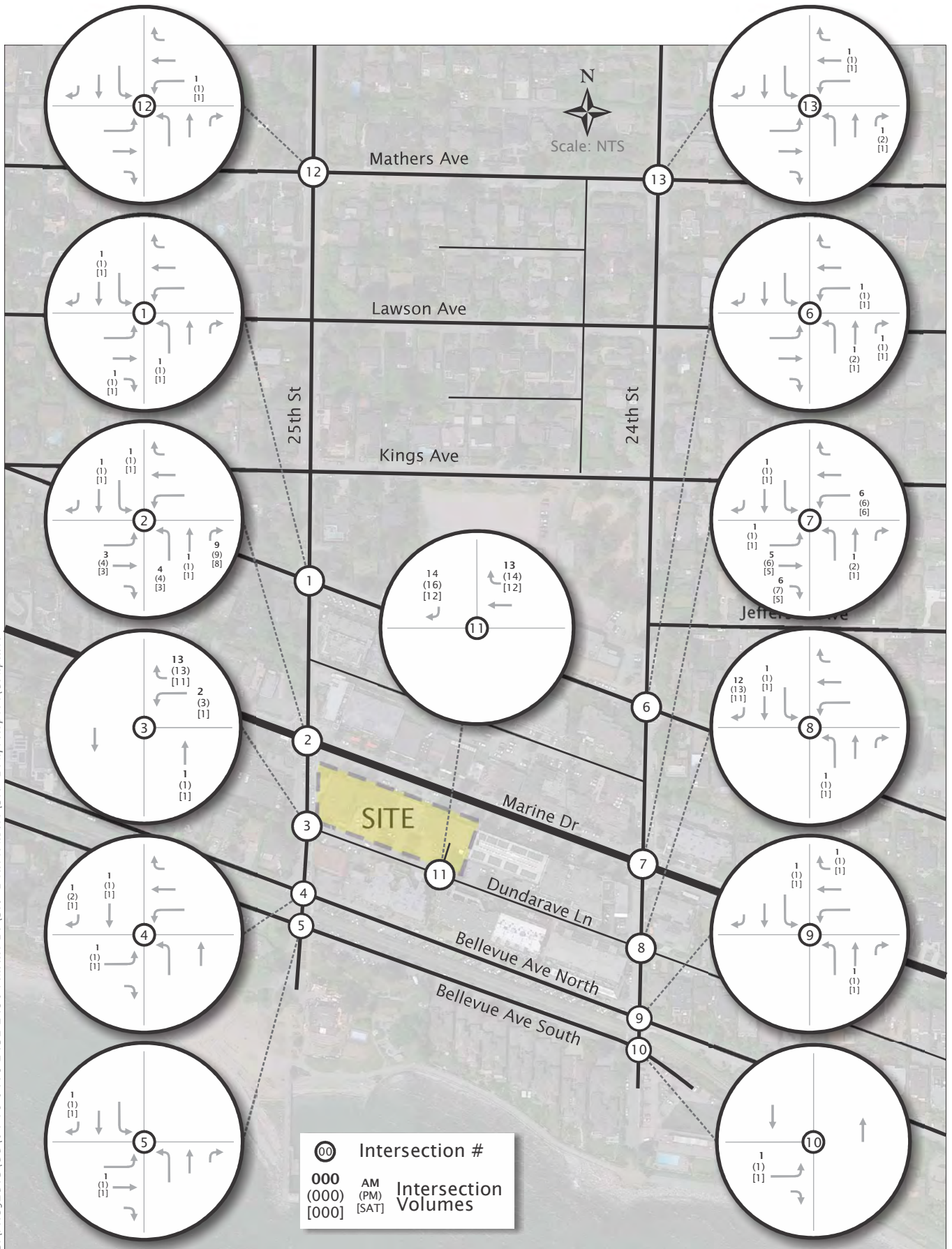


Exhibit 5.4 Additional Site Generated Vehicle Trips

2452-2490 Marine Drive
04-18-0416 May 2021



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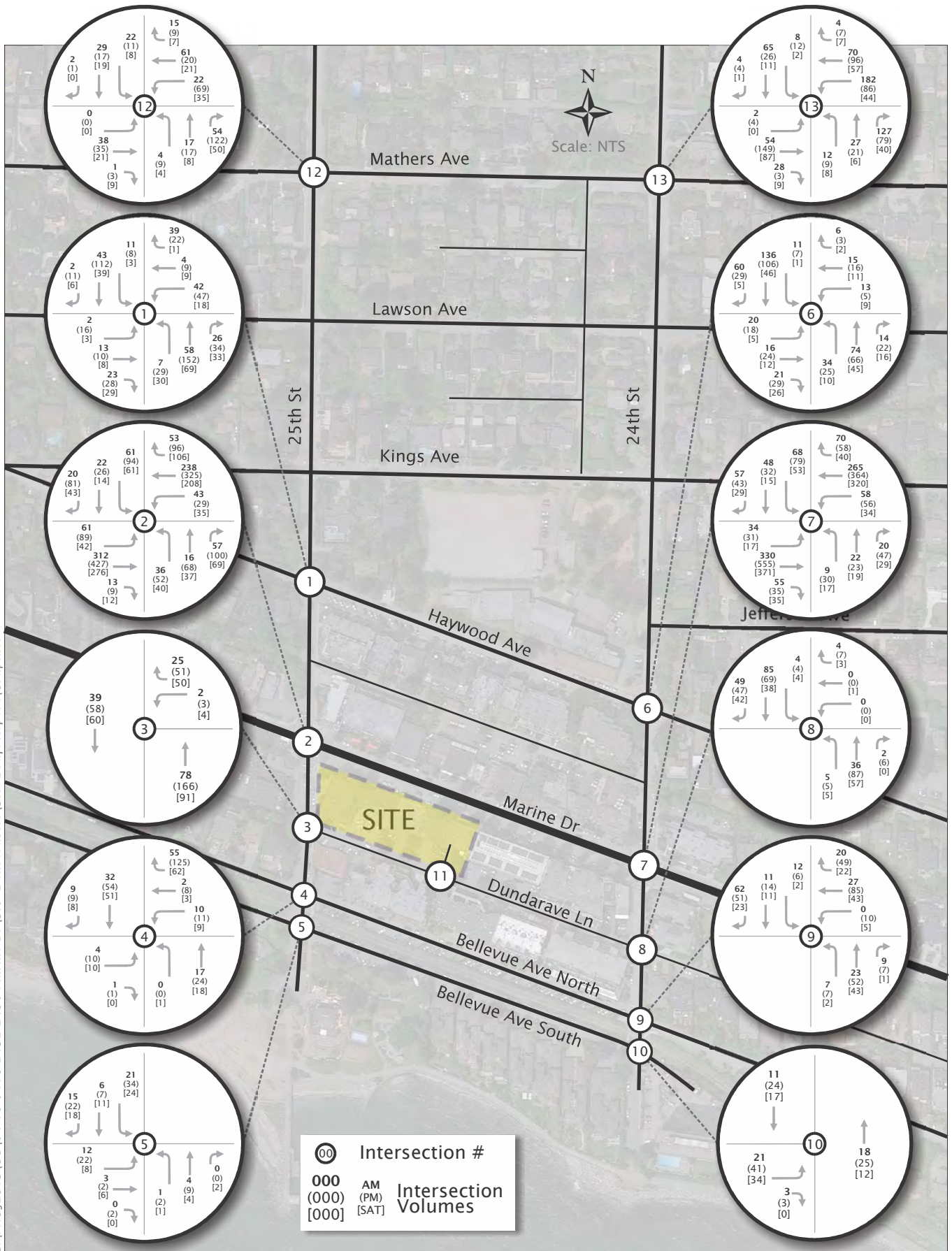
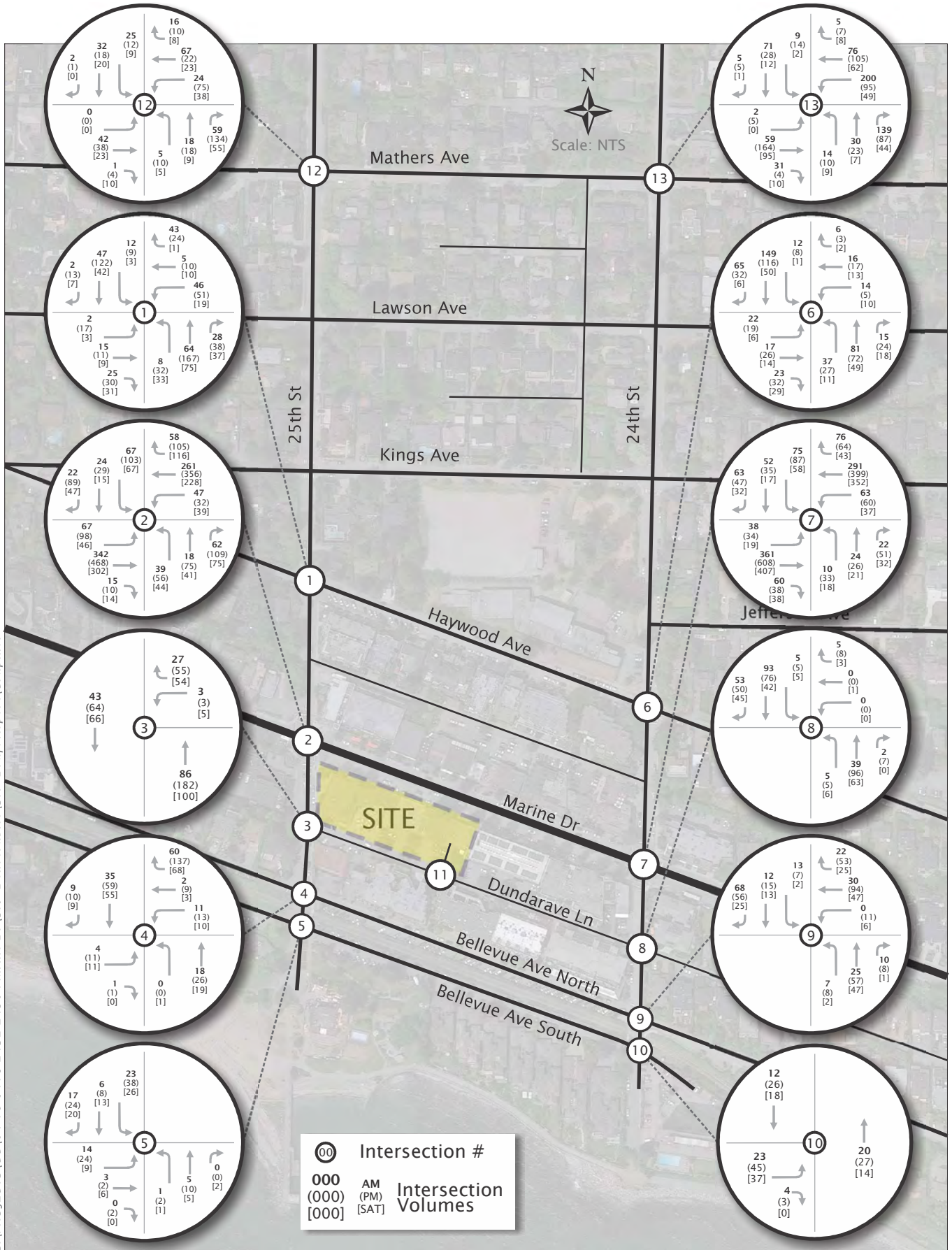


Exhibit 5.5 Opening Day (2023) Total Vehicle Traffic Forecasts

2452-2490 Marine Drive
04-18-0416 May 2021



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Opening Day + 10 (2033) Total Vehicle Traffic Forecasts

Exhibit 5.6



5.3 Future Vehicle Operations

5.3.1 Future Conditions Analysis Assumptions

The future vehicle conditions were assessed using the same Synchro assumptions as with the existing conditions, including the same heavy vehicle percentages, peak hour factors, and signal timings.

5.3.2 Opening Day (2023) Vehicle Operations

Tables 5.1-5.3 summarize the overall intersection and critical movement results for the opening day (2023) weekday AM, weekday PM, and Saturday midday peak hours, respectively. Detailed tables and HCM 2000 outputs have been attached in **Appendix B** for reference. The development is estimated to add a negligible amount of vehicle delay to the study intersections during all three time periods.

Table 5.1: Opening Day (2023) Vehicle Operations - AM

INTERSECTION/ TRAFFIC CONTROL	CRITICAL MOVEMENT	BACKGROUND			TOTAL (WITH DEVELOPMENT)		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
25 th St & Haywood Ave (<i>minor road stop</i>)	WB LTR	B	0.22	6	B	0.22	7
25 th St & Marine Dr (<i>signalized</i>)	OVERALL	A	0.35		A	0.35	
	EB LTR	A	0.41	25	A	0.41	25
	SB L	B	0.26	10	B	0.26	10
25 th St & Dundarave Ln (<i>minor road stop</i>)	WB LR	A	0.02	1	A	0.04	1
25 th St & Bellevue Ave N (<i>minor road stop</i>)	WB LTR	A	0.10	2	A	0.10	2
25 th St & Bellevue Ave S (<i>minor road stop</i>)	EB LTR	A	0.02	1	A	0.03	1
24 th St & Haywood Ave (<i>all-way stop</i>)	SB LTR	B	0.44		B	0.44	
24 th St & Marine Dr (<i>signalized</i>)	OVERALL	B	0.55		B	0.55	
	EB LTR	B	0.61	35	B	0.62	36
24 th St & Dundarave Ln (<i>minor road stop</i>)	WB LTR	A	0.01	0	A	0.01	0
24 th St & Bellevue Ave N (<i>all-way stop</i>)	WB LTR	A	0.08		A	0.09	
24 th St & Bellevue Ave S (<i>minor road stop</i>)	EB LR	A	0.04	1	A	0.04	1
25 th St & Mathers Ave (<i>all-way stop</i>)	WB LTR	A	0.17		A	0.17	
24 th St & Mathers Ave (<i>all-way stop</i>)	WB LTR	B	0.54		B	0.54	

Table 5.2: Opening Day (2023) Vehicle Operations - PM

INTERSECTION/ TRAFFIC CONTROL	CRITICAL MOVEMENT	BACKGROUND			TOTAL (WITH DEVELOPMENT)		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
25 th St & Haywood Ave <i>(minor road stop)</i>	WB LTR	B	0.20	6	B	0.20	6
25 th St & Marine Dr <i>(signalized)</i>	OVERALL	B	0.39		B	0.40	
	EB LTR	A	0.44	36	A	0.44	36
	SB L	B	0.33	16	B	0.34	17
25 th St & Dundarave Ln <i>(minor road stop)</i>	WB LR	B	0.06	1	B	0.08	2
25 th St & Bellevue Ave N <i>(minor road stop)</i>	WB LTR	B	0.19	5	B	0.19	5
25 th St & Bellevue Ave S <i>(minor road stop)</i>	EB LTR	A	0.04	1	A	0.04	1
24 th St & Haywood Ave <i>(all-way stop)</i>	SB LTR	A	0.28		A	0.28	
24 th St & Marine Dr <i>(signalized)</i>	OVERALL	B	0.53		B	0.53	
	EB LTR	B	0.63	55	B	0.64	57
24 th St & Dundarave Ln <i>(minor road stop)</i>	WB LTR	A	0.01	0	A	0.01	0
24 th St & Bellevue Ave N <i>(all-way stop)</i>	WB LTR	A	0.17		A	0.17	
24 th St & Bellevue Ave S <i>(minor road stop)</i>	EB LR	A	0.05	1	A	0.05	1
25 th St & Mathers Ave <i>(all-way stop)</i>	WB LTR	A	0.15		A	0.15	
24 th St & Mathers Ave <i>(all-way stop)</i>	WB LTR	B	0.33	B	0.33		

Table 5.3: Opening Day (2023) Vehicle Operations – Saturday

INTERSECTION/ TRAFFIC CONTROL	CRITICAL MOVEMENT	BACKGROUND			TOTAL (WITH DEVELOPMENT)		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
25 th St & Haywood Ave <i>(minor road stop)</i>	WB LTR	B	0.05	1	B	0.05	1
25 th St & Marine Dr <i>(signalized)</i>	OVERALL	A	0.24		A	0.24	
	EB LTR	A	0.29	22	A	0.29	23
	SB L	B	0.18	10	B	0.19	10
25 th St & Dundarave Ln <i>(minor road stop)</i>	WB LR	B	0.07	2	B	0.09	2
25 th St & Bellevue Ave N <i>(minor road stop)</i>	WB LTR	B	0.12	3	B	0.12	3
25 th St & Bellevue Ave S <i>(minor road stop)</i>	EB LTR	A	0.02	1	A	0.03	1
24 th St & Haywood Ave <i>(all-way stop)</i>	SB LTR	A	0.08		A	0.08	
24 th St & Marine Dr <i>(signalized)</i>	OVERALL	A	0.37		A	0.37	
	EB LTR	B	0.38	35	B	0.39	36
24 th St & Dundarave Ln <i>(minor road stop)</i>	WB LTR	A	0.00	0	A	0.00	0
24 th St & Bellevue Ave N <i>(all-way stop)</i>	WB LTR	A	0.09		A	0.09	
24 th St & Bellevue Ave S <i>(minor road stop)</i>	EB LR	A	0.04	1	A	0.05	1
25 th St & Mathers Ave <i>(all-way stop)</i>	WB LTR	A	0.09		A	0.09	
24 th St & Mathers Ave <i>(all-way stop)</i>	WB LTR	A	0.13		A	0.13	

5.3.3 Opening Day + 10 (2033) Vehicle Operations

Tables 5.4-5.6 summarize the overall intersection and critical movement results for the opening day + 10 (2033) weekday AM, weekday PM, and Saturday midday peak hours, respectively. Detailed tables and HCM 2000 outputs have been attached in **Appendix B** for reference. As with the 2023 horizon year, the development is estimated to add a negligible amount of vehicle delay to the study intersections during all three time periods.

Table 5.4: Opening Day + 10 (2033) Vehicle Operations – AM

INTERSECTION/ TRAFFIC CONTROL	CRITICAL MOVEMENT	BACKGROUND			TOTAL (WITH DEVELOPMENT)		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
25 th St & Haywood Ave (<i>minor road stop</i>)	WB LTR	B	0.26	8	B	0.26	8
25 th St & Marine Dr (<i>signalized</i>)	OVERALL	A	0.38		B	0.38	
	EB LTR	A	0.44	27	A	0.44	27
	SB L	B	0.30	12	B	0.30	12
25 th St & Dundarave Ln (<i>minor road stop</i>)	WB LR	A	0.02	1	A	0.04	1
25 th St & Bellevue Ave N (<i>minor road stop</i>)	WB LTR	A	0.10	3	A	0.10	3
25 th St & Bellevue Ave S (<i>minor road stop</i>)	EB LTR	A	0.03	1	A	0.03	1
24 th St & Haywood Ave (<i>all-way stop</i>)	SB LTR	B	0.49		B	0.49	
24 th St & Marine Dr (<i>signalized</i>)	OVERALL	B	0.60		B	0.60	
	EB LTR	B	0.66	41	C	0.68	43
24 th St & Dundarave Ln (<i>minor road stop</i>)	WB LTR	A	0.01	0	A	0.01	0
24 th St & Bellevue Ave N (<i>all-way stop</i>)	WB LTR	A	0.09		A	0.10	
24 th St & Bellevue Ave S (<i>minor road stop</i>)	EB LR	A	0.04	1	A	0.05	1
25 th St & Mathers Ave (<i>all-way stop</i>)	WB LTR	A	0.19		A	0.19	
24 th St & Mathers Ave (<i>all-way stop</i>)	WB LTR	C	0.61		C	0.61	

Table 5.5: Opening Day + 10 (2033) Vehicle Operations – PM

INTERSECTION/ TRAFFIC CONTROL	CRITICAL MOVEMENT	BACKGROUND			TOTAL (WITH DEVELOPMENT)		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
25 th St & Haywood Ave <i>(minor road stop)</i>	WB LTR	B	0.23	7	C	0.23	7
25 th St & Marine Dr <i>(signalized)</i>	OVERALL	B	0.44		B	0.43	
	EB LTR	A	0.47	40	A	0.47	40
	SB L	B	0.38	19	B	0.38	20
25 th St & Dundarave Ln <i>(minor road stop)</i>	WB LR	B	0.07	2	B	0.07	2
25 th St & Bellevue Ave N <i>(minor road stop)</i>	WB LTR	B	0.21	6	B	0.21	6
25 th St & Bellevue Ave S <i>(minor road stop)</i>	EB LTR	A	0.04	1	A	0.04	1
24 th St & Haywood Ave <i>(all-way stop)</i>	SB LTR	A	0.31		A	0.31	
24 th St & Marine Dr <i>(signalized)</i>	OVERALL	B	0.57		B	0.57	
	EB LTR	B	0.67	64	B	0.67	63
24 th St & Dundarave Ln <i>(minor road stop)</i>	WB LTR	A	0.01	0	A	0.01	0
24 th St & Bellevue Ave N <i>(all-way stop)</i>	WB LTR	A	0.19		A	0.19	
24 th St & Bellevue Ave S <i>(minor road stop)</i>	EB LR	A	0.06	1	A	0.06	1
25 th St & Mathers Ave <i>(all-way stop)</i>	WB LTR	A	0.17		A	0.17	
24 th St & Mathers Ave <i>(all-way stop)</i>	WB LTR	B	0.37		B	0.37	

Table 5.6: Opening Day + 10 (2033) Vehicle Operations – Saturday

INTERSECTION/ TRAFFIC CONTROL	CRITICAL MOVEMENT	BACKGROUND			TOTAL (WITH DEVELOPMENT)		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
25 th St & Haywood Ave (<i>minor road stop</i>)	WB LTR	B	0.06	1	B	0.06	1
25 th St & Marine Dr (<i>signalized</i>)	OVERALL	A	0.26		A	0.27	
	EB LTR	A	0.31	25	A	0.31	25
	SB L	B	0.20	10	B	0.21	11
25 th St & Dundarave Ln (<i>minor road stop</i>)	WB LR	B	0.08	2	B	0.10	3
25 th St & Bellevue Ave N (<i>minor road stop</i>)	WB LTR	B	0.13	3	B	0.13	3
25 th St & Bellevue Ave S (<i>minor road stop</i>)	EB LTR	A	0.03	1	A	0.03	1
24 th St & Haywood Ave (<i>all-way stop</i>)	SB LTR	A	0.09		A	0.09	
24 th St & Marine Dr (<i>signalized</i>)	OVERALL	B	0.39		B	0.40	
	EB LTR	B	0.43	39	B	0.44	40
24 th St & Dundarave Ln (<i>minor road stop</i>)	WB LTR	A	0.00	0	A	0.00	0
24 th St & Bellevue Ave N (<i>all-way stop</i>)	WB LTR	A	0.10		A	0.10	
24 th St & Bellevue Ave S (<i>minor road stop</i>)	EB LR	A	0.05	1	A	0.05	1
25 th St & Mathers Ave (<i>all-way stop</i>)	WB LTR	A	0.09		A	0.10	
24 th St & Mathers Ave (<i>all-way stop</i>)	WB LTR	A	0.14		A	0.15	

5.3.4 Summary of Vehicle Operations

Overall, the redevelopment will cause a modest increase in vehicles near the site which will cause a negligible impact to vehicle operations. The study intersections currently operate with very reasonable levels of vehicle delay/queues and are forecasted to continue to do so in the future with or without the proposed redevelopment.

6. TDM AND ACTIVE TRANSPORTATION STRATEGY

6.1 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”¹. 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.

6.2 Proposed Strategies

Sections 4.3 and 5.3 illustrated that the proposed redevelopment will not significantly increase the number of trips (by all modes) generated by the site and will not noticeably impact the vehicle operations surrounding the site. Nevertheless, we have identified the following strategies to minimize the site’s vehicle trip generation and parking demand to align with DWV’s vision of transitioning towards more active transportation and transit use.

- The development is located in an urban area with high active transportation and transit potential is the most important action to minimize vehicle use.
- The secure bicycle storage rooms are located at-grade (off the lane) with a separate entry from vehicle traffic. This eliminates the need to bike on any steep inclines in the parkade or navigate around entering/egressing vehicles. This makes the secure bicycle storage rooms more accessible and more likely to be used by residents and staff.
- A Transportation Information Package should be provided to residents when moving in. The package should include the North Shore Bike Map, information about bicycle safety and local bicycle shops and repair facilities, information about car-sharing, and a list of websites and apps that can aid in travel planning.
- Provide a real-time transit information screen in the building lobbies for the eastbound and westbound bus stops on Marine Drive at 25th Street.
- Upgrade the existing bus stop fronting the site on Marine Drive to provide more amenities (in coordination with DWV).

¹ <http://ops.fhwa.dot.gov/tdm/index.htm> FHWA Travel Demand Management home page

7. SUMMARY & RECOMMENDATIONS

7.1 Summary

1. The development site located in the Dundarave area of West Vancouver with a rich variety of amenities within walking distance and convenient transit access along Marine Drive directly in front of the site.
2. The existing single-storey retail buildings on the property cover approximately 21,600 sq ft. The proposed development will slightly decrease the retail floor area to 16,100 sq ft as well as add 11,200 sq ft of office space and 55 residential units.
3. The proposed bicycle parking supply complies with the minimum requirements.
4. The total vehicle parking supply is greater than the total minimum requirement for the development.
5. Redevelopment is estimated to add an additional 40 to 50 person trips per peak hour (and a lower impact during off-peak hours) compared to the existing conditions. Of these additional person trips, approximately 30 are anticipated to be vehicle trips (one every two minutes during peak hours) with the remaining 20 person trips per peak hour being a vehicle passengers or via transit or active transportation. This quantity of trip generation is not anticipated to cause a noticeable impact to the multi-modal transportation network including vehicle operations, vehicle parking, and active transportation.
6. The study area includes the entirety of the area between 24th and 25th Streets from Bellevue Avenue in the south to Mathers Avenue in the north. All study intersections currently operate at LOS A or B, indicating minimal vehicle delay and excess vehicle capacity. With or without development, all study intersections are forecasted to operate at LOS A-C in 2033 which still represents modest vehicle delay during peak hours.

7.2 Recommendations

1. The development should consider TDM measures outlined in Section 6.2.

APPENDIX A

Terms of Reference

Benjamin Corbett

From: Lisa Berg <lberg@westvancouver.ca>
Sent: Monday, September 14, 2020 11:41 AM
To: Jason Dunn
Cc: Christephen Cheng; Nicolas Moss; Michelle McGuire
Subject: RE: 2452-2490 Marine Drive - Transportation Study Scope

Hi Jason

Please see below. Please let me know if you had any other questions.

Thanks,
Lisa

Lisa Berg **MCIP RPP**
Senior Community Planner | District of West Vancouver
604-925-7237 | westvancouver.ca

Please consider the environment before printing this email.

From: Jason Dunn <jdunn@bunteng.com>
Sent: Monday, September 14, 2020 8:46 AM
To: Lisa Berg <lberg@westvancouver.ca>
Cc: Christephen Cheng <ccheng@bunteng.com>; Nicolas Moss <nmos@bunteng.com>; Michelle McGuire <mmcguire@westvancouver.ca>
Subject: RE: 2452-2490 Marine Drive - Transportation Study Scope

Lisa,

Two more questions with regards to the scope.

1. We had previously proposed a growth rate of 1% for the background traffic. Is this acceptable? **Yes, this is acceptable.**
2. Are there any other developments in the area that we need to incorporate into the background traffic? **We are not aware of any other proposed developments within the area of your TIA at this time. The OCP contains general policies to guide development applications in the area, but there is no specified sites for change.**

Regards

Jason Dunn, P.Eng. | Associate

Bunt & Associates Engineering Ltd.
Suite 113, 334 11th Avenue SE, Calgary, AB T2G 0Y2
d 587 349 7573 f 403 252 3323 w www.bunteng.com

From: Lisa Berg <lberg@westvancouver.ca>
Sent: September 1, 2020 3:42 PM
To: Jason Dunn <jdunn@bunteng.com>
Cc: Christephen Cheng <ccheng@bunteng.com>; Nicolas Moss <nmos@bunteng.com>; Michelle McGuire

<mmcguire@westvancouver.ca>

Subject: RE: 2452-2490 Marine Drive - Transportation Study Scope

Hi Jason, please see below.

Lisa Berg **MCIP RPP**

Senior Community Planner | District of West Vancouver

604-925-7237 | westvancouver.ca

Please consider the environment before printing this email.

From: Jason Dunn <jdunn@bunteng.com>

Sent: Tuesday, September 1, 2020 8:20 AM

To: Lisa Berg <lberg@westvancouver.ca>

Cc: Christephen Cheng <ccheng@bunteng.com>; Nicolas Moss <nmoss@bunteng.com>; Michelle McGuire <mmcguire@westvancouver.ca>

Subject: RE: 2452-2490 Marine Drive - Transportation Study Scope

Lisa,

Thanks for information. I have a few questions.

1. Could you include the rationale for the inclusion of intersections on Mathers Ave. Any site traffic would use Haywood Ave to get to the Elementary School and not go anywhere near Mathers Ave. **Anyone within the school catchment would travel to the school. Mathers is the closest collector street that traffic from the upper area of Ambleside would be travelling from.**
2. What does "study area should consider proximity to 21st and Marine" mean? Are we to include this intersection or just account for this in our trip distribution? **Account for the area – people coming from east of 21st would use Mathers to 24th to avoid Pauline Johnson school traffic.**

Both of these requirements will require additional traffic counts which could be problematic at this time due to COVID-19. **With school starting, traffic counts could be modelled during Covid with an estimated increase for typical traffic.**

Regards

Jason Dunn, P.Eng. | Associate

Bunt & Associates Engineering Ltd.

Suite 113, 334 11th Avenue SE, Calgary, AB T2G 0Y2

d 587 349 7573 f 403 252 3323 w www.bunteng.com

From: Lisa Berg <lberg@westvancouver.ca>

Sent: August 31, 2020 11:09 AM

To: Jason Dunn <jdunn@bunteng.com>

Cc: Christephen Cheng <ccheng@bunteng.com>; Nicolas Moss <nmoss@bunteng.com>; Michelle McGuire <mmcguire@westvancouver.ca>

Subject: RE: 2452-2490 Marine Drive - Transportation Study Scope

Hi Jason,

Staff have reviewed the proposed scope for the transportation study, and offer the following, in addition to the scope provided below:

1. A Level 2 TIA is required (see attached).
2. Refer to section 142 of the zoning bylaw for parking regulations, including requirements for EV charging and parking for people with disabilities, etc.
3. Refer to section 143 of the zoning bylaw for bicycle parking regulations (including location and short term (visitor) bicycle parking).
4. The intersections proposed to be studied should also include the intersections at 24th Street and Mathers and 25th and Mathers to capture the Elementary School block.
5. The pre-Covid-19 counts are acceptable.
6. Please recommend any infrastructure improvements (e.g. signaling, signage, spatial dimensions, etc.) based on your study.
7. Transit impacts should be reviewed – there is a major bus stop at 25th and Marine (east bound).
8. Include alternative modes of transportation (e.g. bicycles, EV's transit, car share, etc.) as part of the study.
9. Study period should also include weekday a.m. due to the proximity of the Elementary School.
10. Study area should consider proximity to 21st and Marine, which is the closest arterial connection to Hwy 1.
11. Refer to the Dundarave Streetscape Standards to incorporate required elements that relate to the study (attached).

Please let me know if you have any questions.

Lisa

Lisa Berg MCIP RPP
Senior Community Planner | District of West Vancouver
604-925-7237 | westvancouver.ca
Please consider the environment before printing this email.

From: Lisa Berg
Sent: Thursday, August 20, 2020 1:27 PM
To: 'Jason Dunn' <jdunn@bunteng.com>
Cc: Christephen Cheng <ccheng@bunteng.com>; Nicolas Moss <nmoss@bunteng.com>
Subject: RE: 2452-2490 Marine Drive - Transportation Study Scope

Hi Jason,

Thanks for checking in. I am awaiting some feedback from staff and should have some comments to you next week.

Lisa

Lisa Berg MCIP RPP
Senior Community Planner | District of West Vancouver
604-925-7237 | westvancouver.ca
Please consider the environment before printing this email.

APPENDIX B

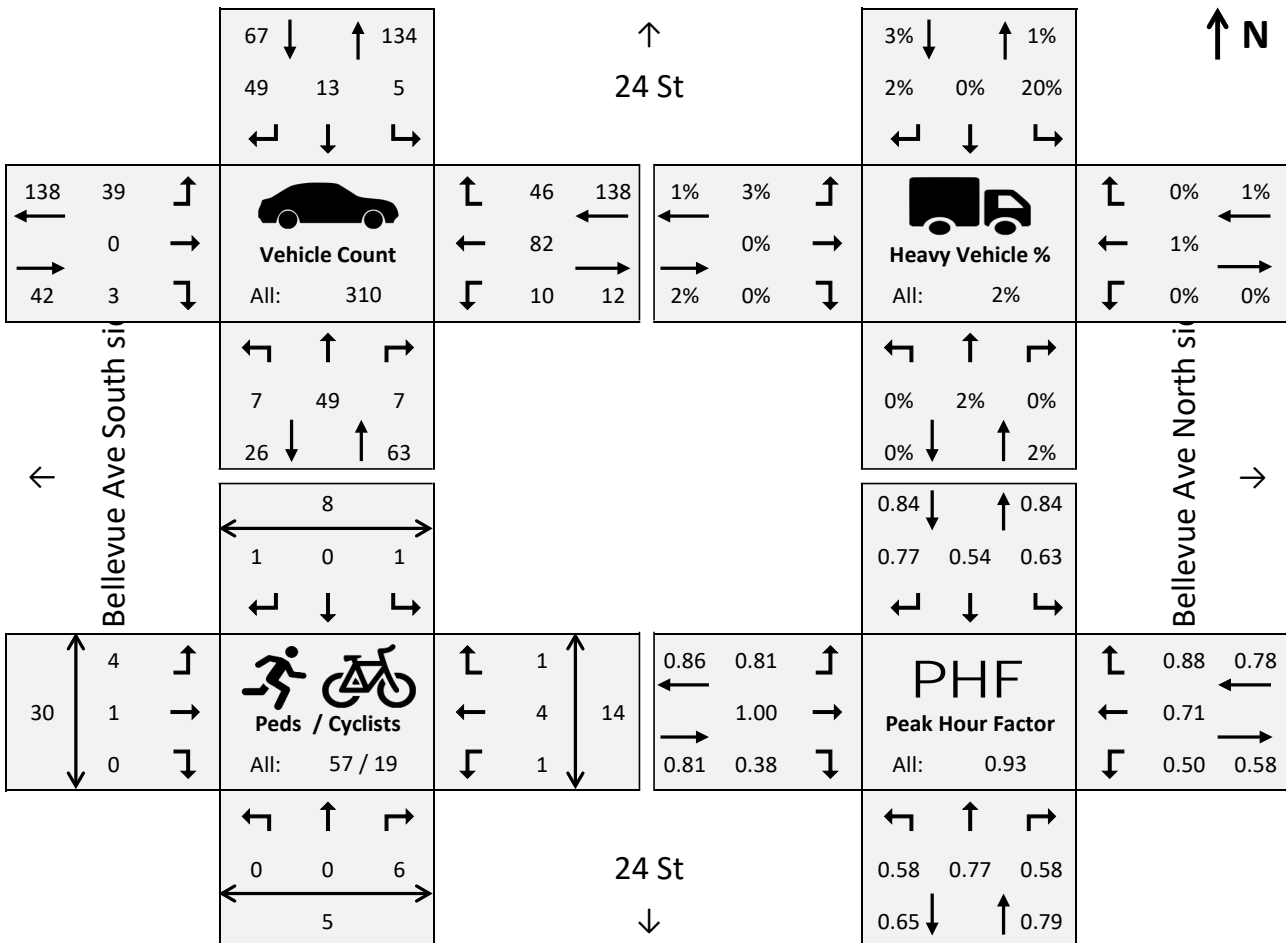
Traffic Data

24 St @ Bellevue Ave North side – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 15:00 - 16:00
Date: Jun 12, 2019 (Wed) **Road Cond:** Dry **Intersection Peak:** 15:00 - 16:00
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	2	15	3	1	2	16	12	0	0	1	18	13	2	1	8	7
15:15 - 15:30	0	16	1	2	6	12	12	0	1	3	10	12	3	4	4	15
15:30 - 15:45	2	7	0	2	2	9	6	0	0	5	29	10	1	0	1	3
15:45 - 16:00	3	11	3	0	3	12	9	0	2	1	25	11	2	0	1	5
16:00 - 16:15	2	9	2	2	0	8	9	0	1	1	17	6	3	2	6	11
16:15 - 16:30	1	11	2	0	0	14	13	0	1	1	17	8	0	1	1	8
16:30 - 16:45	3	7	0	5	2	7	7	0	1	1	13	7	0	8	5	15
16:45 - 17:00	0	6	2	2	2	7	4	0	0	0	23	11	1	1	3	3
17:00 - 17:15	2	8	2	0	3	8	10	0	0	0	20	6	0	2	4	3
17:15 - 17:30	0	8	2	2	5	6	5	0	0	0	16	4	2	1	3	1
17:30 - 17:45	0	3	1	0	2	3	3	0	0	0	9	4	0	0	2	4
17:45 - 18:00	1	7	3	4	2	3	8	0	0	1	14	4	1	7	1	10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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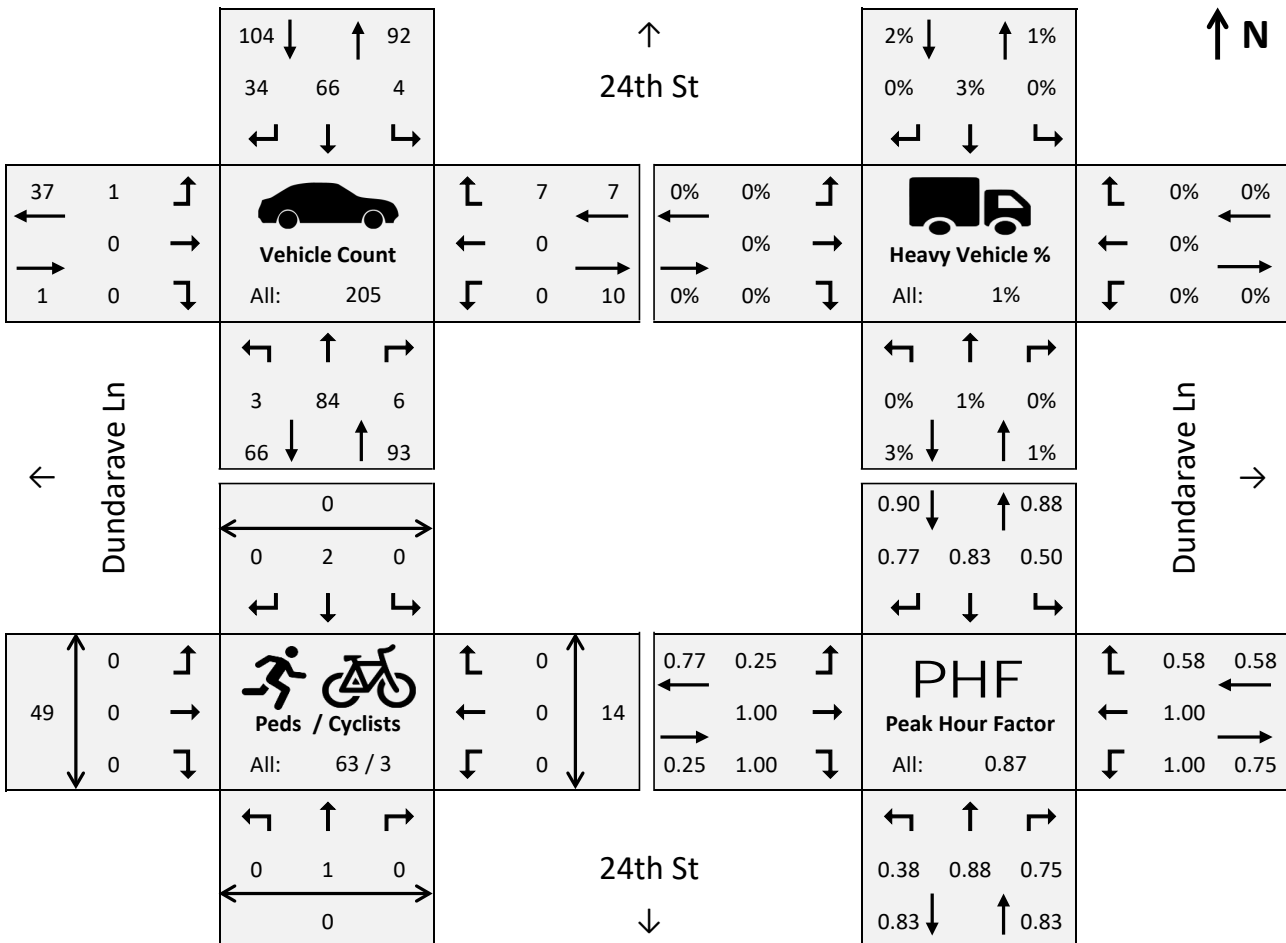


24th St @ Dundarave Ln – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 15:00 - 16:00
Date: Jun 12, 2019 (Wed) **Road Cond:** Dry **Intersection Peak:** 15:00 - 16:00
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	0	24	1	0	20	7	0	0	0	0	0	0	0	0	7	12
15:15 - 15:30	2	24	2	2	18	9	0	0	0	0	0	2	0	0	6	20
15:30 - 15:45	0	16	1	0	13	7	0	0	0	0	0	3	0	0	1	9
15:45 - 16:00	1	20	2	2	15	11	1	0	0	0	0	2	0	0	0	8
16:00 - 16:15	0	13	0	1	11	14	0	0	0	0	0	0	0	0	4	9
16:15 - 16:30	2	16	0	1	14	3	0	0	0	0	0	0	0	0	1	17
16:30 - 16:45	1	13	0	2	15	6	0	0	0	0	0	1	0	0	3	20
16:45 - 17:00	2	15	1	3	9	9	0	0	0	1	0	3	0	0	5	10
17:00 - 17:15	1	13	0	3	11	4	0	0	0	0	0	3	0	0	2	5
17:15 - 17:30	0	12	0	1	11	5	0	0	0	0	0	3	0	0	2	1
17:30 - 17:45	0	7	0	1	9	1	0	0	0	0	0	0	0	0	2	4
17:45 - 18:00	1	11	0	0	7	3	0	0	0	0	0	1	0	0	0	16
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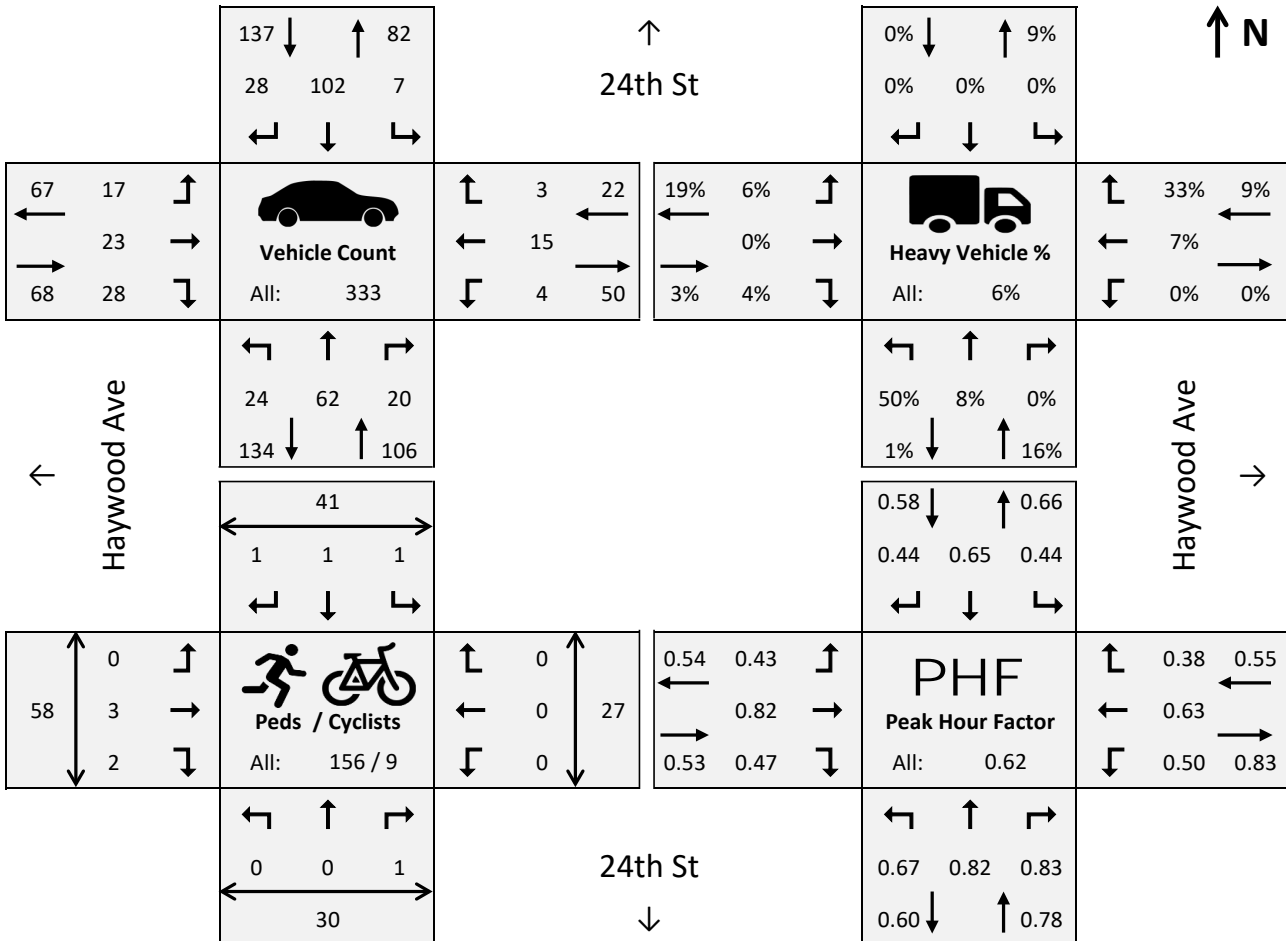


24th St @ Haywood Ave – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 15:00 - 16:00
Date: Jun 12, 2019 (Wed) **Road Cond:** Dry **Intersection Peak:** 15:00 - 16:00
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	9	19	6	4	39	16	10	7	15	2	6	2	37	18	17	31
15:15 - 15:30	5	14	5	2	20	6	4	7	6	2	3	0	1	2	3	15
15:30 - 15:45	4	15	5	0	25	0	0	6	5	0	3	0	1	6	2	9
15:45 - 16:00	6	14	4	1	18	6	3	3	2	0	3	1	2	4	5	3
16:00 - 16:15	7	15	3	0	17	1	6	7	5	1	5	2	0	2	1	8
16:15 - 16:30	7	16	1	0	13	4	4	8	10	1	0	0	1	4	3	7
16:30 - 16:45	3	26	2	0	17	2	3	2	9	1	2	1	1	6	1	9
16:45 - 17:00	3	17	1	1	20	1	6	5	5	5	3	0	0	5	3	9
17:00 - 17:15	6	20	0	1	20	8	5	5	8	1	1	0	1	6	2	2
17:15 - 17:30	11	21	1	0	7	4	6	8	6	3	2	1	1	3	1	4
17:30 - 17:45	3	7	3	0	13	5	0	4	6	1	3	2	1	0	1	3
17:45 - 18:00	8	16	0	0	15	5	1	5	2	0	2	0	8	3	4	9
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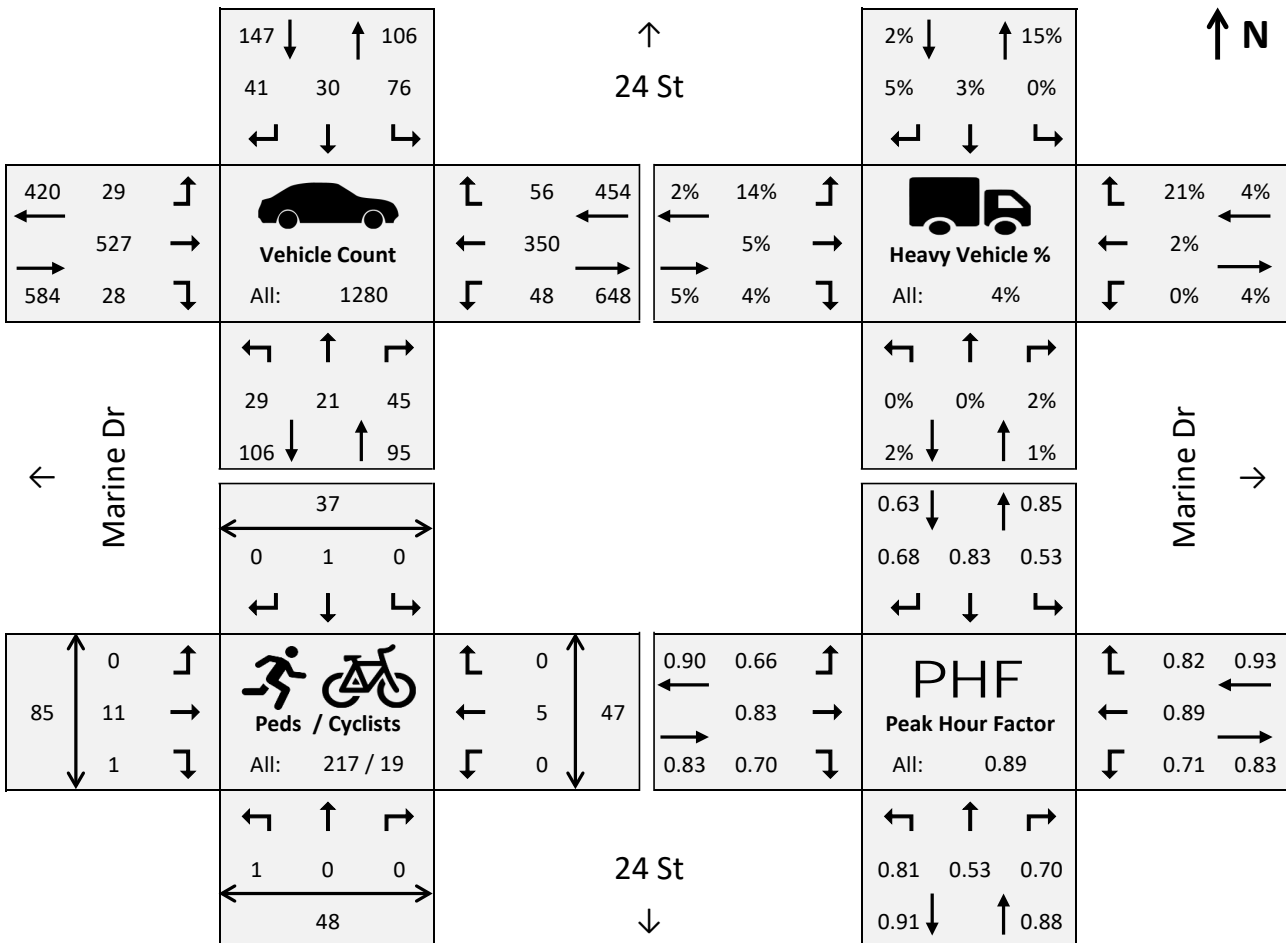


24 St @ Marine Dr – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 15:00 - 16:00
Date: Jun 12, 2019 (Wed) **Road Cond:** Dry **Intersection Peak:** 15:00 - 16:00
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
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15:15 - 15:30	6	5	16	17	7	10	8	158	9	12	90	10	13	10	14	32
15:30 - 15:45	8	3	8	11	9	11	11	109	5	7	98	17	8	15	3	19
15:45 - 16:00	9	3	11	12	7	5	5	106	10	12	80	15	6	4	9	7
16:00 - 16:15	6	4	6	15	8	4	5	136	8	9	81	15	11	9	11	4
16:15 - 16:30	5	6	6	12	4	7	4	82	3	11	86	13	4	9	10	18
16:30 - 16:45	5	4	6	14	12	11	5	94	2	10	77	10	8	10	7	15
16:45 - 17:00	6	8	5	11	7	10	4	97	4	9	92	8	11	7	6	12
17:00 - 17:15	5	6	6	18	5	9	7	122	7	6	86	11	7	1	3	7
17:15 - 17:30	5	6	4	11	3	3	6	92	2	13	91	10	5	7	0	6
17:30 - 17:45	2	2	4	11	5	7	1	89	4	3	72	11	1	6	2	8
17:45 - 18:00	2	3	5	13	4	8	7	83	4	2	102	15	8	2	2	11
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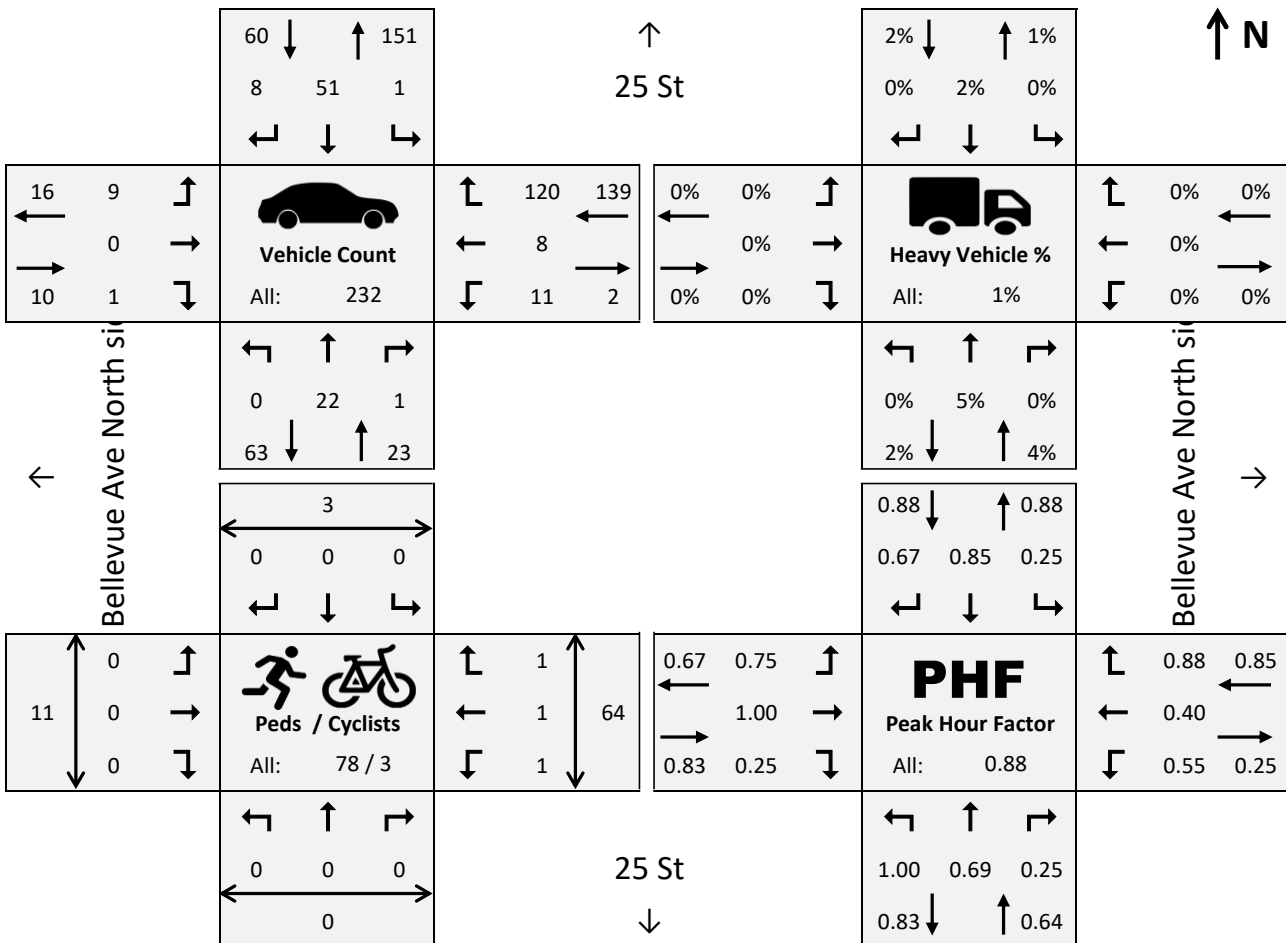


25 St @ Bellevue Ave North side – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 15:00 - 16:00
Date: Jun 12, 2019 (Wed) **Road Cond:** Dry **Intersection Peak:** 15:00 - 16:00
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	0	5	0	1	15	1	3	0	0	3	5	33	2	0	9	6
15:15 - 15:30	0	2	0	0	9	2	3	0	0	2	1	25	1	0	17	0
15:30 - 15:45	0	7	0	0	14	2	2	0	0	5	1	28	0	0	16	2
15:45 - 16:00	0	8	1	0	13	3	1	0	1	1	1	34	0	0	22	3
16:00 - 16:15	0	5	0	1	10	1	0	0	1	2	1	29	0	0	11	3
16:15 - 16:30	1	4	0	0	8	2	5	0	1	5	3	27	1	0	21	7
16:30 - 16:45	0	5	0	0	7	2	3	0	0	2	1	20	3	0	8	1
16:45 - 17:00	0	3	0	1	11	0	1	0	0	4	2	36	1	1	15	3
17:00 - 17:15	0	7	0	0	12	1	1	0	0	6	0	51	1	0	16	5
17:15 - 17:30	0	6	0	0	8	2	2	0	0	5	1	21	0	3	8	2
17:30 - 17:45	0	8	0	0	10	1	2	0	0	2	0	13	0	1	21	4
17:45 - 18:00	0	3	0	0	8	0	0	0	0	3	2	23	2	0	11	4
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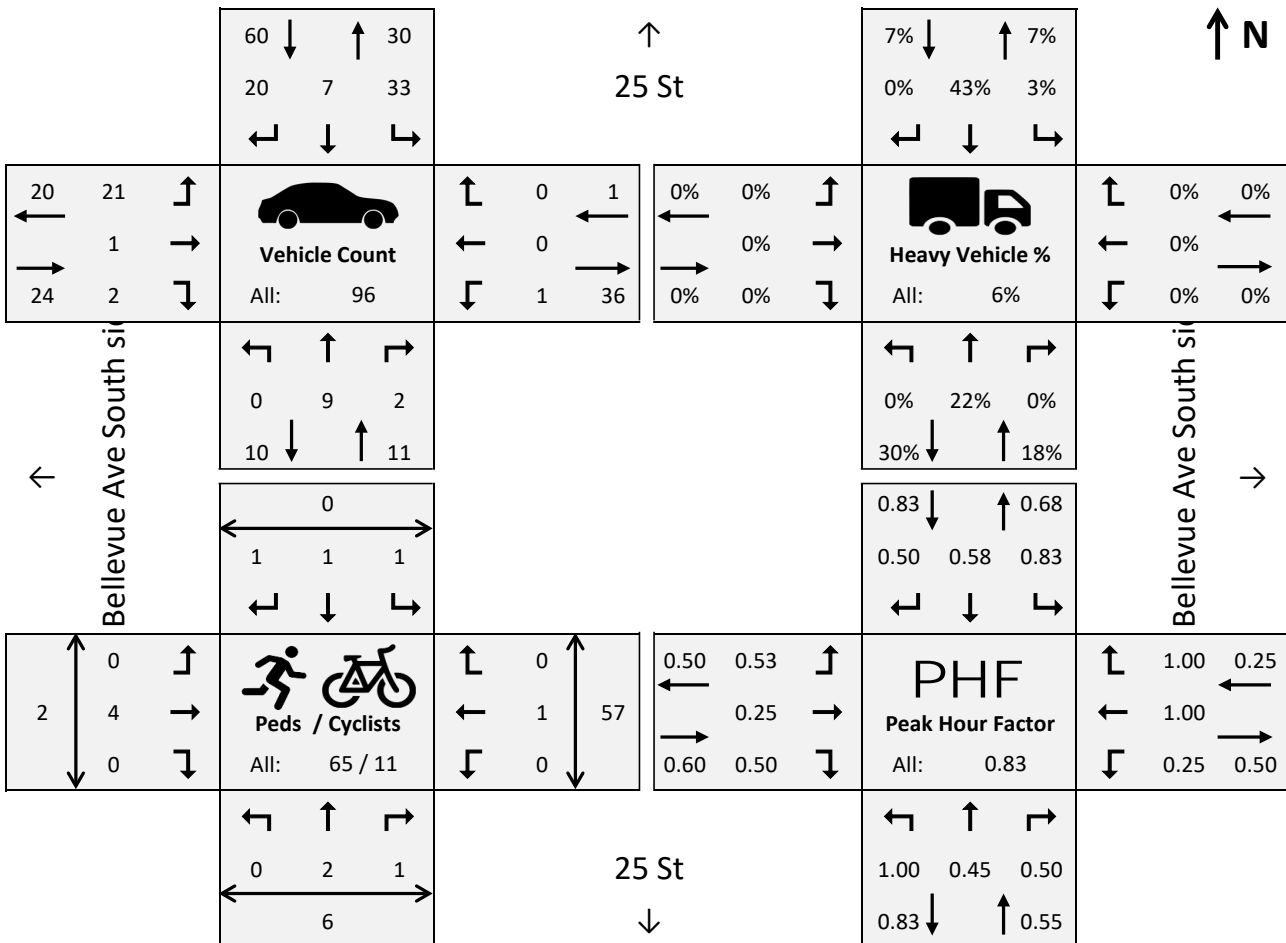


25 St @ Bellevue Ave South side – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 15:00 - 16:00
Date: Jun 12, 2019 (Wed) **Road Cond:** Dry **Intersection Peak:** 15:00 - 16:00
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	0	2	1	10	3	5	4	0	0	0	0	0	0	2	10	1
15:15 - 15:30	0	1	0	6	0	3	2	1	1	1	0	0	0	0	14	0
15:30 - 15:45	0	5	0	7	1	10	5	0	1	0	0	0	0	4	19	0
15:45 - 16:00	0	1	1	10	3	2	10	0	0	0	0	0	0	0	14	1
16:00 - 16:15	0	0	0	6	0	6	4	0	0	0	0	0	0	0	7	3
16:15 - 16:30	0	1	0	6	1	5	3	0	0	0	0	0	0	4	16	0
16:30 - 16:45	0	0	0	6	0	2	6	0	0	0	0	0	0	4	10	1
16:45 - 17:00	0	1	0	5	1	10	5	0	0	0	0	0	0	0	15	0
17:00 - 17:15	0	4	0	4	4	5	2	2	0	0	0	0	0	2	14	1
17:15 - 17:30	0	3	0	6	4	1	3	2	0	0	0	0	0	0	6	1
17:30 - 17:45	0	1	0	4	3	3	6	1	0	0	0	0	1	1	18	2
17:45 - 18:00	0	1	0	5	1	5	4	2	0	0	0	0	0	0	10	3
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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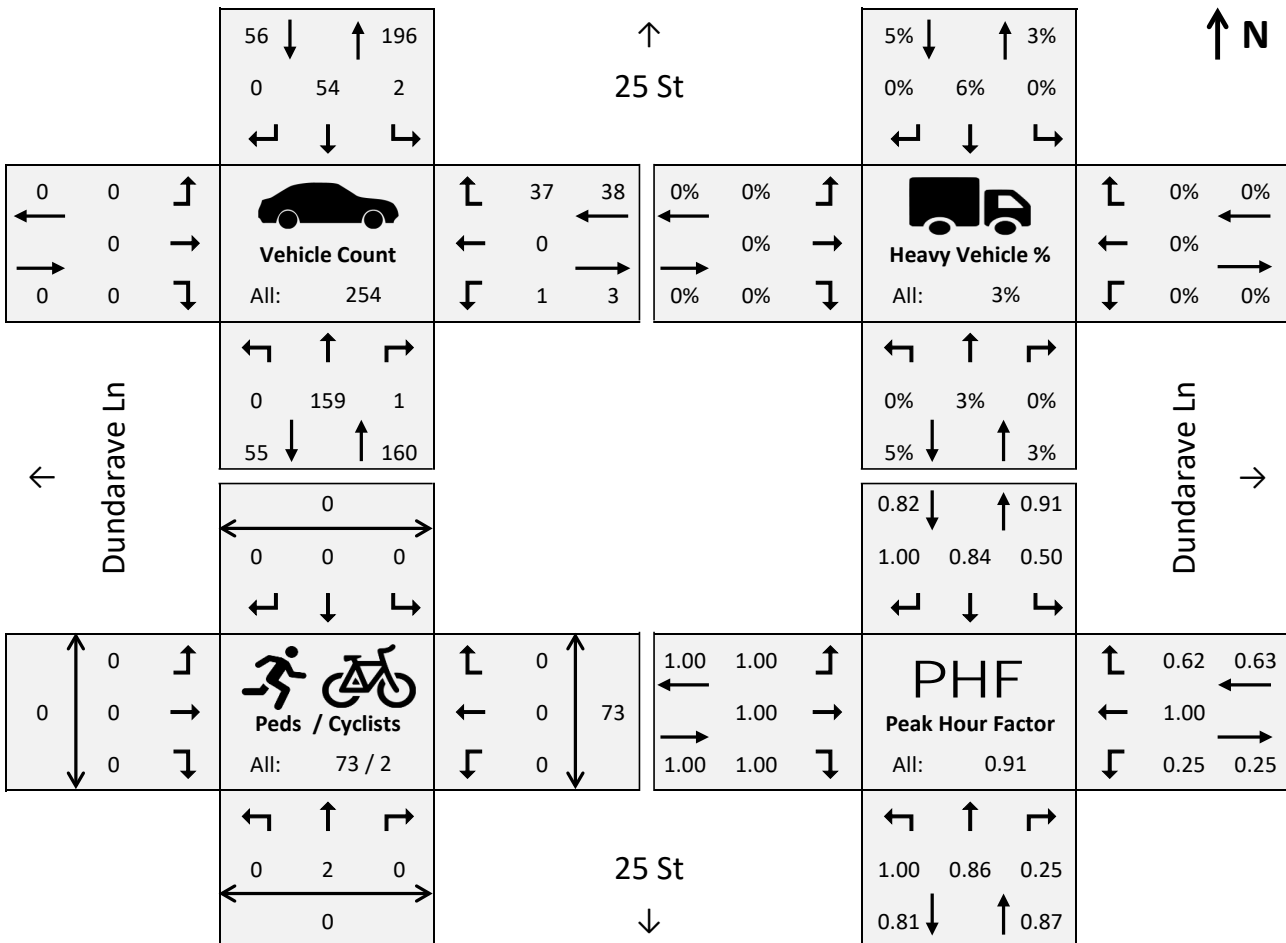


25 St @ Dundarave Ln – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 15:00 - 16:00
Date: Jun 12, 2019 (Wed) **Road Cond:** Dry **Intersection Peak:** 15:00 - 16:00
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	0	46	0	0	16	0	0	0	0	0	8	0	0	20	0	
15:15 - 15:30	0	30	0	0	9	0	0	0	0	0	15	0	0	18	0	
15:30 - 15:45	0	42	1	1	16	0	0	0	1	0	7	0	0	14	0	
15:45 - 16:00	0	41	0	1	13	0	0	0	0	0	7	0	0	21	0	
16:00 - 16:15	0	36	0	0	11	0	0	0	1	0	21	0	0	18	0	
16:15 - 16:30	0	32	0	0	8	0	0	0	1	0	13	0	0	17	0	
16:30 - 16:45	0	29	0	1	4	0	0	0	0	0	10	0	0	13	0	
16:45 - 17:00	0	37	0	1	12	0	0	0	1	0	9	0	0	17	0	
17:00 - 17:15	0	54	0	0	9	0	0	0	0	0	13	0	0	10	0	
17:15 - 17:30	0	23	0	0	9	0	0	0	0	0	8	0	0	10	0	
17:30 - 17:45	0	20	0	0	8	0	0	0	0	0	8	0	0	25	0	
17:45 - 18:00	0	31	0	0	10	0	0	0	0	0	8	0	0	6	0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

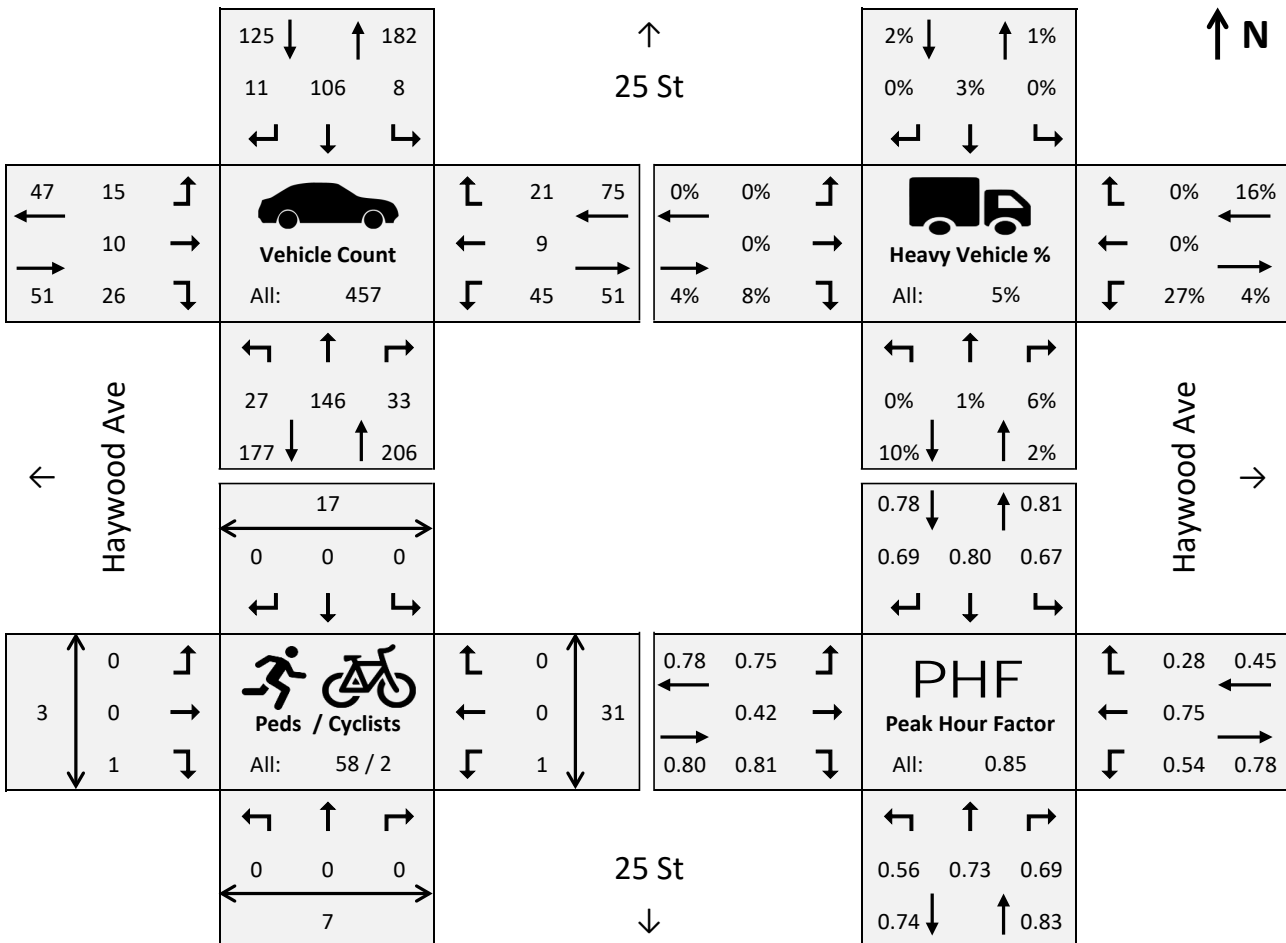


25 St @ Haywood Ave – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 15:00 - 16:00
Date: Jun 12, 2019 (Wed) **Road Cond:** Dry **Intersection Peak:** 15:00 - 16:00
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	5	33	7	3	33	4	1	1	6	21	2	19	8	1	5	0
15:15 - 15:30	7	50	5	2	33	4	5	6	5	8	2	1	1	4	8	2
15:30 - 15:45	12	33	12	2	21	1	4	2	8	5	2	0	4	2	4	1
15:45 - 16:00	3	30	9	1	19	2	5	1	7	11	3	1	4	0	14	0
16:00 - 16:15	7	27	5	3	9	0	0	7	7	6	4	0	4	3	2	0
16:15 - 16:30	5	28	9	5	16	4	1	2	5	4	0	2	5	2	3	1
16:30 - 16:45	5	28	11	0	12	0	3	1	8	5	2	0	2	2	4	1
16:45 - 17:00	8	32	10	1	24	2	0	3	6	3	2	0	0	0	1	0
17:00 - 17:15	7	37	12	3	20	1	3	3	7	11	1	0	1	3	1	0
17:15 - 17:30	8	24	10	4	14	3	3	3	9	11	3	3	2	2	4	0
17:30 - 17:45	5	30	6	1	11	1	2	1	9	7	3	0	3	0	4	0
17:45 - 18:00	1	32	6	3	10	0	0	2	8	5	1	0	0	1	2	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

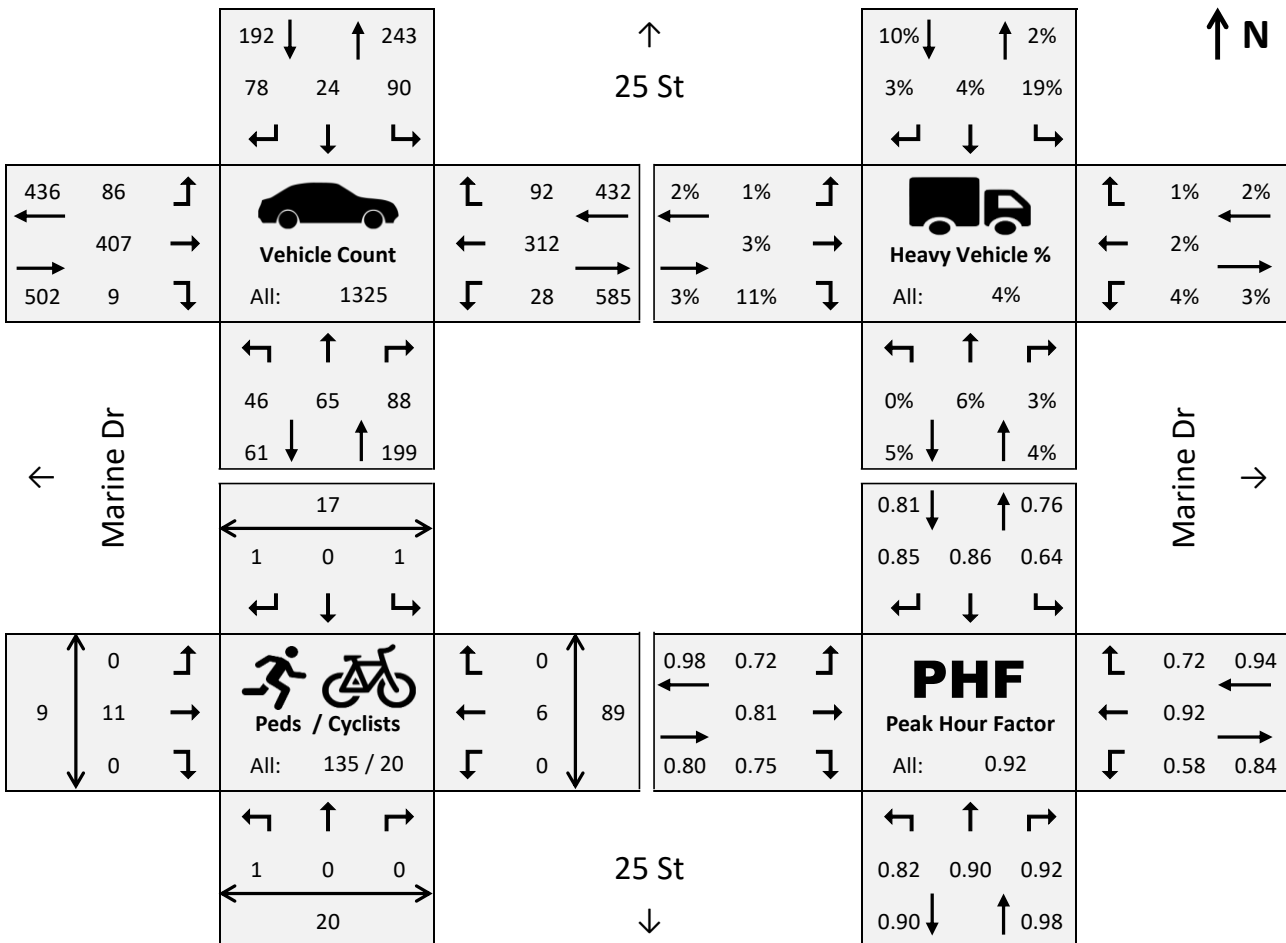


25 St @ Marine Dr – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 15:00 - 16:00
Date: Jun 12, 2019 (Wed) **Road Cond:** Dry **Intersection Peak:** 15:00 - 16:00
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	9	18	24	35	7	17	18	112	3	7	85	17	0	4	23	0
15:15 - 15:30	10	18	19	22	6	17	30	125	2	4	77	32	8	2	27	4
15:30 - 15:45	14	14	23	12	4	21	18	92	1	12	76	27	6	9	22	1
15:45 - 16:00	13	15	22	21	7	23	20	78	3	5	74	16	3	5	17	4
16:00 - 16:15	17	7	29	12	3	13	21	95	4	8	75	16	3	1	22	1
16:15 - 16:30	13	16	18	12	2	20	20	60	2	6	68	22	4	3	23	0
16:30 - 16:45	15	10	16	14	3	12	23	78	1	6	68	19	6	4	14	1
16:45 - 17:00	17	12	25	11	4	22	15	67	3	4	71	27	16	5	17	5
17:00 - 17:15	23	21	28	19	4	17	19	80	3	7	80	23	4	4	25	0
17:15 - 17:30	12	10	14	16	6	12	9	73	1	4	69	22	4	2	15	0
17:30 - 17:45	6	10	12	13	4	13	17	68	2	5	75	13	3	4	22	1
17:45 - 18:00	9	14	10	11	2	9	15	76	0	7	73	15	6	2	9	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

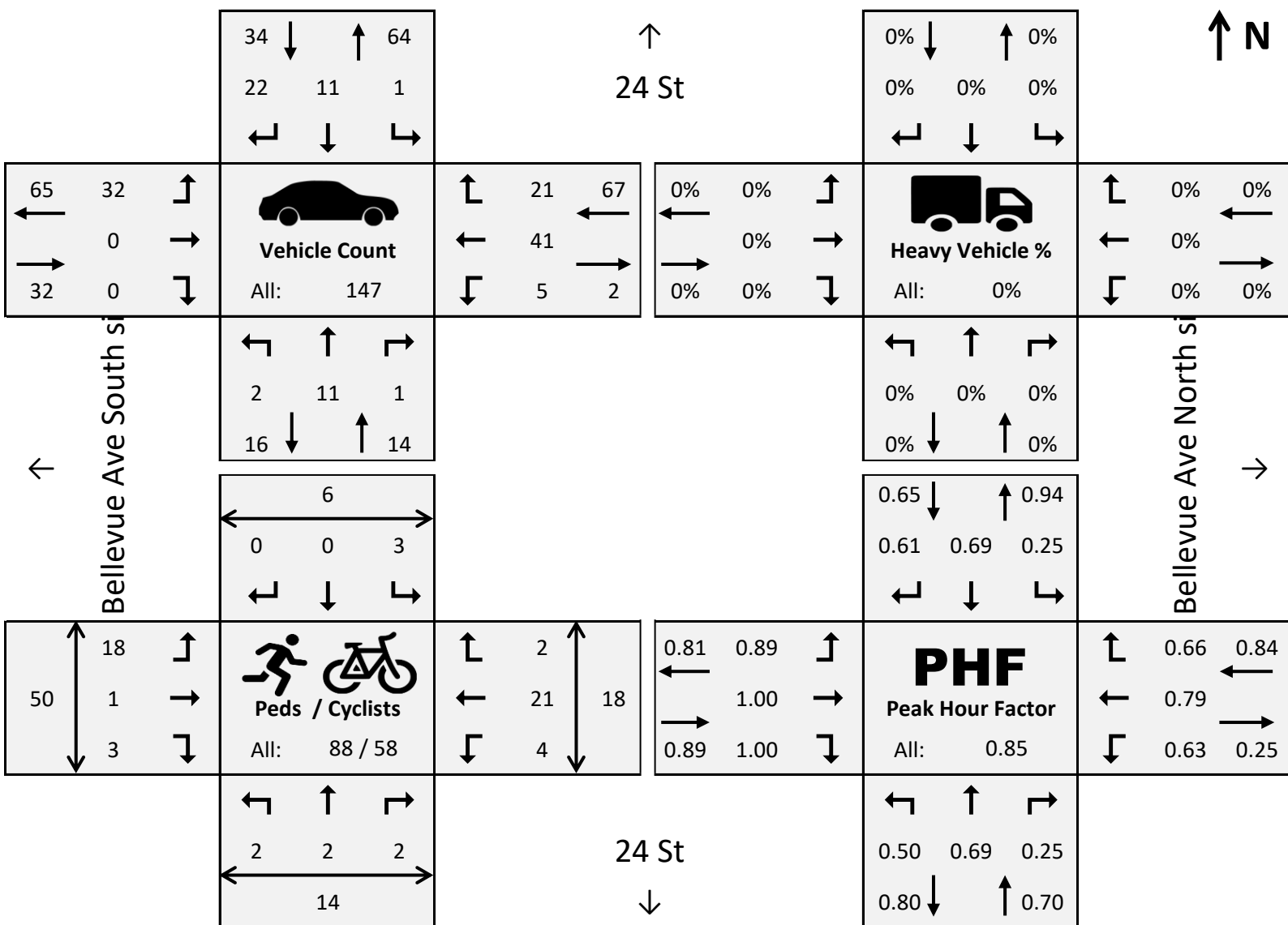


24 St @ Bellevue Ave North side – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 12:45 - 13:45
Date: Jun 29, 2019 (Sat) **Road Cond:** Dry **Intersection Peak:** 14:30 - 15:30
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
12:00 - 12:15	0	2	0	2	0	4	5	0	0	3	9	8	1	5	8	3
12:15 - 12:30	0	2	0	2	3	9	9	0	1	0	15	3	6	7	6	13
12:30 - 12:45	0	6	0	0	0	3	6	0	1	4	13	5	2	5	4	12
12:45 - 13:00	0	4	1	0	4	9	8	0	0	1	11	5	1	3	4	5
13:00 - 13:15	0	1	0	0	3	3	7	0	0	2	9	8	1	6	4	11
13:15 - 13:30	1	2	0	0	2	6	8	0	0	1	13	6	4	2	6	11
13:30 - 13:45	1	4	0	1	2	4	9	0	0	1	8	2	0	3	4	23
13:45 - 14:00	0	4	1	2	2	8	7	0	1	1	12	3	2	1	10	4
14:00 - 14:15	1	4	0	2	2	6	11	0	0	2	8	10	0	7	4	10
14:15 - 14:30	0	3	1	0	2	3	3	0	1	0	8	2	0	3	2	7
14:30 - 14:45	1	4	0	1	5	9	8	0	0	1	18	4	5	10	1	19
14:45 - 15:00	4	2	1	1	3	7	7	0	1	2	16	7	6	3	8	2
15:00 - 15:15	0	1	1	0	4	9	6	0	1	0	12	4	6	4	9	13
15:15 - 15:30	0	0	1	0	3	7	9	0	0	1	18	7	6	1	7	11
15:30 - 15:45	0	6	0	0	3	6	3	0	0	0	11	10	0	3	0	6
15:45 - 16:00	0	4	0	1	3	5	8	0	0	2	18	7	3	1	5	9

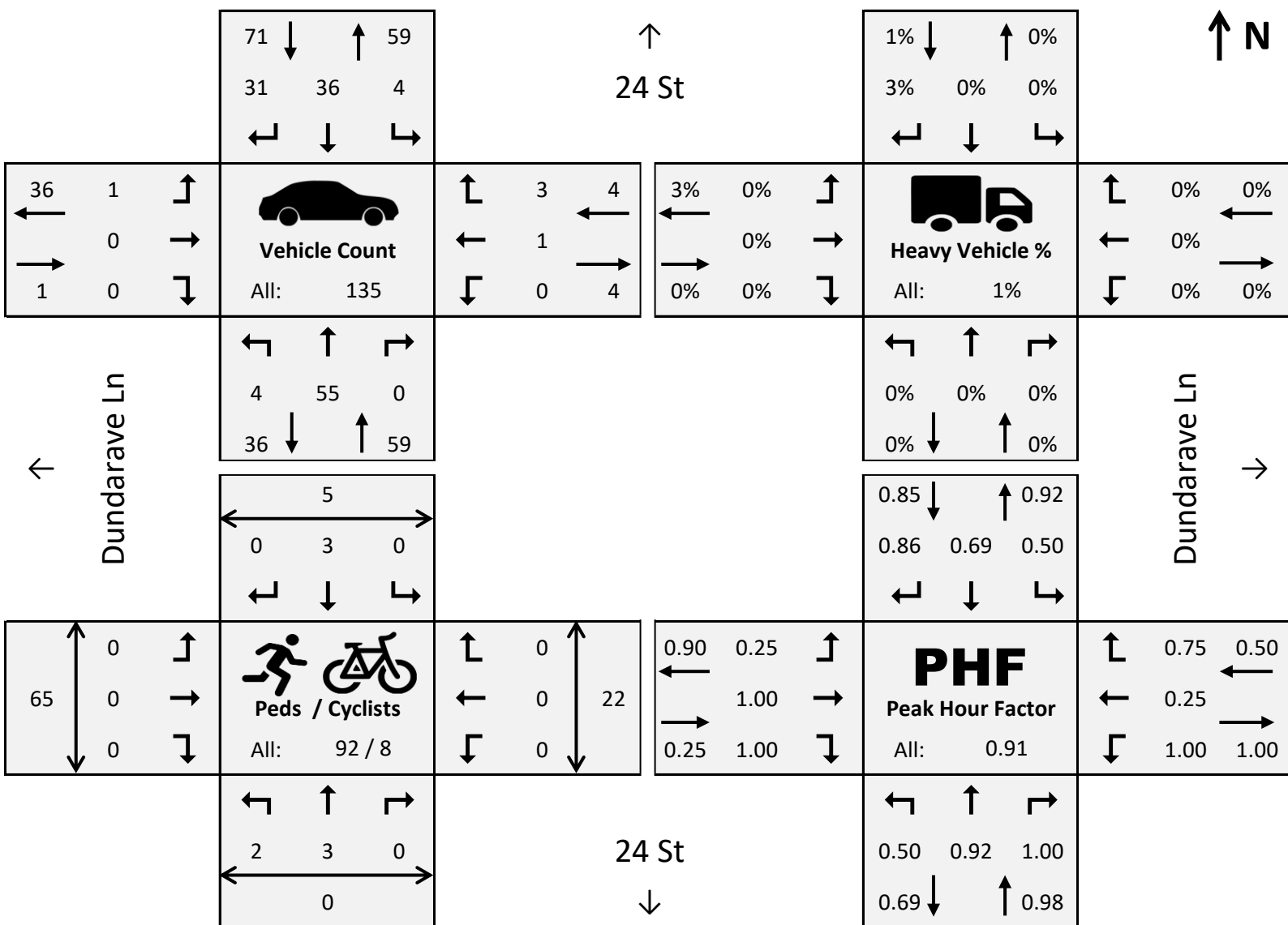


24 St @ Dundarave Ln – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 12:45 - 13:45
Date: Jun 29, 2019 (Sat) **Road Cond:** Dry **Intersection Peak:** 13:15 - 14:15
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
12:00 - 12:15	1	11	1	0	7	14	0	0	0	0	0	3	3	0	6	11
12:15 - 12:30	1	10	0	0	11	8	0	0	0	0	0	2	2	0	3	28
12:30 - 12:45	2	14	0	0	3	10	0	0	0	0	0	2	0	0	5	21
12:45 - 13:00	1	14	0	0	13	8	0	0	0	0	0	1	1	0	5	9
13:00 - 13:15	2	13	0	2	7	7	0	0	0	0	1	1	4	0	7	11
13:15 - 13:30	0	15	0	2	9	9	0	0	0	0	0	1	0	0	8	19
13:30 - 13:45	1	13	0	0	7	7	1	0	0	0	0	0	0	0	2	26
13:45 - 14:00	0	11	0	0	13	8	0	0	0	0	0	0	0	0	12	14
14:00 - 14:15	7	16	0	0	11	6	0	0	0	0	1	0	2	0	4	11
14:15 - 14:30	0	9	0	0	5	12	1	0	0	0	0	1	6	0	3	6
14:30 - 14:45	1	13	0	0	15	6	0	0	0	0	0	0	1	0	3	19
14:45 - 15:00	0	11	0	1	11	6	0	0	0	0	1	3	3	0	7	11
15:00 - 15:15	1	10	0	1	13	12	0	0	0	0	0	0	0	0	3	15
15:15 - 15:30	4	7	1	0	12	3	0	0	0	0	0	0	0	0	9	13
15:30 - 15:45	2	16	0	0	9	6	0	0	0	0	0	1	1	0	0	10
15:45 - 16:00	2	11	0	2	11	1	1	0	0	0	1	1	1	0	5	9

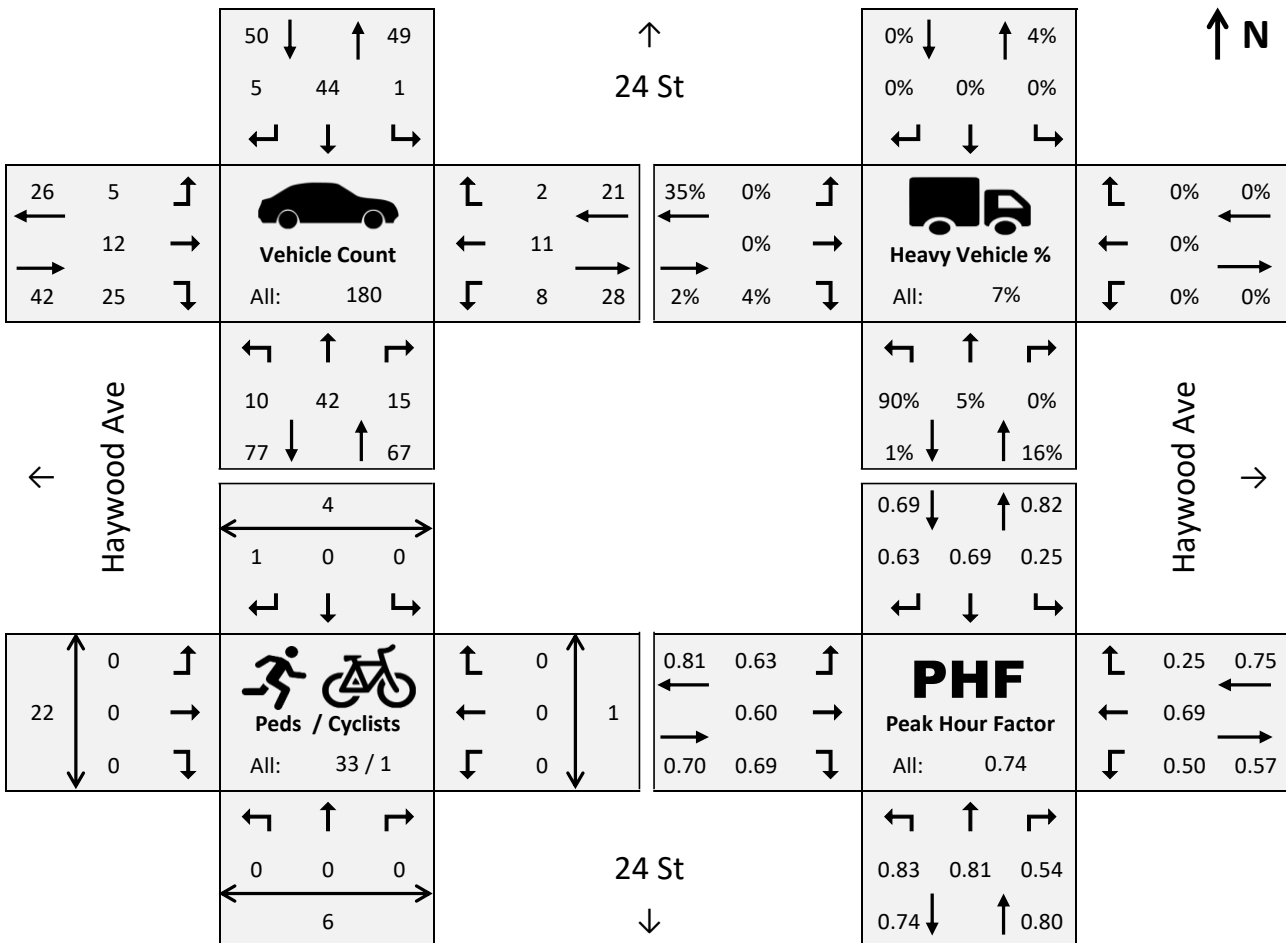


24 St @ Haywood Ave – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 12:45 - 13:45
Date: Jun 29, 2019 (Sat) **Road Cond:** Dry **Intersection Peak:** 12:15 - 13:15
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
12:00 - 12:15	4	13	0	1	9	1	0	2	6	0	2	1	0	3	0	2
12:15 - 12:30	5	4	5	0	12	1	5	8	2	0	1	0	0	2	2	3
12:30 - 12:45	2	11	1	0	11	1	1	2	4	3	1	0	0	0	1	2
12:45 - 13:00	3	11	7	1	16	1	1	5	9	1	4	2	2	1	1	1
13:00 - 13:15	2	13	2	0	9	2	2	0	8	1	4	0	1	2	0	10
13:15 - 13:30	3	9	4	0	11	0	1	3	5	4	1	0	0	0	0	8
13:30 - 13:45	2	9	2	0	8	2	1	4	3	2	2	0	1	3	0	3
13:45 - 14:00	5	11	4	1	9	1	1	2	8	1	1	1	0	1	8	3
14:00 - 14:15	4	10	1	0	12	4	1	1	9	1	0	0	0	2	3	0
14:15 - 14:30	2	10	1	0	5	2	2	6	4	0	4	0	2	1	1	3
14:30 - 14:45	5	7	2	0	5	1	0	1	5	1	0	0	0	2	0	5
14:45 - 15:00	3	9	4	0	13	0	0	3	3	1	1	0	2	1	0	2
15:00 - 15:15	3	8	0	0	8	0	0	2	3	0	2	0	0	1	0	10
15:15 - 15:30	6	7	2	0	16	0	1	2	4	0	3	0	0	2	1	7
15:30 - 15:45	4	9	2	0	12	0	0	5	4	0	0	2	0	1	0	9
15:45 - 16:00	3	8	0	1	7	0	3	3	4	7	1	0	0	0	6	4

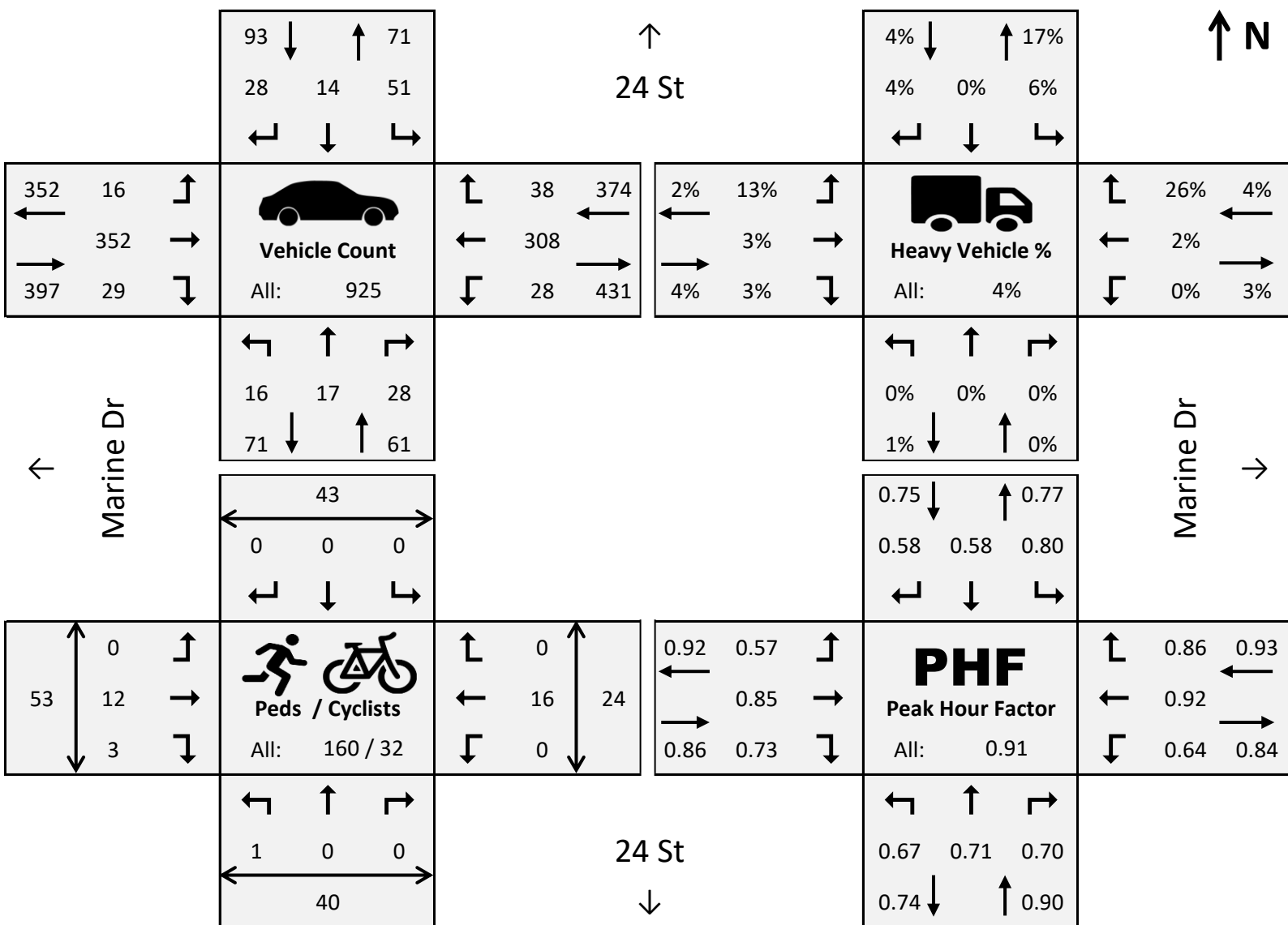


24 St @ Marine Dr – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 12:45 - 13:45
Date: Jun 29, 2019 (Sat) **Road Cond:** Dry **Intersection Peak:** 12:45 - 13:45
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
12:00 - 12:15	2	9	4	9	4	8	5	74	9	9	78	6	8	10	4	21
12:15 - 12:30	3	3	7	10	5	4	3	82	8	8	57	10	4	6	1	11
12:30 - 12:45	3	6	7	12	4	3	4	84	3	4	70	4	4	7	2	12
12:45 - 13:00	4	6	4	16	3	12	7	91	10	11	80	10	6	10	1	5
13:00 - 13:15	6	6	4	12	2	5	4	73	5	9	68	9	11	13	8	12
13:15 - 13:30	4	3	10	14	6	3	4	104	8	4	84	11	13	3	13	14
13:30 - 13:45	2	2	10	9	3	8	1	84	6	4	76	8	13	14	2	22
13:45 - 14:00	1	5	8	14	6	6	3	88	10	6	83	13	8	7	10	17
14:00 - 14:15	4	2	10	14	2	8	3	70	7	6	67	8	12	4	6	15
14:15 - 14:30	1	5	3	9	1	8	6	81	7	9	83	9	15	5	4	12
14:30 - 14:45	3	2	8	24	3	8	8	95	6	13	71	13	3	6	9	16
14:45 - 15:00	4	4	6	12	4	5	2	92	4	9	70	7	1	6	9	10
15:00 - 15:15	5	0	5	7	2	8	5	83	5	17	76	8	14	12	8	12
15:15 - 15:30	1	0	6	20	1	8	5	76	2	9	66	12	5	8	8	19
15:30 - 15:45	7	7	6	12	3	5	2	76	2	10	68	7	5	9	6	10
15:45 - 16:00	3	5	8	14	7	5	2	63	2	4	62	8	7	14	6	15

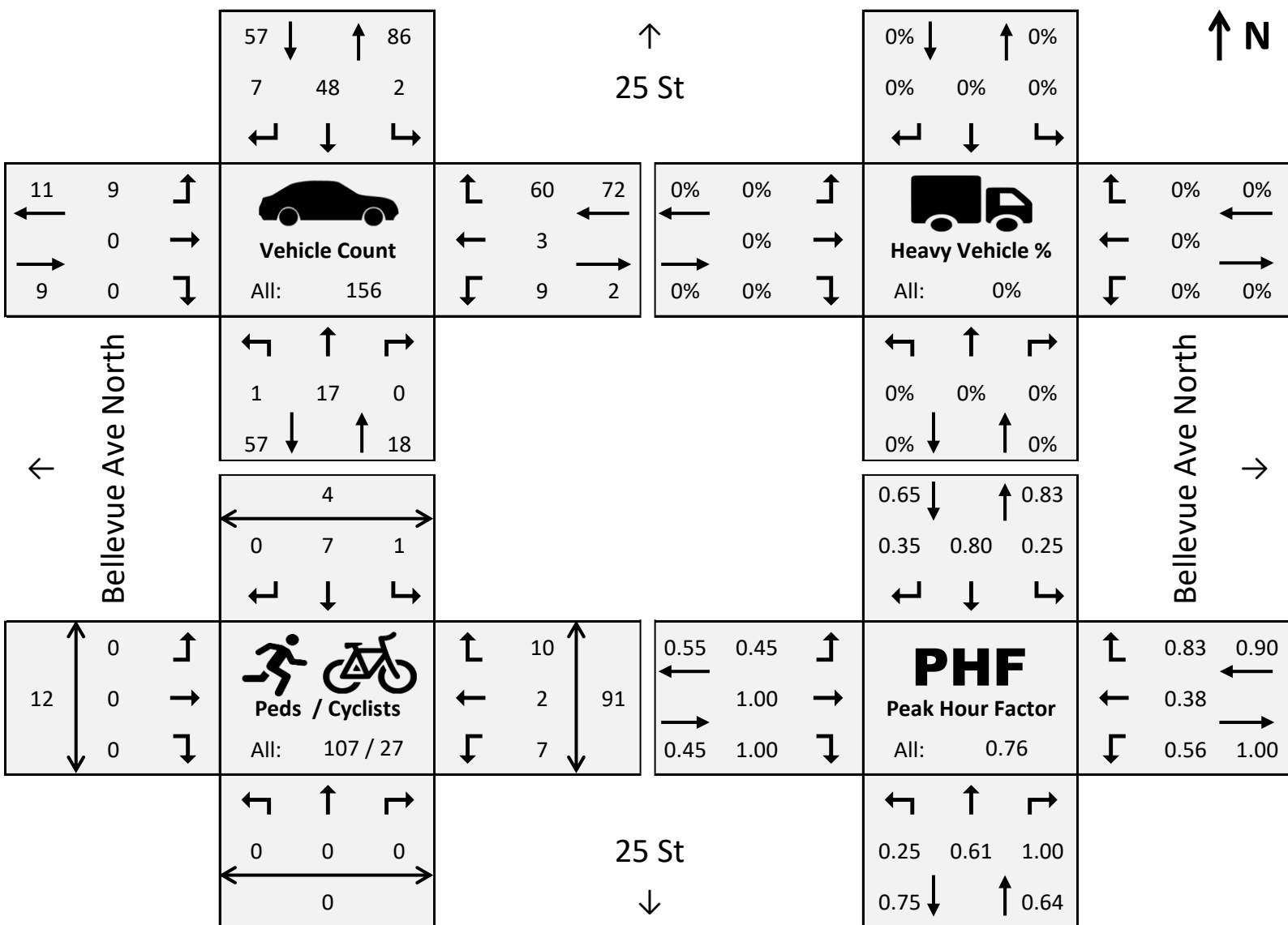


25 St @ Bellevue Ave North – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 12:45 - 13:45
Date: Jun 29, 2019 (Sat) **Road Cond:** Dry **Intersection Peak:** 14:00 - 15:00
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
12:00 - 12:15	0	4	0	2	9	2	0	0	0	2	3	23	0	0	30	0
12:15 - 12:30	0	4	0	0	17	1	1	0	0	5	1	23	0	0	16	3
12:30 - 12:45	0	7	0	0	9	2	1	0	0	2	1	11	0	0	29	4
12:45 - 13:00	1	3	0	0	6	1	2	0	0	1	2	14	0	0	26	5
13:00 - 13:15	0	7	0	0	14	1	1	0	0	1	1	18	0	0	16	0
13:15 - 13:30	0	4	0	2	15	5	5	0	0	4	0	16	2	0	30	4
13:30 - 13:45	0	3	0	0	13	0	1	0	0	3	0	12	2	0	19	3
13:45 - 14:00	1	6	0	0	7	0	0	0	0	2	1	10	0	0	19	1
14:00 - 14:15	0	3	0	0	16	1	1	0	1	2	1	16	0	0	5	6
14:15 - 14:30	0	4	0	0	10	1	2	0	0	0	0	17	2	0	18	7
14:30 - 14:45	0	1	0	0	10	0	0	0	0	5	2	26	0	0	19	2
14:45 - 15:00	0	9	0	0	11	0	0	0	0	5	6	16	0	0	31	0
15:00 - 15:15	0	4	0	0	9	3	3	0	0	6	2	14	0	0	29	0
15:15 - 15:30	1	2	0	0	7	0	0	0	0	4	1	18	1	0	15	5
15:30 - 15:45	0	4	0	0	15	1	1	0	0	0	0	19	0	0	12	1
15:45 - 16:00	0	5	0	0	14	0	0	0	0	4	0	18	0	0	12	3

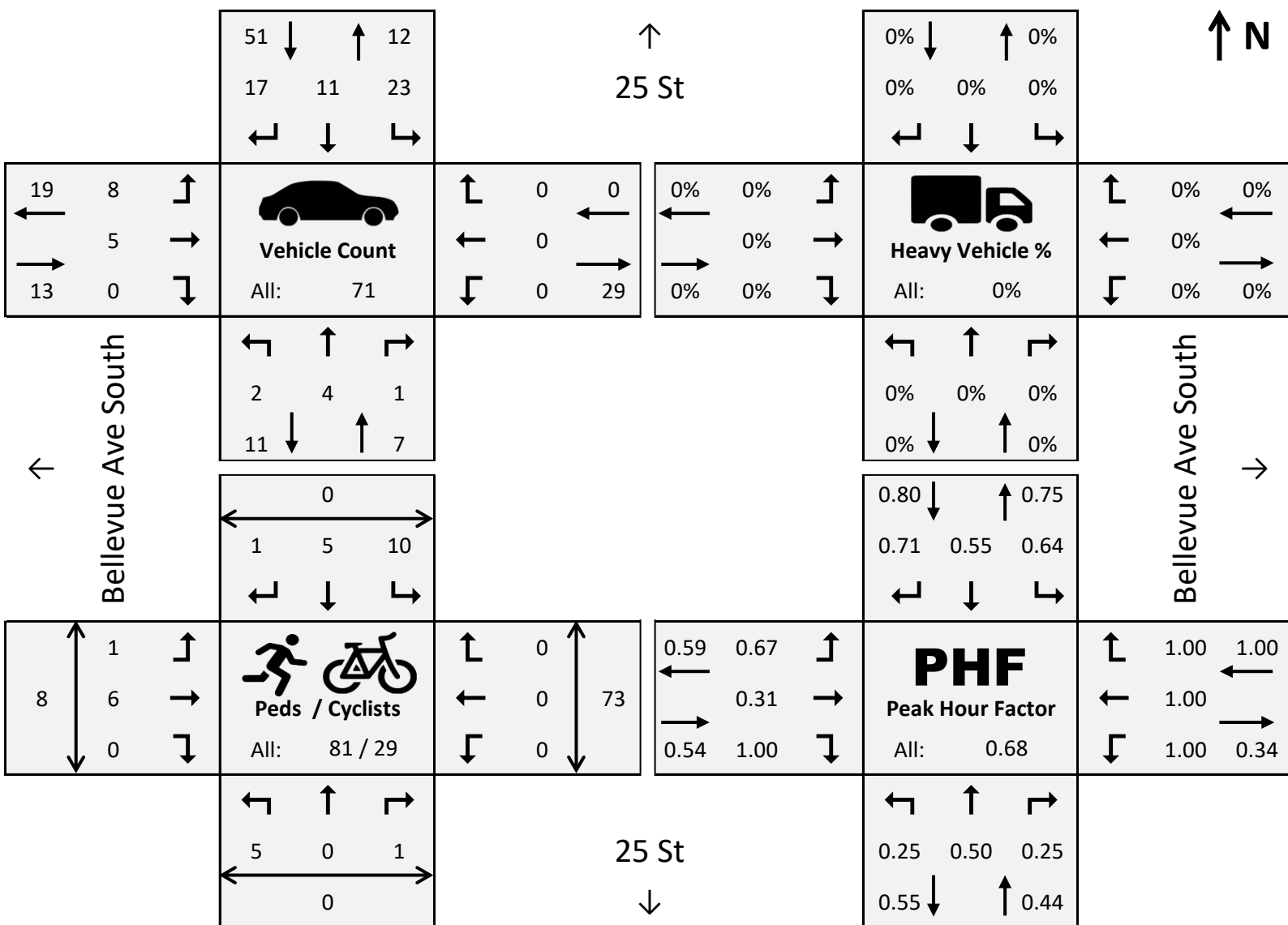


25 St @ Bellevue Ave South – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 12:45 - 13:45
Date: Jun 29, 2019 (Sat) **Road Cond:** Dry **Intersection Peak:** 13:15 - 14:15
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
12:00 - 12:15	0	0	0	6	0	6	3	1	0	0	0	0	0	4	26	0
12:15 - 12:30	0	0	1	11	1	6	4	2	1	0	0	0	0	4	14	3
12:30 - 12:45	1	1	1	3	2	5	6	0	0	0	0	0	0	3	16	3
12:45 - 13:00	0	1	0	4	1	2	1	0	0	0	0	0	0	0	13	2
13:00 - 13:15	0	1	0	5	2	5	3	0	0	0	0	0	0	0	9	0
13:15 - 13:30	2	2	0	5	5	6	2	4	0	0	0	0	0	0	25	3
13:30 - 13:45	0	0	1	9	3	4	2	1	0	0	0	0	0	0	26	3
13:45 - 14:00	0	4	2	1	5	3	2	2	1	0	0	0	0	2	13	3
14:00 - 14:15	1	2	2	11	6	3	0	0	0	0	0	0	0	0	7	7
14:15 - 14:30	0	2	0	3	4	2	1	1	0	0	0	0	0	1	19	5
14:30 - 14:45	0	0	2	4	1	7	2	0	0	0	0	0	0	2	16	1
14:45 - 15:00	1	2	0	9	1	4	7	2	0	0	0	0	0	1	19	0
15:00 - 15:15	0	1	1	6	2	6	3	1	1	0	0	0	0	0	21	0
15:15 - 15:30	0	0	1	4	1	6	3	3	0	0	0	0	0	1	10	0
15:30 - 15:45	0	1	0	9	2	7	1	0	0	0	0	0	0	1	10	1
15:45 - 16:00	0	2	1	8	3	4	1	0	0	0	0	0	0	0	12	3

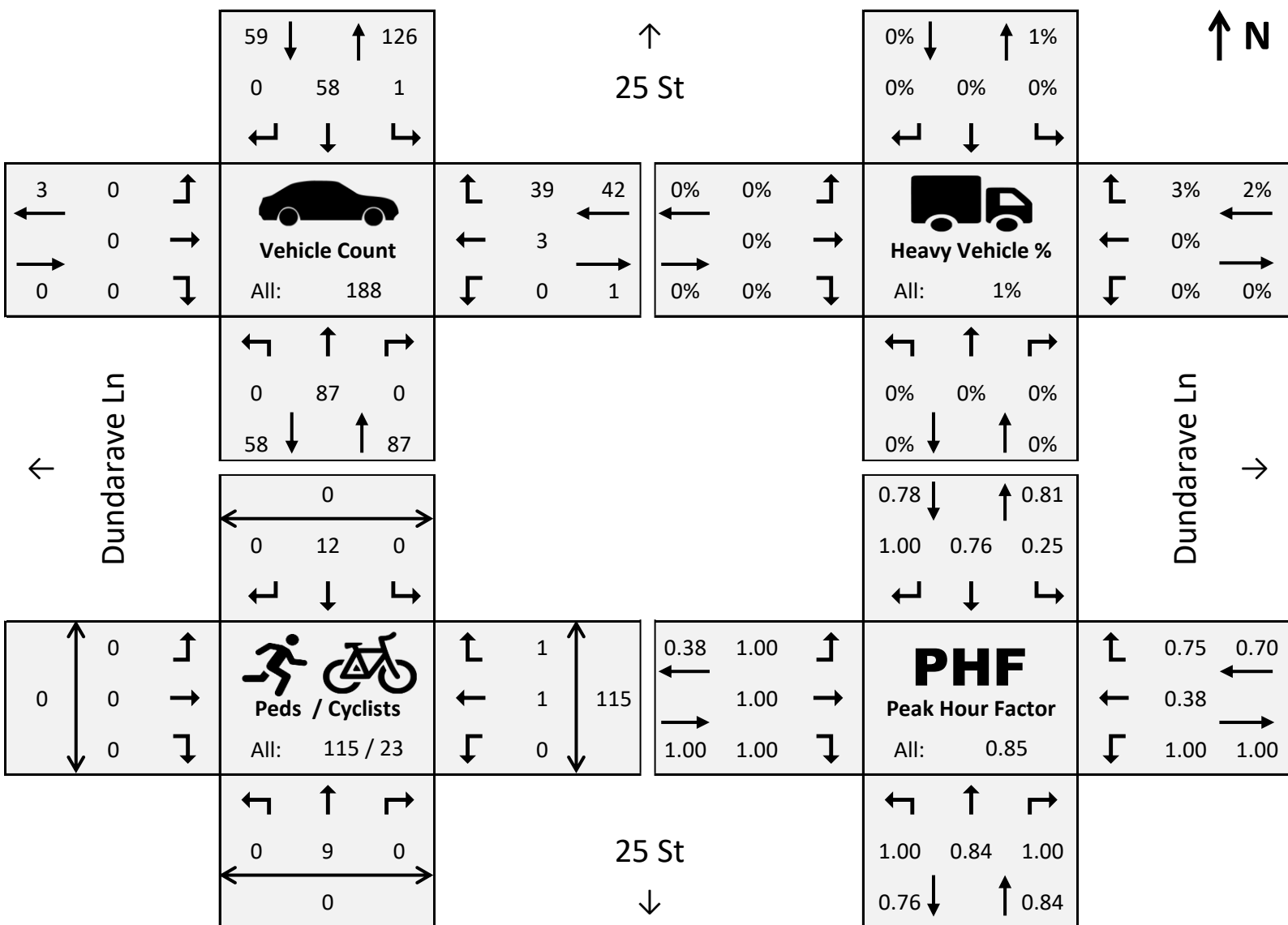


25 St @ Dundarave Ln – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 12:45 - 13:45
Date: Jun 29, 2019 (Sat) **Road Cond:** Dry **Intersection Peak:** 12:15 - 13:15
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
12:00 - 12:15	0	20	0	0	13	0	0	0	0	0	0	16	0	0	28	0
12:15 - 12:30	0	27	0	5	18	0	0	0	0	0	0	7	0	0	28	0
12:30 - 12:45	0	19	0	0	10	0	0	0	0	1	12	0	0	0	32	0
12:45 - 13:00	0	19	0	1	9	0	0	0	0	0	7	0	0	0	35	0
13:00 - 13:15	0	26	0	0	13	0	0	0	0	2	13	0	0	0	30	0
13:15 - 13:30	0	23	0	0	19	0	0	0	0	1	12	0	0	0	29	0
13:30 - 13:45	0	19	0	0	17	0	0	0	0	0	7	0	0	0	21	0
13:45 - 14:00	0	15	0	0	8	0	0	0	0	0	7	0	0	0	22	0
14:00 - 14:15	0	19	0	1	17	0	0	0	0	3	9	0	0	0	6	0
14:15 - 14:30	0	20	0	0	12	0	0	0	0	1	8	0	0	0	15	0
14:30 - 14:45	0	27	0	0	8	0	0	0	0	2	6	0	0	0	18	0
14:45 - 15:00	0	24	0	1	10	0	0	0	0	0	12	0	0	0	27	0
15:00 - 15:15	0	19	0	1	11	0	0	0	0	1	14	0	0	0	24	0
15:15 - 15:30	0	19	0	0	6	0	0	0	0	0	6	0	0	0	15	0
15:30 - 15:45	0	20	0	0	16	0	0	0	0	0	11	0	0	0	13	0
15:45 - 16:00	0	20	0	0	13	0	0	0	0	0	6	0	0	0	10	0

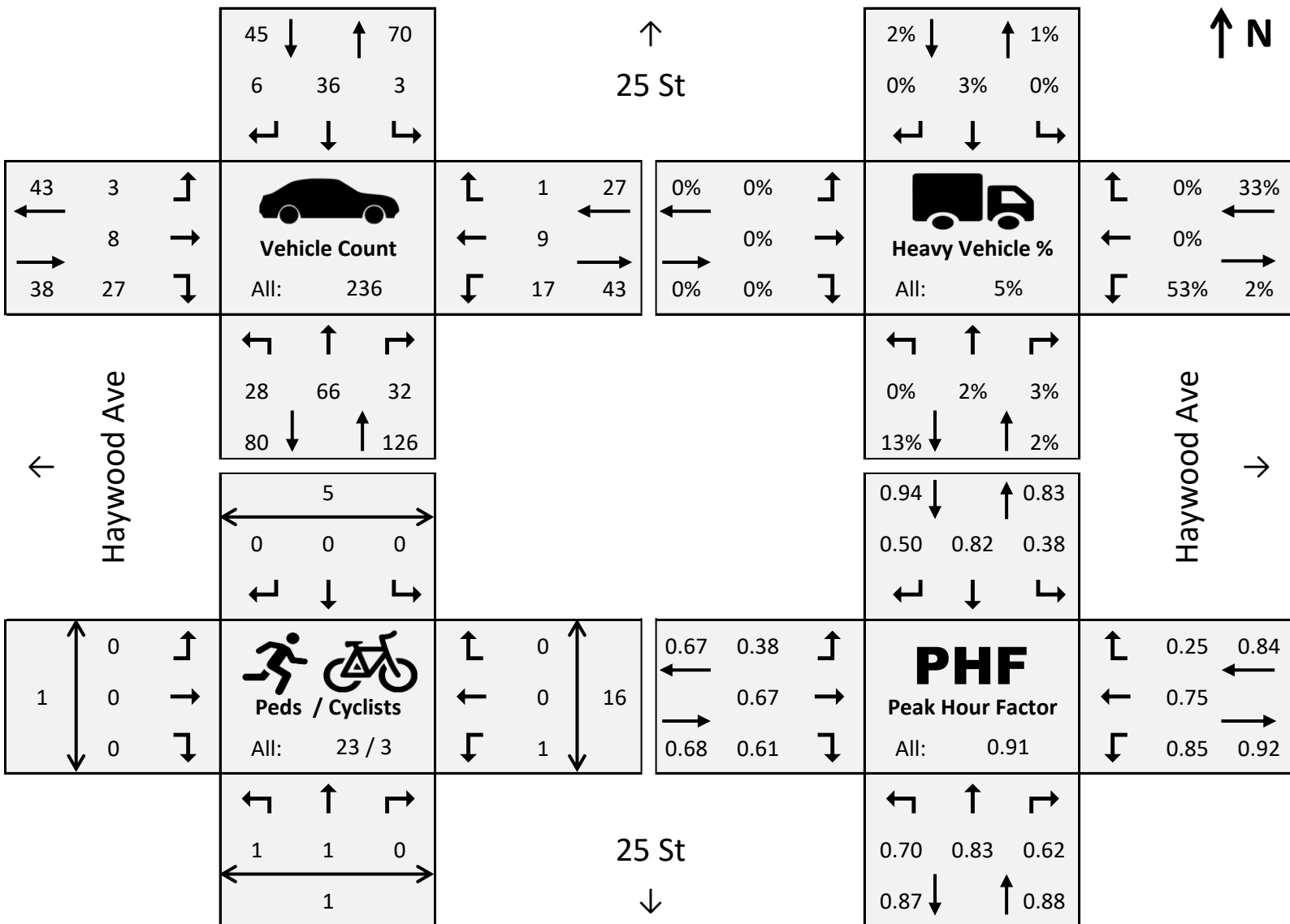


25 St @ Haywood Ave – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 12:45 - 13:45
Date: Jun 29, 2019 (Sat) **Road Cond:** Dry **Intersection Peak:** 13:30 - 14:30
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
12:00 - 12:15	4	13	8	1	8	0	1	2	4	4	4	0	0	5	3	0
12:15 - 12:30	4	16	8	0	13	1	2	3	15	6	1	0	3	4	10	0
12:30 - 12:45	7	18	3	0	8	0	0	5	5	3	1	0	0	1	3	0
12:45 - 13:00	3	20	13	1	10	1	1	0	9	4	3	0	4	0	5	1
13:00 - 13:15	5	11	9	0	11	1	0	2	1	4	3	1	1	1	3	0
13:15 - 13:30	10	18	4	2	6	1	0	3	11	5	0	0	0	0	5	0
13:30 - 13:45	10	17	6	0	9	3	2	3	6	4	3	0	0	0	3	0
13:45 - 14:00	11	21	2	1	9	2	2	5	12	3	2	0	2	4	7	0
14:00 - 14:15	3	12	11	1	13	1	2	2	11	4	1	1	2	5	6	1
14:15 - 14:30	8	15	6	1	15	1	6	3	8	2	3	0	0	5	1	1
14:30 - 14:45	5	15	5	0	11	2	0	3	8	3	0	2	4	1	7	0
14:45 - 15:00	6	24	2	1	10	1	4	2	7	2	1	0	2	1	4	0
15:00 - 15:15	11	22	5	1	12	2	0	0	6	3	2	0	2	3	10	0
15:15 - 15:30	9	19	5	3	10	0	2	3	7	4	4	0	4	4	4	4
15:30 - 15:45	5	17	3	1	9	4	3	1	8	2	1	0	2	3	1	0
15:45 - 16:00	4	17	4	0	6	2	1	2	5	2	1	0	6	6	8	1

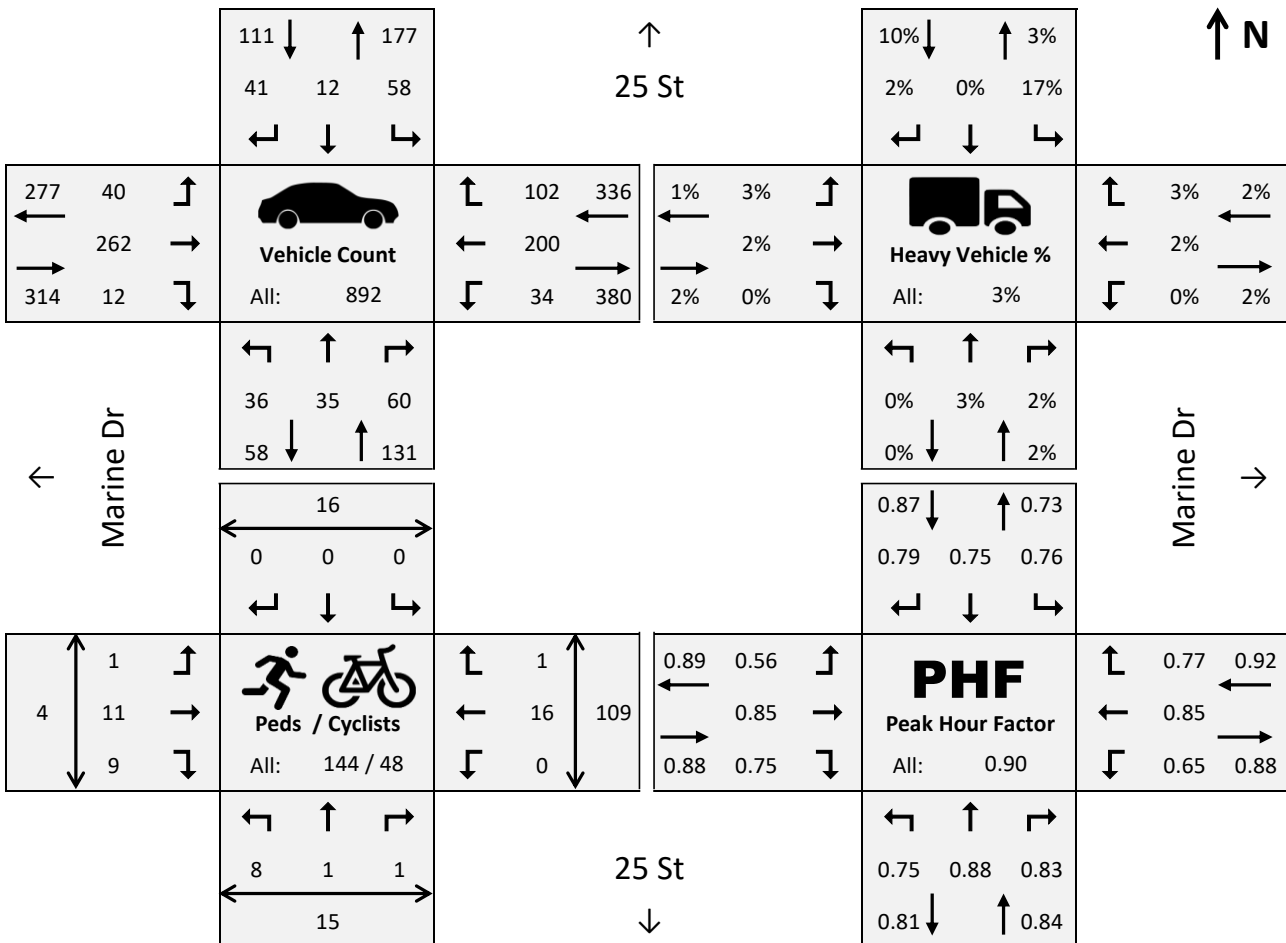


25 St @ Marine Dr – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 12:45 - 13:45
Date: Jun 29, 2019 (Sat) **Road Cond:** Dry **Intersection Peak:** 14:15 - 15:15
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
12:00 - 12:15	14	6	20	7	2	8	5	58	1	9	53	27	4	1	20	3
12:15 - 12:30	12	11	16	15	3	13	9	64	1	12	31	15	5	1	30	1
12:30 - 12:45	9	8	15	6	0	13	7	58	1	7	51	17	3	0	16	1
12:45 - 13:00	8	6	11	14	4	11	8	77	2	1	59	24	5	6	38	1
13:00 - 13:15	12	9	18	12	4	7	8	54	2	9	49	21	6	2	25	1
13:15 - 13:30	8	10	18	19	3	10	18	67	4	11	47	33	5	4	22	1
13:30 - 13:45	8	10	13	13	1	13	6	64	4	13	45	24	0	3	24	1
13:45 - 14:00	4	8	17	21	1	13	7	55	1	5	55	24	2	0	23	0
14:00 - 14:15	12	6	13	16	4	17	11	56	1	14	41	20	2	1	22	1
14:15 - 14:30	7	8	16	17	3	7	8	60	0	8	59	28	3	4	22	2
14:30 - 14:45	13	8	17	11	3	18	8	83	1	5	59	16	5	2	17	3
14:45 - 15:00	9	15	16	11	4	11	8	60	1	7	57	17	0	2	27	0
15:00 - 15:15	7	14	12	18	3	11	6	60	3	5	56	25	2	4	33	0
15:15 - 15:30	13	7	6	14	2	9	11	60	1	5	49	24	3	7	19	0
15:30 - 15:45	8	12	15	14	3	7	11	52	3	11	52	10	3	3	16	2
15:45 - 16:00	13	7	12	6	4	6	10	50	4	6	46	10	5	5	13	4

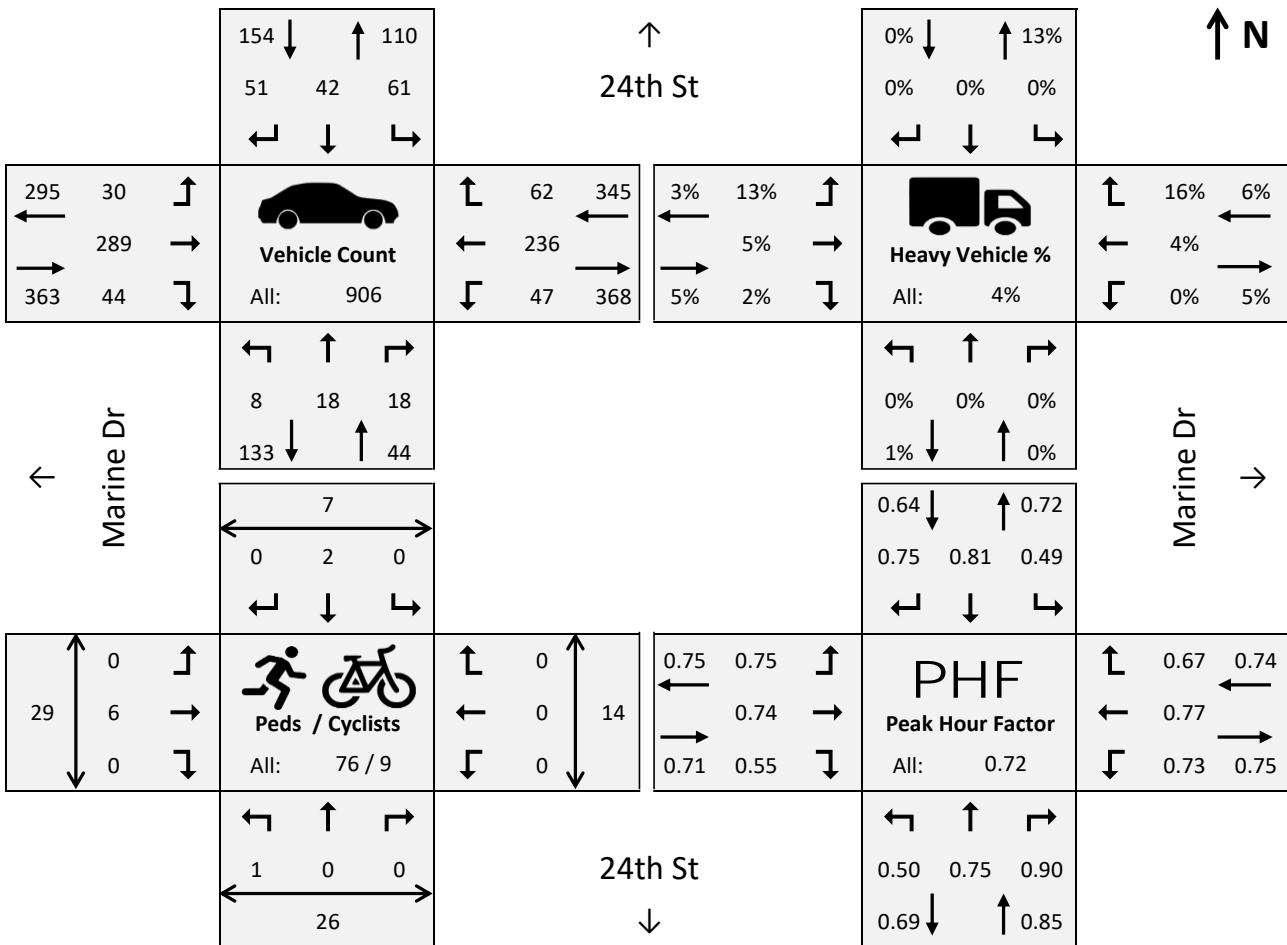


24th St @ Marine Dr – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Rain **Analysis Period:** 8:00 - 9:00
Date: Sep 22, 2020 (Tue) **Road Cond:** Wet **Intersection Peak:** 8:00 - 9:00
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	1	1	0	1	2	2	1	25	1	9	24	6	0	0	0	1
7:15 - 7:30	0	0	4	2	11	2	3	41	0	4	42	4	1	2	0	6
7:30 - 7:45	4	1	2	4	9	5	3	36	4	8	23	3	2	2	1	2
7:45 - 8:00	2	0	3	12	8	6	4	66	4	9	41	9	5	2	3	5
8:00 - 8:15	2	2	5	8	12	9	7	55	7	9	45	8	1	1	1	3
8:15 - 8:30	1	6	5	5	5	11	3	64	7	6	37	15	3	11	4	2
8:30 - 8:45	1	5	4	17	13	14	10	73	10	16	77	16	0	5	4	10
8:45 - 9:00	4	5	4	31	12	17	10	97	20	16	77	23	3	9	5	14
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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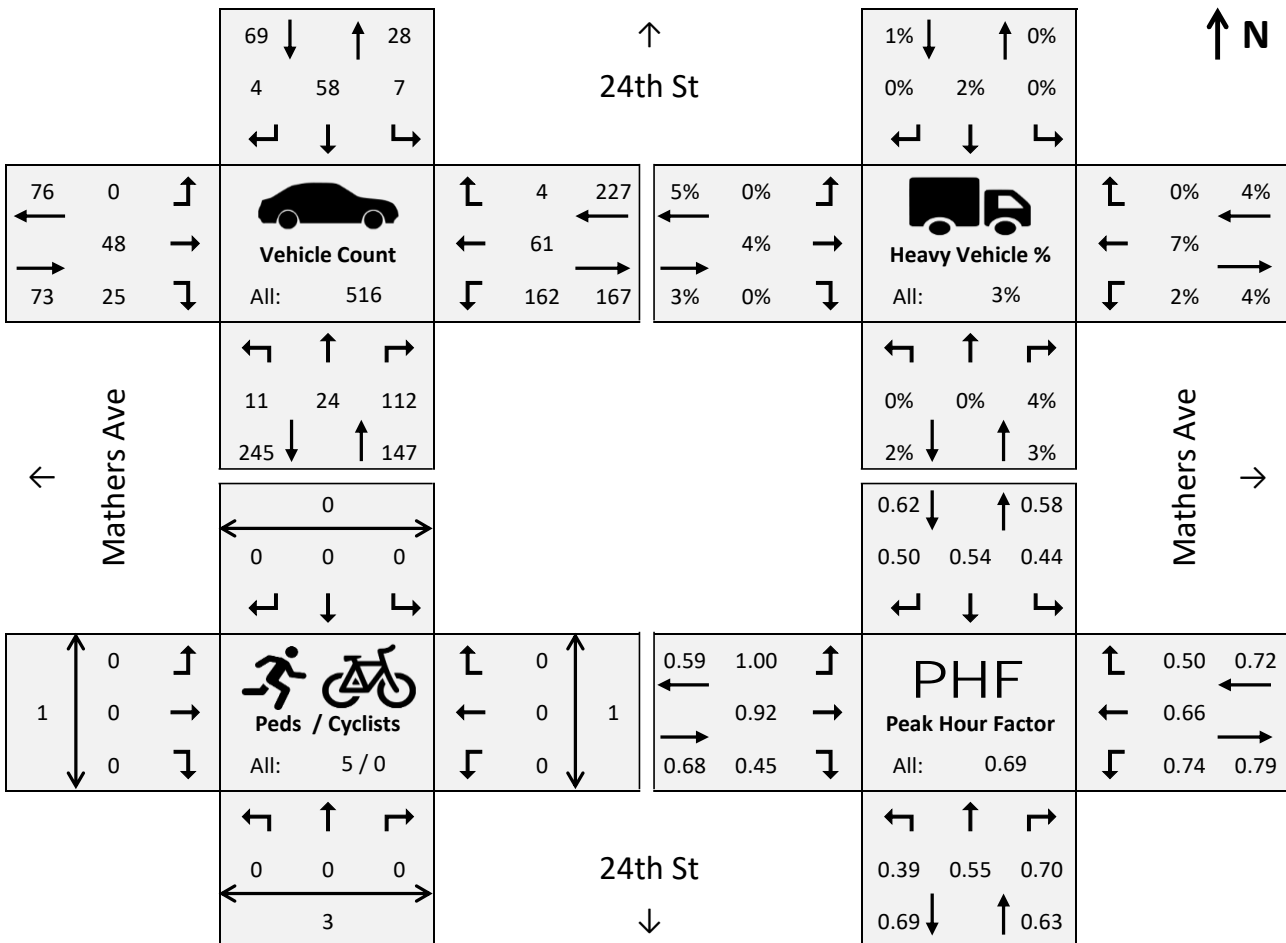


24th St @ Mathers Ave – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 8:00 - 9:00
Date: Sep 22, 2020 (Tue) **Road Cond:** Dry **Intersection Peak:** 8:00 - 9:00
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	0	2	3	0	1	0	0	4	0	4	17	0	0	0	0	0
7:15 - 7:30	0	1	5	1	1	2	0	6	2	18	30	1	1	0	0	2
7:30 - 7:45	0	2	5	2	3	1	0	10	0	17	11	2	0	0	1	1
7:45 - 8:00	0	0	6	1	2	1	0	17	2	16	17	0	0	0	0	0
8:00 - 8:15	0	2	27	2	6	1	0	11	3	23	11	0	0	1	0	0
8:15 - 8:30	1	3	19	4	5	1	0	11	4	33	10	1	0	1	1	1
8:30 - 8:45	3	8	26	1	27	0	0	13	4	51	17	2	0	0	0	0
8:45 - 9:00	7	11	40	0	20	2	0	13	14	55	23	1	0	1	0	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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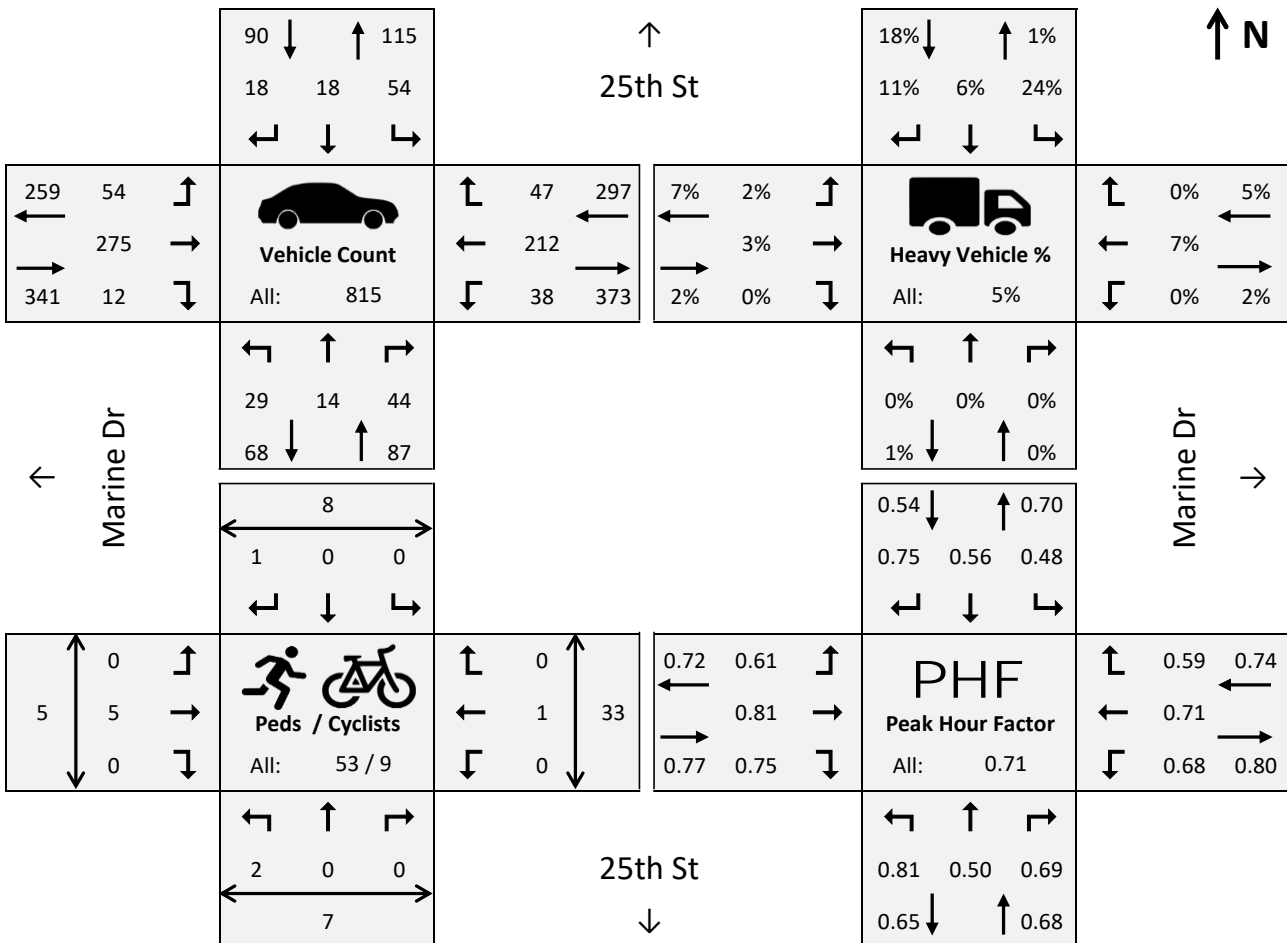


25th St @ Marine Dr – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Rain **Analysis Period:** 8:00 - 9:00
Date: Sep 22, 2020 (Tue) **Road Cond:** Wet **Intersection Peak:** 8:00 - 9:00
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	0	5	4	3	2	11	3	23	1	3	25	2	0	0	1	0
7:15 - 7:30	2	0	3	9	4	17	3	30	3	6	38	3	1	0	2	0
7:30 - 7:45	5	2	3	2	3	6	5	36	2	4	24	3	2	3	1	2
7:45 - 8:00	5	3	10	13	4	3	8	56	0	7	33	7	1	2	2	2
8:00 - 8:15	6	1	7	6	3	2	12	55	4	7	40	9	1	1	1	0
8:15 - 8:30	7	4	9	9	0	5	10	65	1	9	38	6	0	3	10	0
8:30 - 8:45	7	2	12	11	7	5	10	70	3	8	59	20	4	2	9	2
8:45 - 9:00	9	7	16	28	8	6	22	85	4	14	75	12	3	1	13	3
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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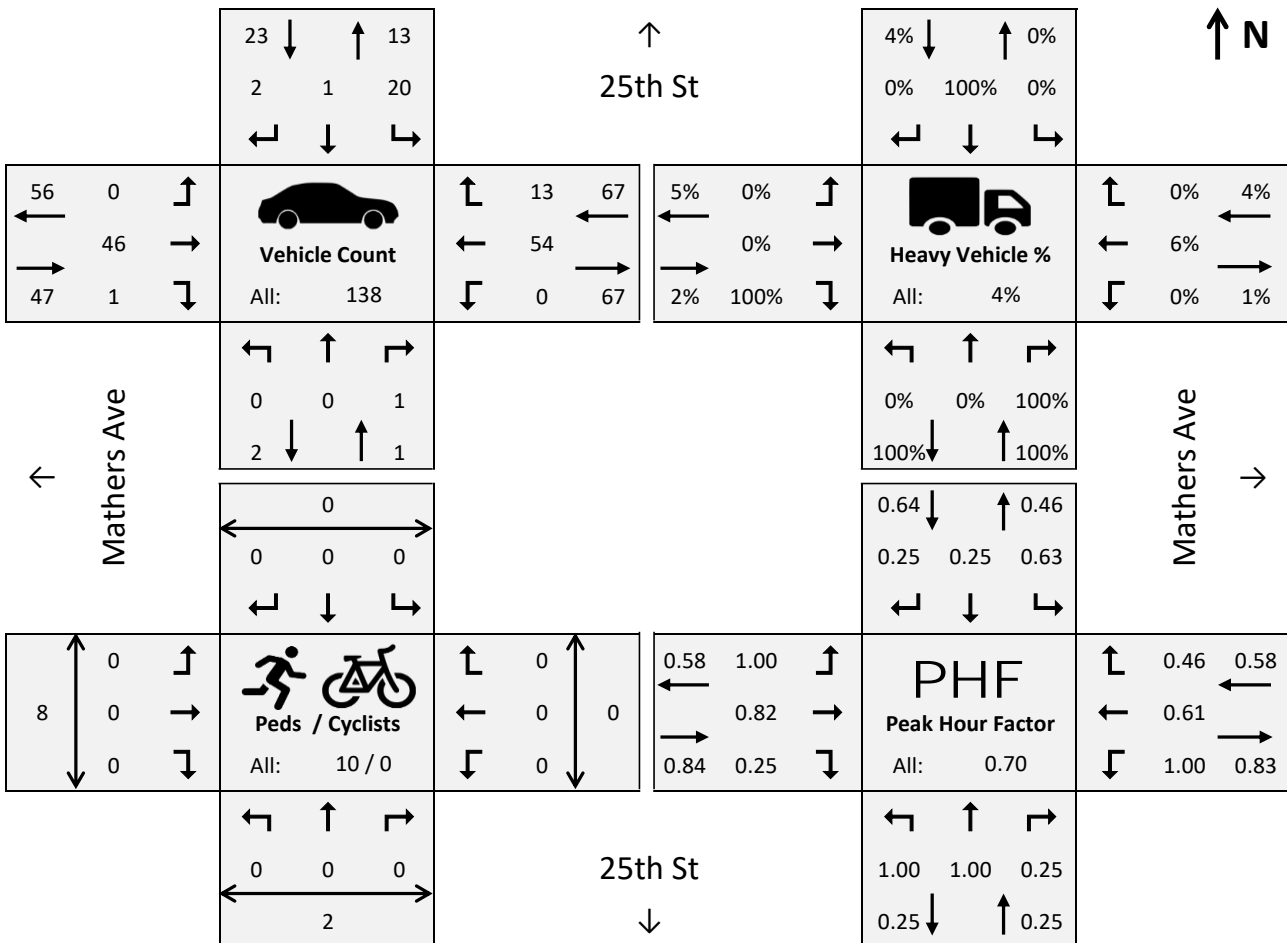


25th St @ Mathers Ave – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 8:00 - 9:00
Date: Sep 22, 2020 (Tue) **Road Cond:** Dry **Intersection Peak:** 8:00 - 9:00
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	0	1	6	0	1	0	0	0	0	15	2	0	0	0	1	2
7:15 - 7:30	0	2	1	1	2	0	0	5	1	24	6	1	0	0	0	0
7:30 - 7:45	0	0	6	1	1	0	0	2	0	9	5	0	0	0	0	1
7:45 - 8:00	1	0	10	2	1	0	0	7	2	6	7	1	0	2	0	1
8:00 - 8:15	0	0	1	8	1	0	0	7	1	0	13	0	0	0	0	1
8:15 - 8:30	0	0	0	3	0	0	0	13	0	0	5	4	0	0	0	0
8:30 - 8:45	0	0	0	3	0	0	0	14	0	0	14	2	0	2	0	4
8:45 - 9:00	0	0	0	6	0	2	0	12	0	0	22	7	0	0	0	3
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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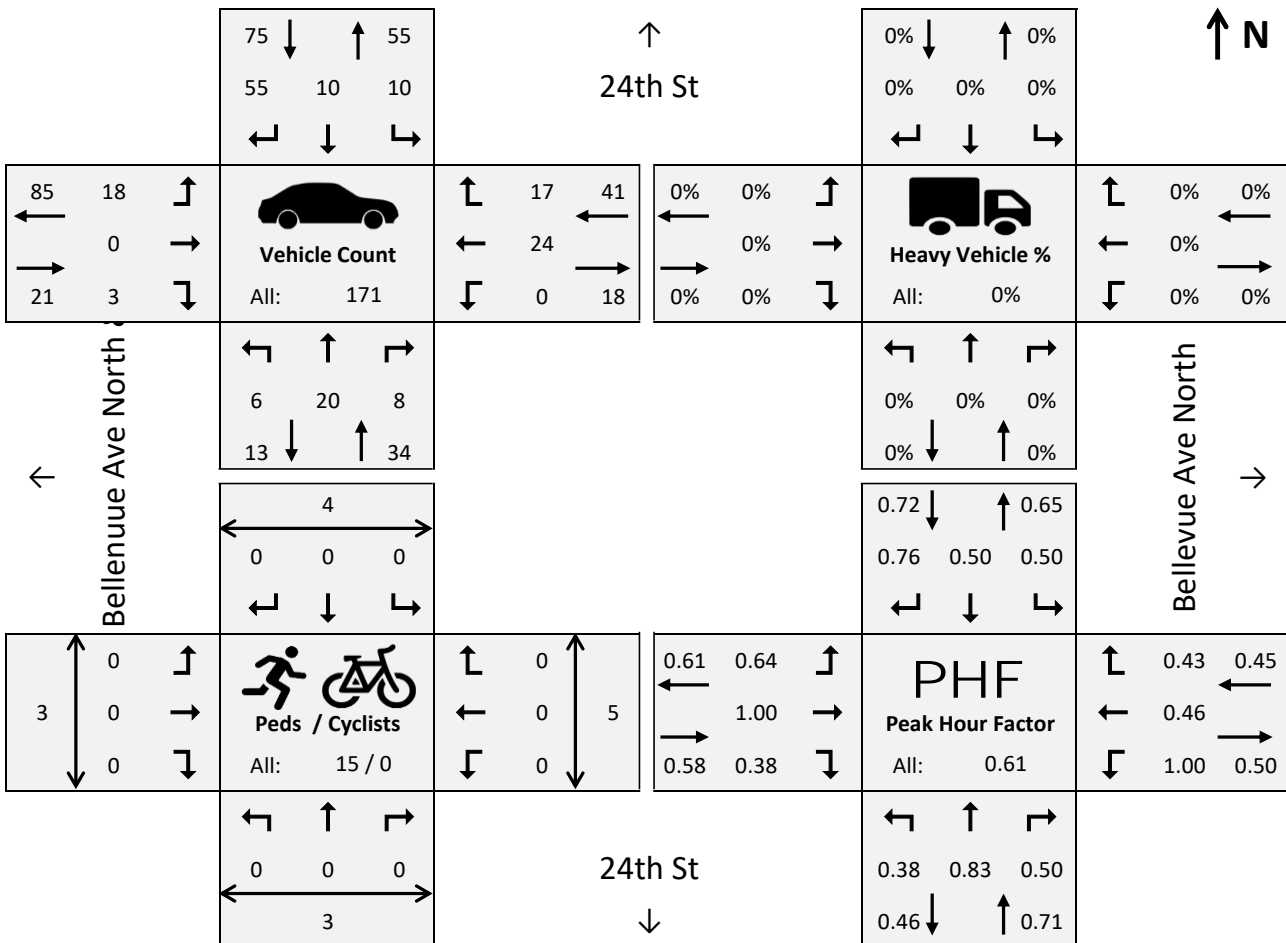


24th St @ Bellevue Ave North & South – West Vancouver, BC

Project#: 04-18-0416 **Weather:** Rain **Analysis Period:** 8:00 - 9:00
Date: Sep 23, 2020 (Wed) **Road Cond:** Wet **Intersection Peak:** 8:00 - 9:00
Notes: Bellevue Ave South: Westbound RT and LT only



TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	0	1	1	1	0	8	1	0	1	1	0	2	1	0	2	3
7:15 - 7:30	0	4	0	0	1	10	1	0	0	0	4	3	0	0	3	0
7:30 - 7:45	0	2	1	0	1	7	0	0	0	1	5	1	1	0	2	0
7:45 - 8:00	1	3	2	1	3	8	5	0	0	1	6	1	0	1	3	0
8:00 - 8:15	2	6	2	0	2	10	5	0	0	0	4	0	2	1	1	1
8:15 - 8:30	0	5	1	2	1	11	1	0	1	0	3	3	0	0	1	1
8:30 - 8:45	0	5	1	5	2	16	5	0	0	0	4	4	0	2	2	1
8:45 - 9:00	4	4	4	3	5	18	7	0	2	0	13	10	2	0	1	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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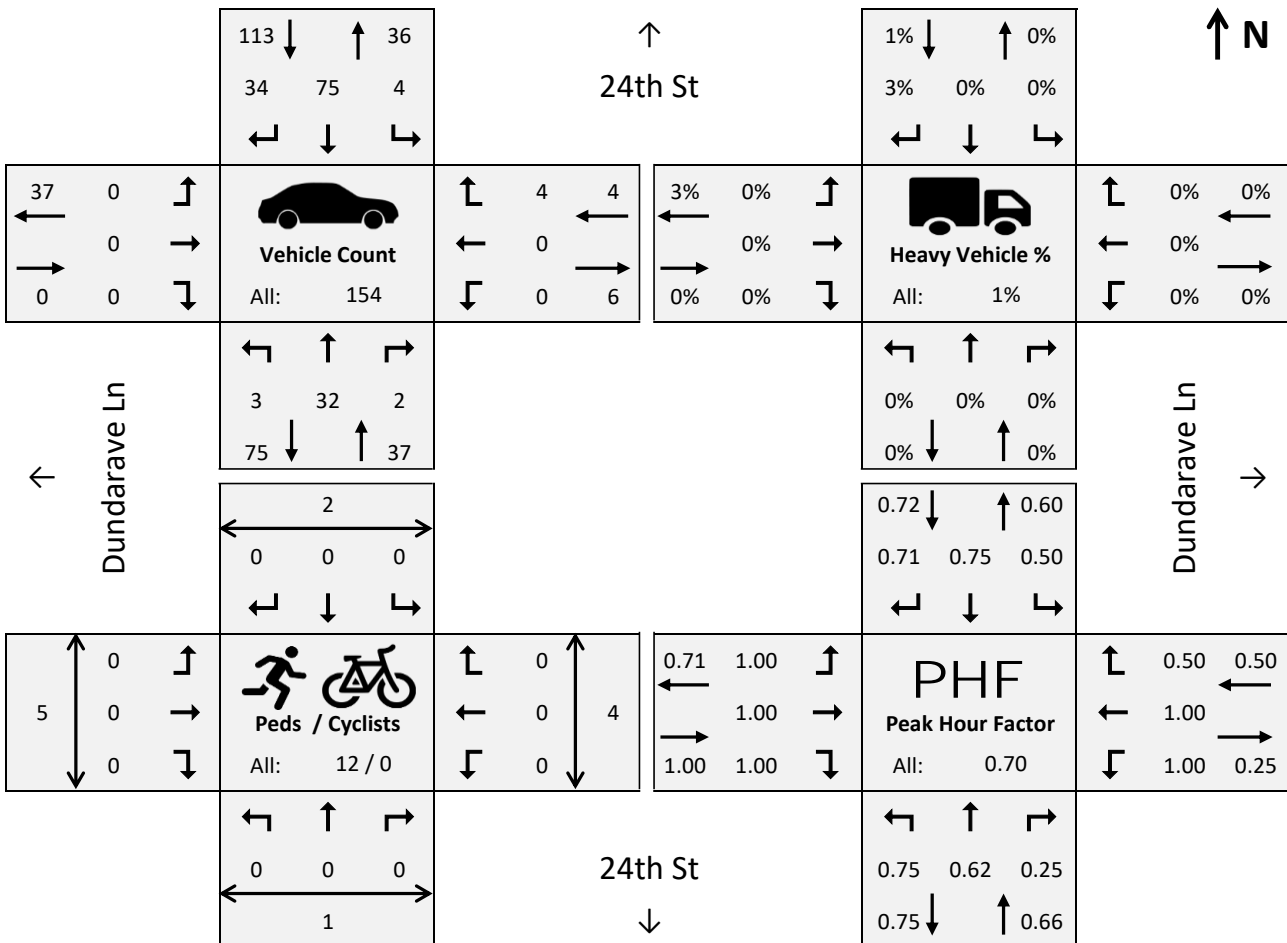


24th St @ Dundarave Ln – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Rain **Analysis Period:** 8:00 - 9:00
Date: Sep 23, 2020 (Wed) **Road Cond:** Wet **Intersection Peak:** 8:00 - 9:00
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	1	2	0	0	10	4	0	0	0	0	0	3	0	0	2	3
7:15 - 7:30	0	6	1	0	10	3	0	0	0	0	0	0	0	1	1	0
7:30 - 7:45	1	1	0	0	10	3	0	0	0	0	0	0	0	0	0	0
7:45 - 8:00	0	5	0	0	13	4	0	0	0	0	0	1	1	1	1	1
8:00 - 8:15	0	5	0	0	13	6	0	0	0	0	0	0	0	0	2	1
8:15 - 8:30	1	7	0	1	14	4	0	0	0	0	0	2	2	1	1	2
8:30 - 8:45	1	7	2	1	23	12	0	0	0	0	0	0	0	0	0	1
8:45 - 9:00	1	13	0	2	25	12	0	0	0	0	0	2	0	0	1	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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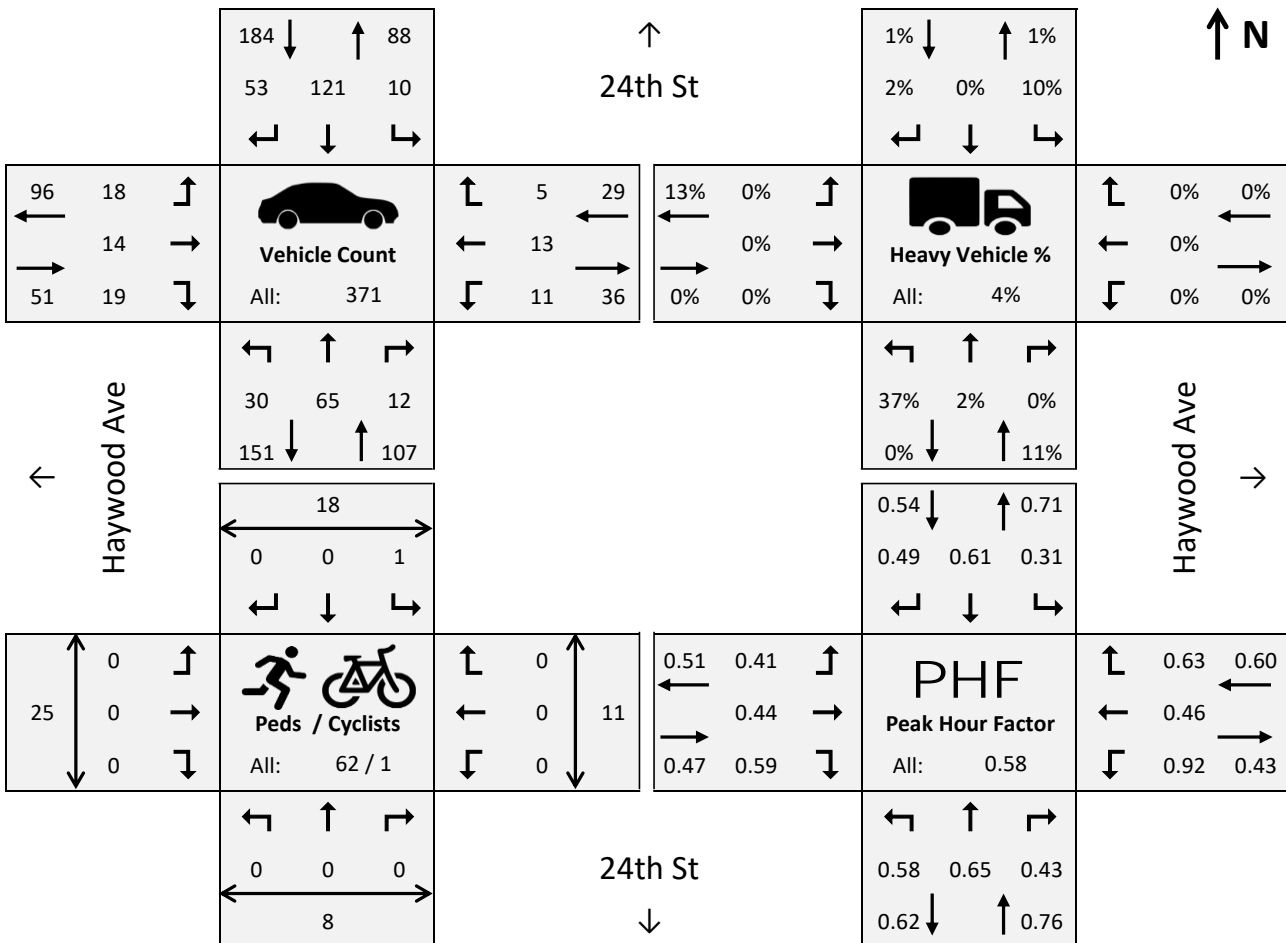


24th St @ Haywood Ave – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Rain **Analysis Period:** 8:00 - 9:00
Date: Sep 23, 2020 (Wed) **Road Cond:** Wet **Intersection Peak:** 8:00 - 9:00
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	2	4	1	0	8	0	1	0	2	0	1	0	0	0	2	1
7:15 - 7:30	2	3	0	0	12	0	0	0	2	0	0	1	0	0	2	0
7:30 - 7:45	2	10	1	0	15	2	2	0	4	1	0	0	1	0	0	0
7:45 - 8:00	5	5	1	0	15	0	2	2	4	0	2	0	0	0	1	0
8:00 - 8:15	5	12	2	0	14	0	2	0	4	3	1	1	0	1	1	1
8:15 - 8:30	3	13	2	0	16	5	1	1	1	2	0	0	0	1	0	0
8:30 - 8:45	9	25	1	2	41	21	4	5	6	3	5	2	7	2	7	13
8:45 - 9:00	13	15	7	8	50	27	11	8	8	3	7	2	11	4	3	11
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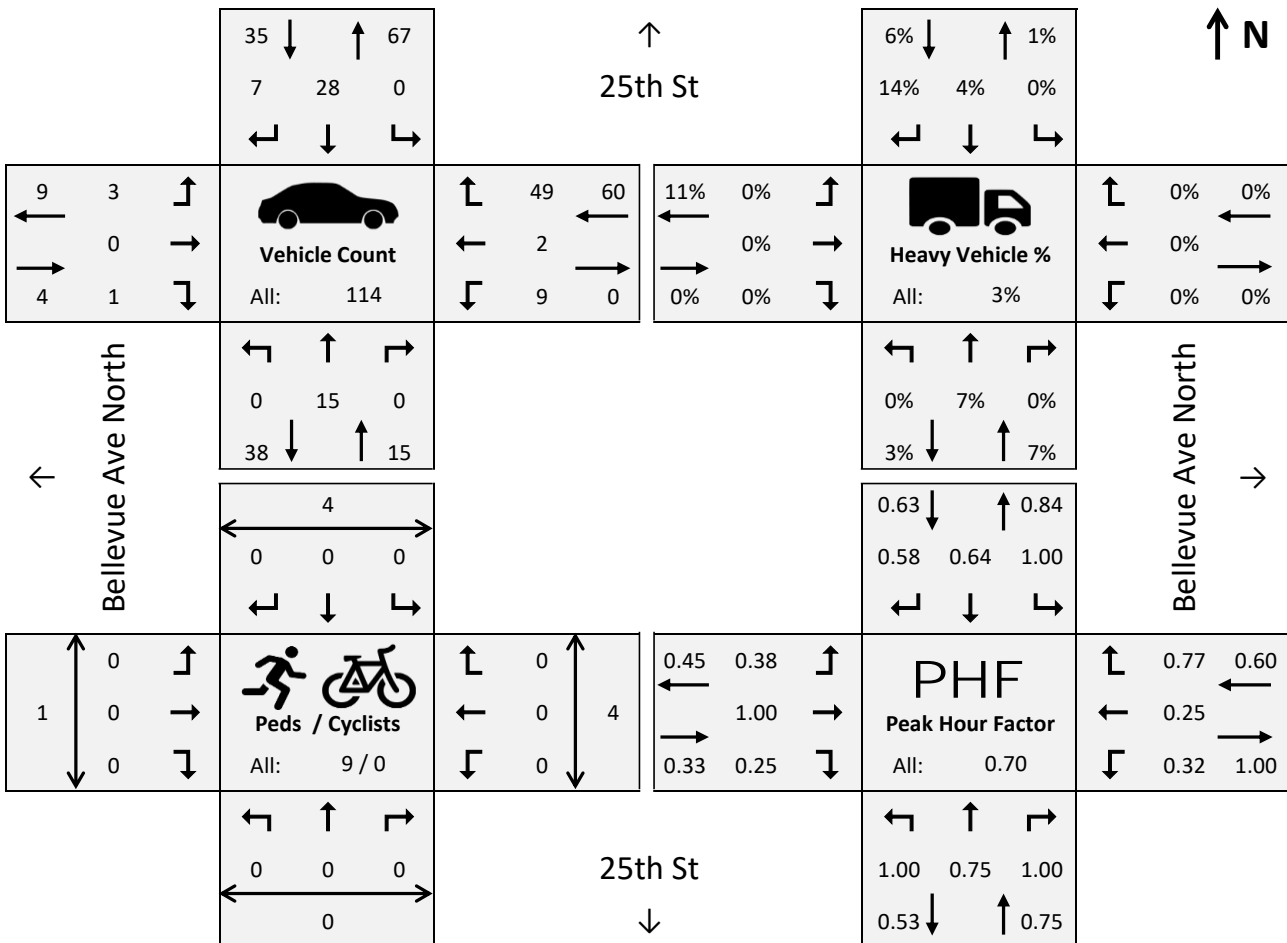


25th St @ Bellevue Ave North – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Rain **Analysis Period:** 8:00 - 9:00
Date: Sep 23, 2020 (Wed) **Road Cond:** Wet **Intersection Peak:** 8:00 - 9:00
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	0	1	0	0	2	1	0	0	0	1	0	2	1	0	1	1
7:15 - 7:30	1	1	0	1	6	0	1	0	0	2	0	7	0	0	1	0
7:30 - 7:45	0	1	0	0	7	2	0	0	0	1	0	5	1	0	1	0
7:45 - 8:00	0	2	0	0	8	0	0	0	1	2	0	6	1	2	5	0
8:00 - 8:15	0	3	0	0	5	3	0	0	0	0	0	14	2	0	1	0
8:15 - 8:30	0	5	0	0	5	1	1	0	0	0	0	6	0	0	2	0
8:30 - 8:45	0	5	0	0	7	0	2	0	1	2	0	13	2	0	0	1
8:45 - 9:00	0	2	0	0	11	3	0	0	0	7	2	16	0	0	1	0
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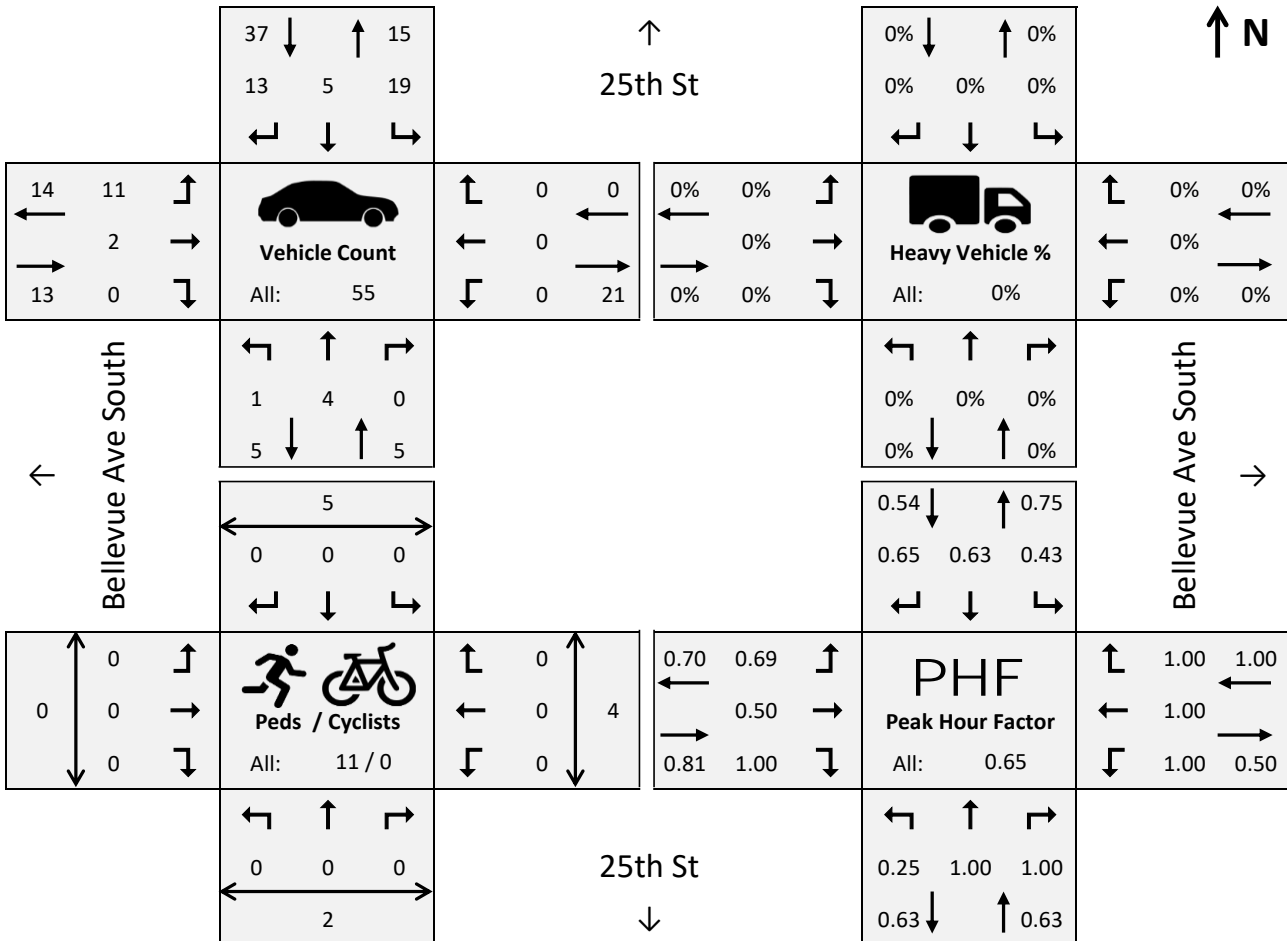


25th St @ Bellevue Ave South – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Rain **Analysis Period:** 8:00 - 9:00
Date: Sep 23, 2020 (Wed) **Road Cond:** Wet **Intersection Peak:** 8:00 - 9:00
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	0	0	0	3	0	0	1	0	0	0	0	0	0	1	1	0
7:15 - 7:30	0	0	0	1	1	6	2	0	0	0	0	0	0	3	1	0
7:30 - 7:45	0	0	0	0	2	6	1	0	0	0	0	0	2	0	2	0
7:45 - 8:00	0	1	1	5	3	3	1	1	0	0	0	0	0	0	6	0
8:00 - 8:15	1	1	0	0	2	3	2	0	0	0	0	0	1	0	1	0
8:15 - 8:30	0	1	0	2	0	3	4	0	0	0	0	0	2	1	3	0
8:30 - 8:45	0	1	0	6	2	2	3	1	0	0	0	0	1	1	0	0
8:45 - 9:00	0	1	0	11	1	5	2	1	0	0	0	0	1	0	0	0
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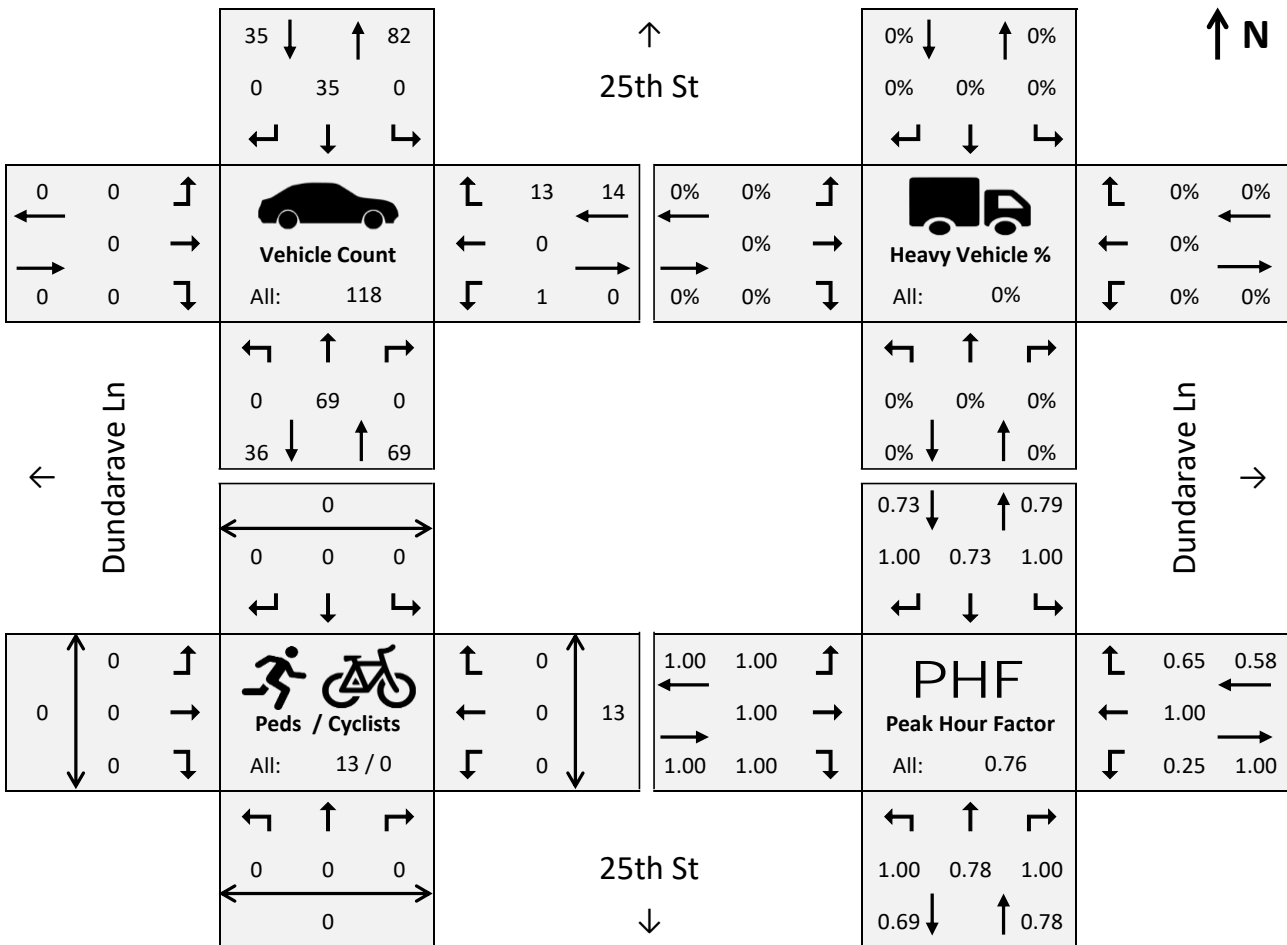


25th St @ Dundarave Ln – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Rain **Analysis Period:** 8:00 - 9:00
Date: Sep 23, 2020 (Wed) **Road Cond:** Wet **Intersection Peak:** 8:00 - 9:00
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	0	3	0	0	4	0	0	0	0	0	0	4	0	0	0	0
7:15 - 7:30	0	9	0	0	6	0	0	0	0	0	0	1	0	0	1	0
7:30 - 7:45	0	7	0	0	8	0	0	0	0	0	0	0	0	0	1	0
7:45 - 8:00	0	11	0	0	8	0	0	0	0	0	0	5	0	0	1	0
8:00 - 8:15	0	16	0	0	8	0	0	0	0	0	0	2	0	0	2	0
8:15 - 8:30	0	10	0	0	8	0	0	0	0	0	0	3	0	0	3	0
8:30 - 8:45	0	22	0	0	7	0	0	0	0	0	0	3	0	0	4	0
8:45 - 9:00	0	21	0	0	12	0	0	0	1	0	0	5	0	0	4	0
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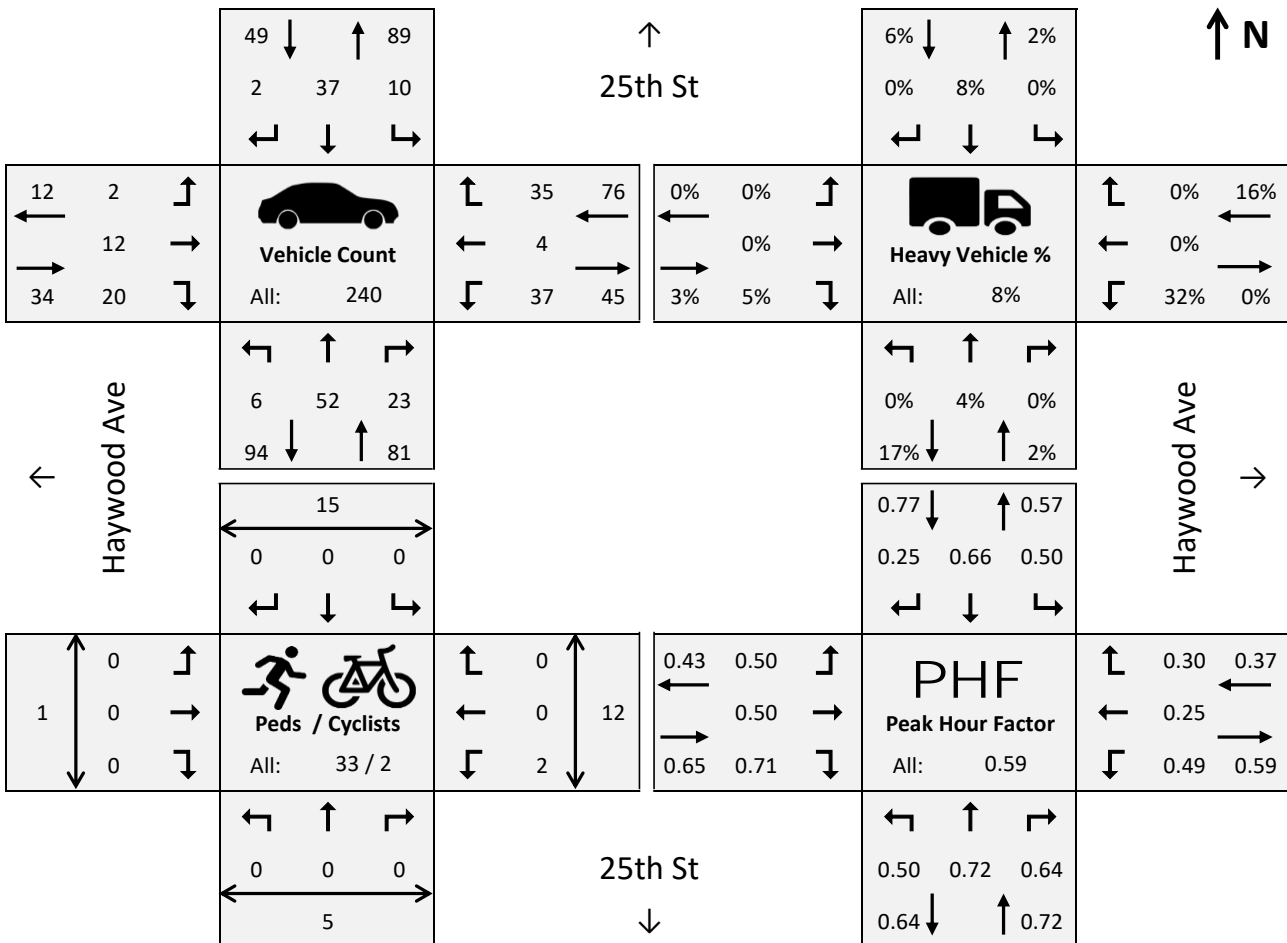


25th St @ Haywood Ave – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Rain **Analysis Period:** 8:00 - 9:00
Date: Sep 23, 2020 (Wed) **Road Cond:** Wet **Intersection Peak:** 8:00 - 9:00
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	0	6	2	0	17	0	1	1	2	4	0	0	1	0	2	2
7:15 - 7:30	0	9	1	0	15	3	0	1	1	3	0	0	0	0	0	0
7:30 - 7:45	1	6	3	2	16	1	0	1	0	2	0	0	0	0	1	0
7:45 - 8:00	1	6	4	0	10	1	0	1	4	6	0	0	1	0	3	4
8:00 - 8:15	1	13	3	1	8	0	0	0	5	3	0	0	1	0	2	0
8:15 - 8:30	1	11	3	1	14	0	1	2	4	3	0	0	3	0	3	0
8:30 - 8:45	1	18	9	3	4	2	1	4	4	12	0	6	10	0	4	0
8:45 - 9:00	3	10	8	5	11	0	0	6	7	19	4	29	1	5	3	1
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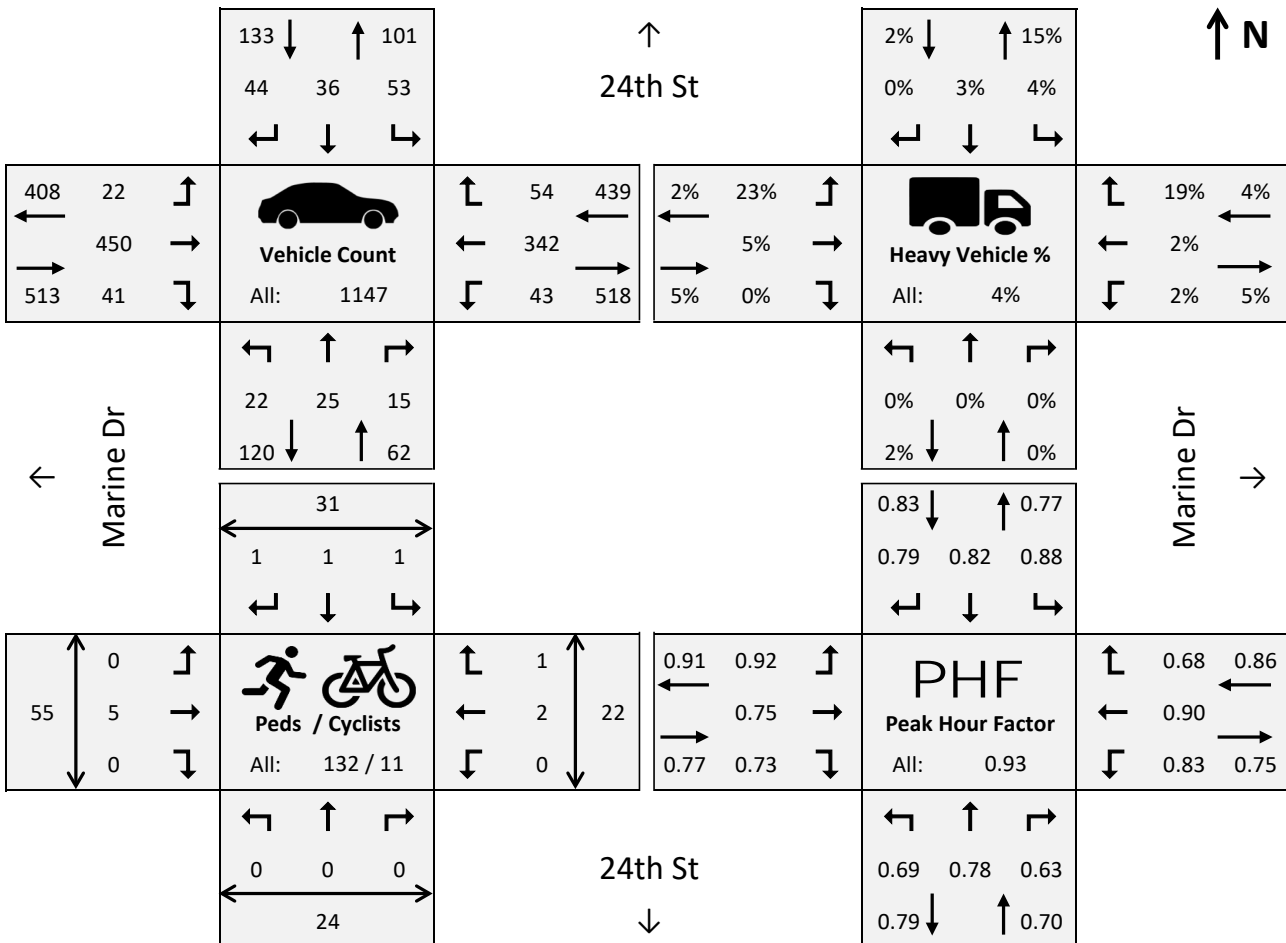


24th St @ Marine Dr – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Cloudy **Analysis Period:** 15:00 - 16:00
Date: Oct 15, 2020 (Thu) **Road Cond:** Dry **Intersection Peak:** 15:00 - 16:00
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	8	8	6	15	11	8	5	108	14	13	94	20	9	7	12	13
15:15 - 15:30	4	7	3	11	5	11	6	150	11	13	71	12	5	5	4	11
15:30 - 15:45	7	5	2	12	9	11	6	90	9	9	82	12	9	2	3	20
15:45 - 16:00	3	5	4	15	11	14	5	102	7	8	95	10	8	10	3	11
16:00 - 16:15	5	9	4	15	6	7	7	100	8	9	67	12	5	6	2	15
16:15 - 16:30	2	6	4	8	7	7	3	100	12	13	82	15	2	3	5	5
16:30 - 16:45	4	4	7	9	4	7	6	103	2	12	87	17	5	6	4	11
16:45 - 17:00	1	4	8	10	7	3	7	90	8	21	71	13	3	9	7	8
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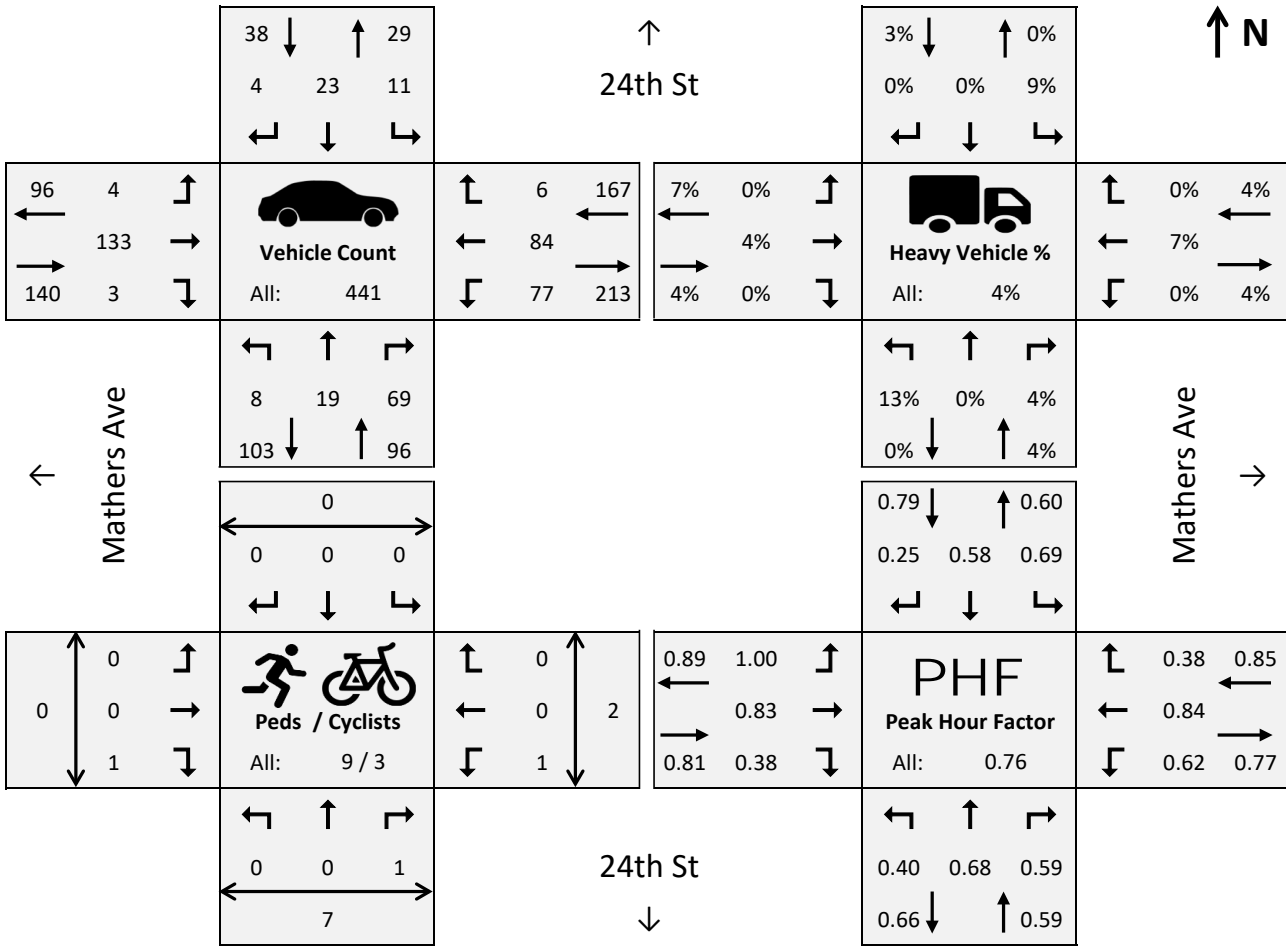


24th St @ Mathers Ave – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Cloudy **Analysis Period:** 15:00 - 16:00
Date: Oct 15, 2020 (Thu) **Road Cond:** Dry **Intersection Peak:** 15:00 - 16:00
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	5	7	29	2	6	4	1	40	2	31	14	4	0	6	1	0
15:15 - 15:30	2	5	17	4	6	0	1	29	0	12	25	0	0	0	0	0
15:30 - 15:45	0	2	14	3	1	0	1	29	0	16	22	1	0	1	1	0
15:45 - 16:00	1	5	9	2	10	0	1	35	1	18	23	1	0	0	0	0
16:00 - 16:15	3	4	23	3	1	1	2	44	1	17	19	4	0	1	3	1
16:15 - 16:30	1	6	11	0	0	0	1	35	3	8	22	3	0	0	0	1
16:30 - 16:45	2	6	15	2	4	0	1	32	0	7	17	0	0	0	0	1
16:45 - 17:00	1	5	10	1	2	3	0	29	2	12	18	0	0	1	2	0
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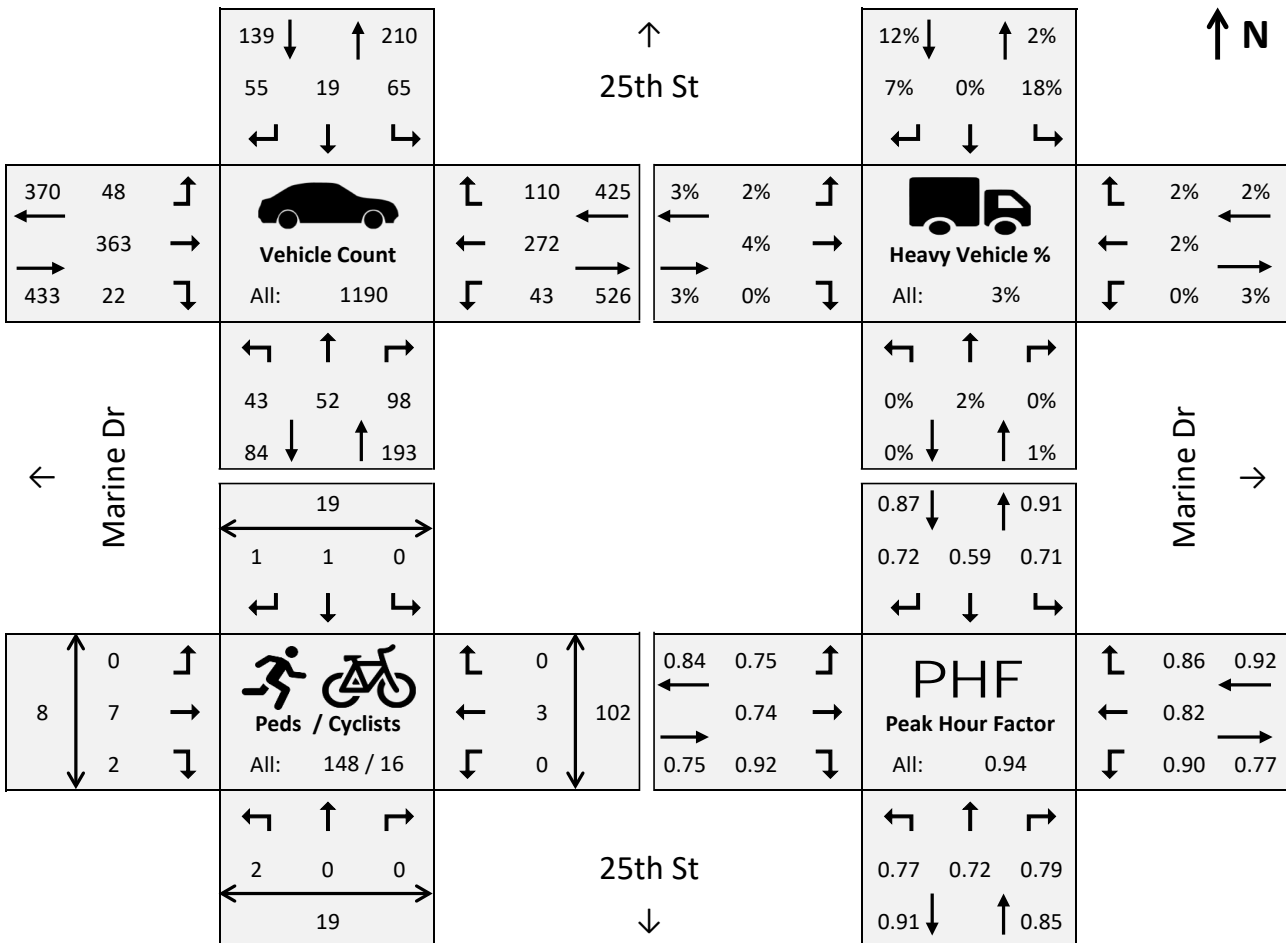


25th St @ Marine Dr – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Cloudy **Analysis Period:** 15:00 - 16:00
Date: Oct 15, 2020 (Thu) **Road Cond:** Dry **Intersection Peak:** 15:00 - 16:00
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	14	12	31	22	5	13	10	90	6	12	83	20	11	1	27	3
15:15 - 15:30	7	10	23	11	8	12	16	123	5	10	51	32	5	6	20	0
15:30 - 15:45	12	12	23	9	1	19	14	77	5	9	64	31	0	5	24	1
15:45 - 16:00	10	18	21	23	5	11	8	73	6	12	74	27	3	7	31	4
16:00 - 16:15	19	11	20	11	7	14	21	78	3	11	52	23	1	6	15	2
16:15 - 16:30	17	15	25	16	7	22	16	76	4	6	67	23	2	1	31	1
16:30 - 16:45	15	14	25	11	4	11	11	70	4	7	76	15	2	11	20	0
16:45 - 17:00	12	13	23	6	3	14	12	77	5	9	53	20	3	5	18	3
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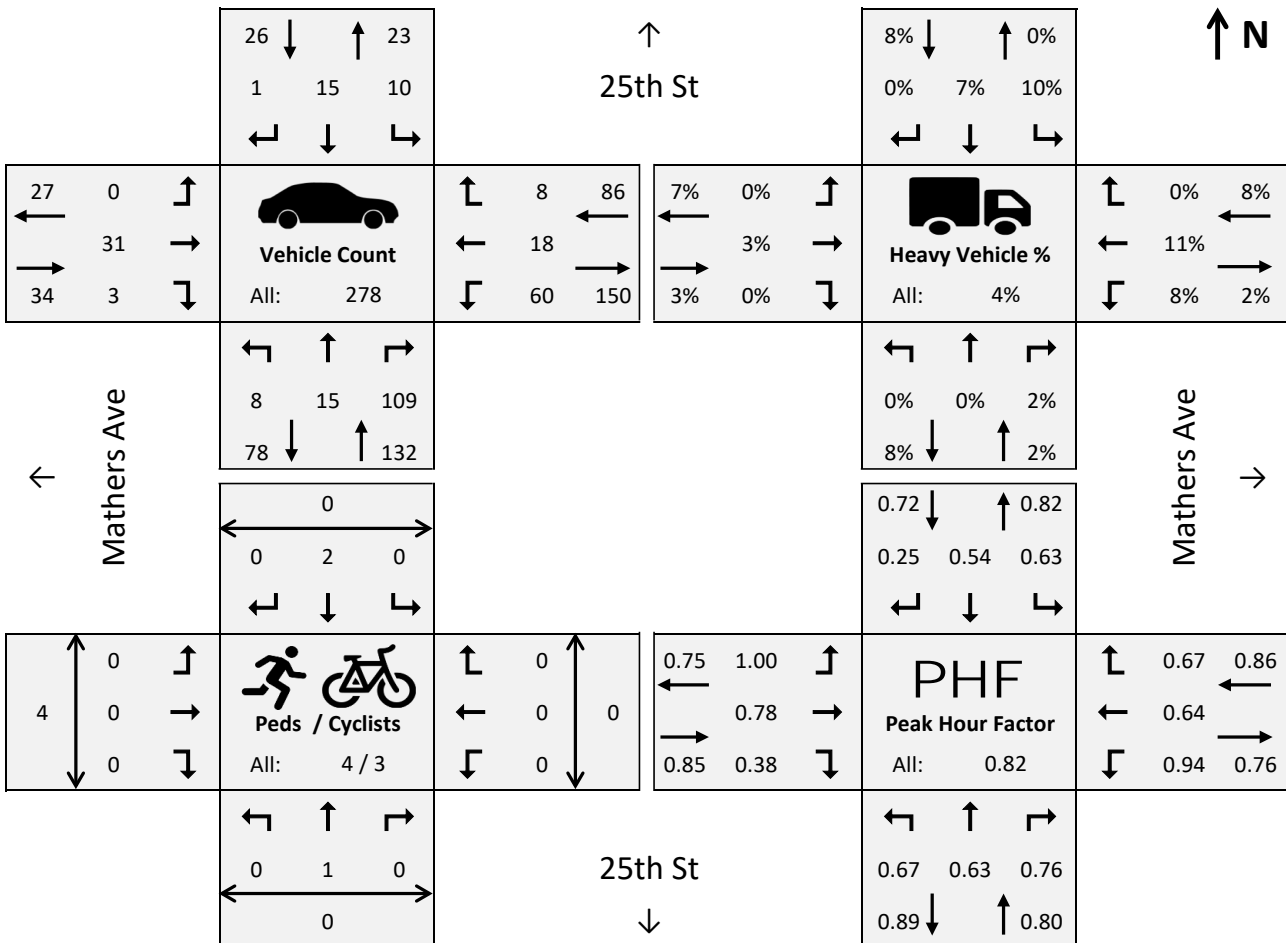


25th St @ Mathers Ave – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Cloudy **Analysis Period:** 15:30 - 16:30
Date: Oct 15, 2020 (Thu) **Road Cond:** Dry **Intersection Peak:** 15:30 - 16:30
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	1	4	26	2	3	0	0	11	1	9	9	3	0	1	0	2
15:15 - 15:30	4	2	19	1	3	0	0	9	1	13	8	4	0	0	0	1
15:30 - 15:45	3	6	21	4	4	1	0	4	0	14	5	1	0	0	0	0
15:45 - 16:00	1	3	25	3	3	0	0	8	2	16	2	2	0	0	0	0
16:00 - 16:15	2	3	36	2	7	0	0	10	0	15	7	3	0	0	0	0
16:15 - 16:30	2	3	27	1	1	0	0	9	1	15	4	2	0	0	0	4
16:30 - 16:45	1	6	21	4	4	0	0	4	0	11	4	2	0	0	0	2
16:45 - 17:00	2	1	22	0	2	0	1	8	1	14	4	2	0	0	0	0
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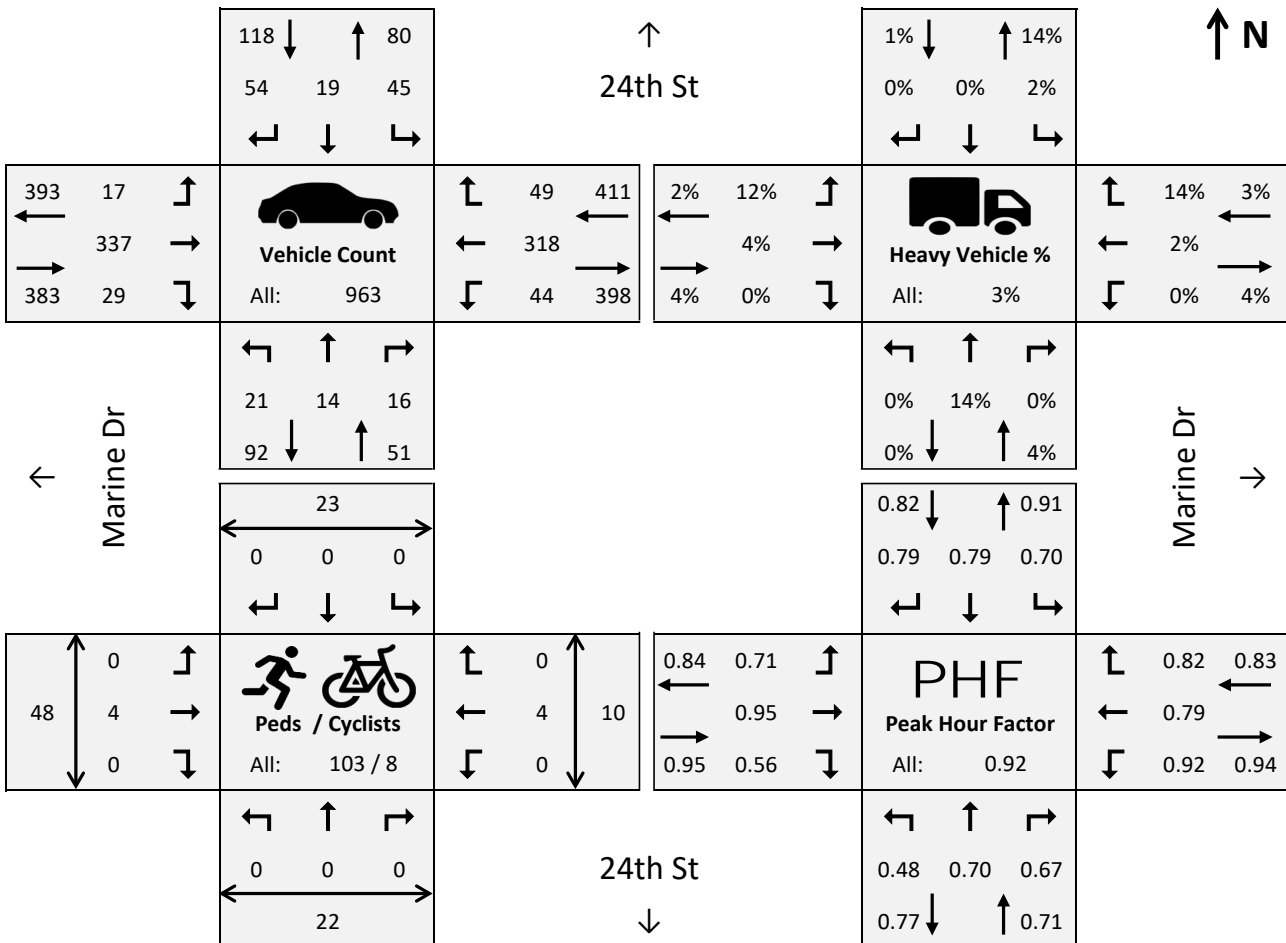


24th St @ Marine Dr – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 13:00 - 14:00
Date: Sep 19, 2020 (Sat) **Road Cond:** Dry **Intersection Peak:** 13:00 - 14:00
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
12:00 - 12:15	6	4	13	14	7	5	3	78	4	12	78	6	4	3	1	4
12:15 - 12:30	5	3	2	18	6	14	7	89	11	6	74	12	3	3	4	9
12:30 - 12:45	1	5	8	11	3	10	3	92	6	10	70	10	12	3	8	4
12:45 - 13:00	2	2	5	14	6	9	4	66	7	8	83	12	3	4	6	10
13:00 - 13:15	11	4	3	12	6	8	3	83	5	10	68	12	5	5	3	14
13:15 - 13:30	4	5	3	7	6	12	3	84	13	11	101	12	5	7	4	5
13:30 - 13:45	3	3	4	16	3	17	6	81	4	11	64	10	9	3	0	16
13:45 - 14:00	3	2	6	10	4	17	5	89	7	12	85	15	4	7	3	13
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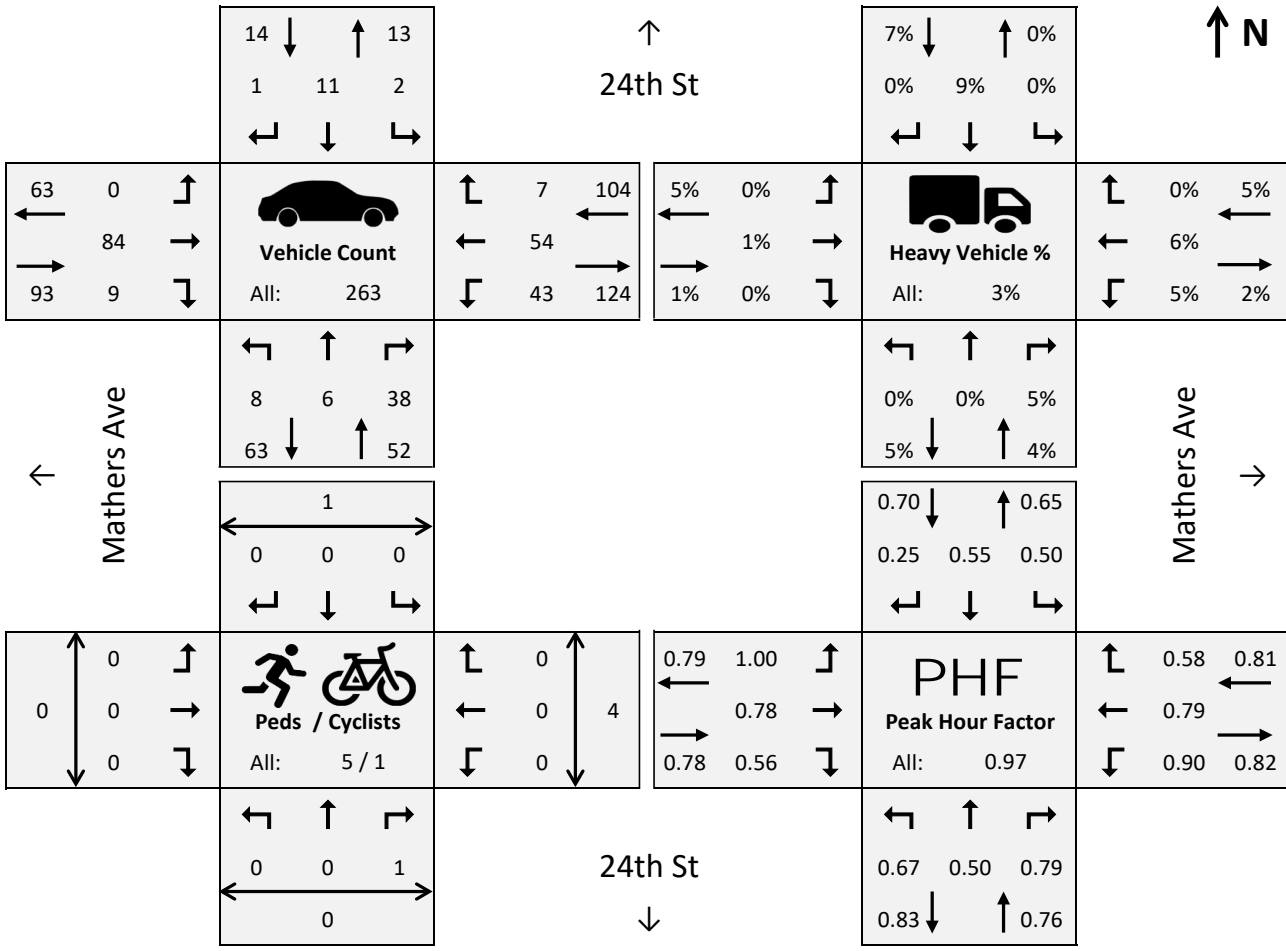


24th St @ Mathers Ave – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 12:00 - 13:00
Date: Sep 19, 2020 (Sat) **Road Cond:** Dry **Intersection Peak:** 12:00 - 13:00
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
12:00 - 12:15	1	0	9	0	3	1	0	27	1	10	16	0	0	0	1	0
12:15 - 12:30	3	2	12	1	0	0	0	13	2	12	17	3	0	0	0	0
12:30 - 12:45	1	1	7	0	5	0	0	26	4	10	11	3	0	0	2	0
12:45 - 13:00	3	3	10	1	3	0	0	18	2	11	10	1	1	0	1	0
13:00 - 13:15	0	2	9	0	2	0	0	26	1	9	14	0	0	0	0	1
13:15 - 13:30	0	4	4	2	2	0	1	14	0	12	9	1	0	3	0	3
13:30 - 13:45	0	4	5	0	0	3	2	20	1	14	14	0	0	0	1	0
13:45 - 14:00	5	1	10	0	2	0	0	17	2	12	18	1	0	4	1	0
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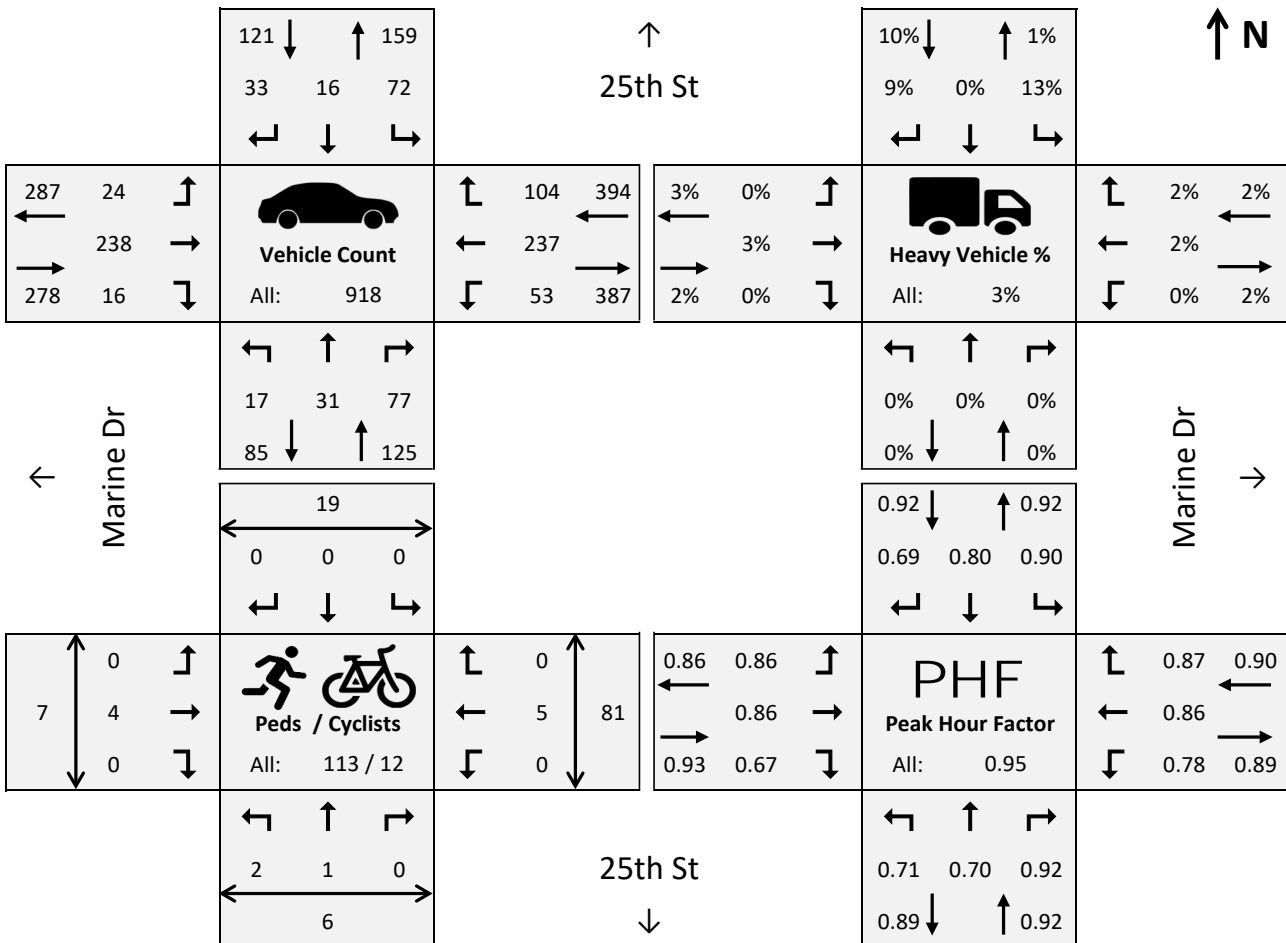


25th St @ Marine Dr – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 13:00 - 14:00
Date: Sep 19, 2020 (Sat) **Road Cond:** Dry **Intersection Peak:** 13:00 - 14:00
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
12:00 - 12:15	6	11	22	15	3	7	8	56	3	10	57	18	1	2	22	0
12:15 - 12:30	8	3	18	14	5	13	12	69	4	16	48	30	3	6	20	2
12:30 - 12:45	6	8	25	19	7	12	10	61	3	11	48	27	4	5	24	2
12:45 - 13:00	12	10	9	16	1	13	5	53	1	10	61	28	6	2	28	1
13:00 - 13:15	3	7	19	18	3	12	6	52	6	11	51	29	2	0	27	1
13:15 - 13:30	6	7	21	20	3	4	6	60	5	16	63	30	8	0	15	0
13:30 - 13:45	3	11	19	16	5	8	7	57	4	9	54	25	6	1	16	2
13:45 - 14:00	5	6	18	18	5	9	5	69	1	17	69	20	3	5	23	4
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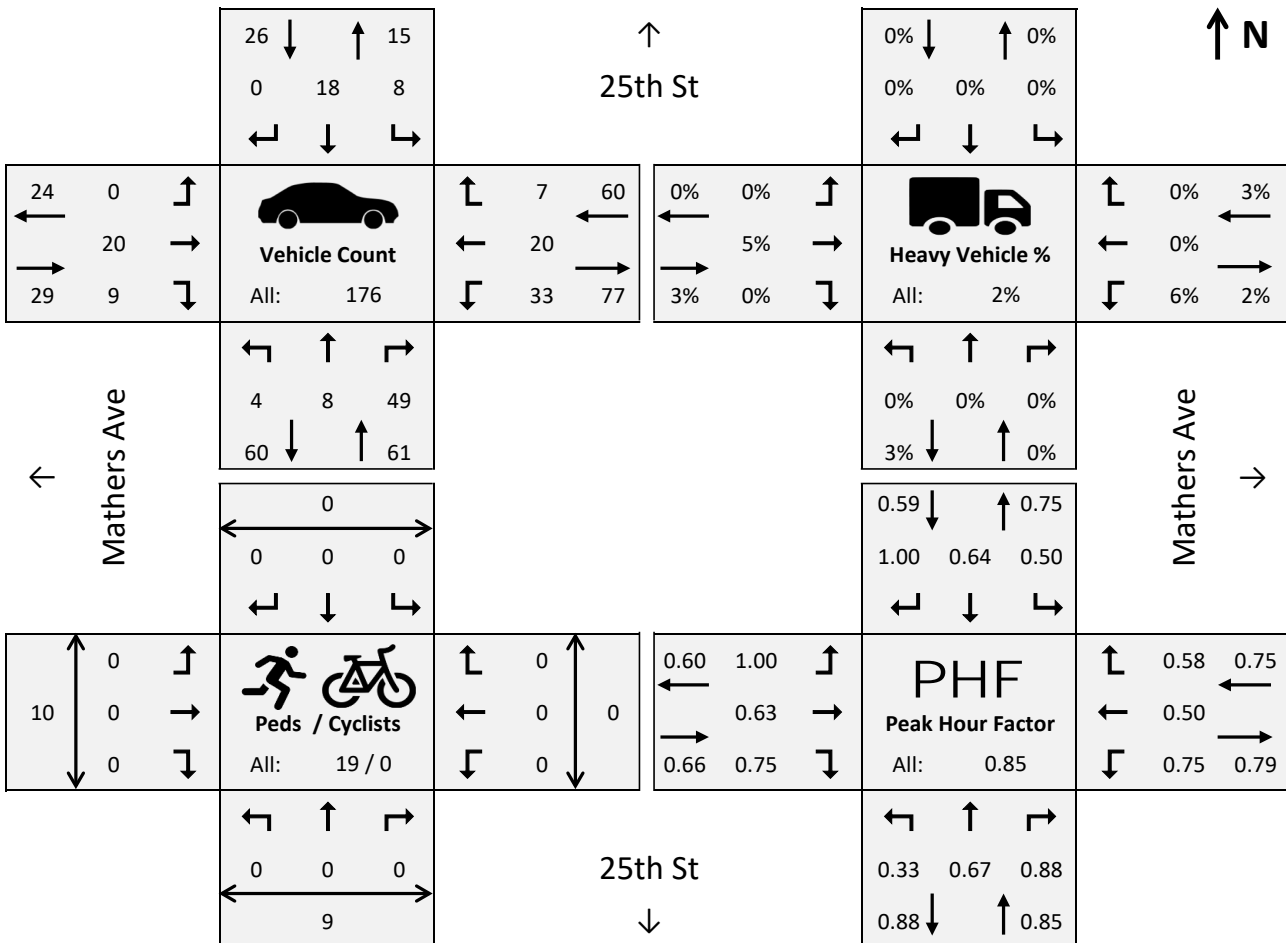


25th St @ Mathers Ave – West Vancouver, BC



Project#: 04-18-0416 **Weather:** Sunny **Analysis Period:** 13:00 - 14:00
Date: Sep 19, 2020 (Sat) **Road Cond:** Dry **Intersection Peak:** 13:00 - 14:00
Notes:

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
12:00 - 12:15	0	2	17	2	0	0	0	5	2	11	3	2	0	0	0	1
12:15 - 12:30	0	2	13	2	3	0	0	1	1	9	5	4	1	0	0	0
12:30 - 12:45	2	0	19	3	3	0	0	8	1	10	0	1	0	0	0	3
12:45 - 13:00	0	4	13	1	0	0	0	4	0	8	4	0	0	0	0	4
13:00 - 13:15	1	3	14	4	7	0	0	4	1	5	4	1	0	3	0	4
13:15 - 13:30	0	2	12	1	3	0	0	4	3	9	1	1	0	0	0	2
13:30 - 13:45	3	2	12	2	3	0	0	8	3	11	5	3	0	2	0	2
13:45 - 14:00	0	1	11	1	5	0	0	4	2	8	10	2	0	4	0	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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APPENDIX C

Detailed Vehicle Operations Summary

Table B.1: Existing Vehicle Operations Results

INTERSECTION/ TRAFFIC CONTROL	MOVE- MENT	AM			PM			SAT		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
25 th St & Haywood Ave <i>(minor road stop)</i>	EB LTR	B	0.08	2	B	0.10	3	A	0.05	1
	WB LTR	B	0.21	6	B	0.19	5	B	0.05	1
	NB LTR	A	0.01	0	A	0.02	1	A	0.02	1
	SB LTR	A	0.01	0	A	0.01	0	A	0.00	0
25 th St & Marine Dr <i>(signalized)</i>	OVERALL	A	0.34		B	0.38		A	0.23	
	EB LTR	A	0.40	24	A	0.42	35	A	0.28	22
	WB TR	A	0.33	18	A	0.28	23	A	0.23	17
	WB R	A	0.07	5	A	0.09	9	A	0.09	8
	NB L	B	0.11	6	B	0.14	9	B	0.09	6
	NB TR	B	0.09	5	B	0.27	17	B	0.12	9
	SB L	B	0.25	10	B	0.32	16	B	0.18	10
	SB TR	B	0.07	5	B	0.10	9	B	0.05	6
25 th St & Dundarave Ln <i>(minor road stop)</i>	WB LR	A	0.02	1	B	0.06	1	B	0.07	2
	NB T		0.06	0		0.10	0		0.06	0
	SB T		0.03	0		0.04	0		0.04	0
25 th St & Bellevue Ave N <i>(minor road stop)</i>	EB LR	A	0.01	0	B	0.02	0	B	0.02	0
	WB LTR	A	0.09	2	B	0.18	5	B	0.12	3
	NB LT		0.00	0		0.00	0	A	0.00	0
	SB TR		0.03	0		0.04	0		0.04	0
25 th St & Bellevue Ave S <i>(minor road stop)</i>	EB LTR	A	0.02	1	A	0.03	1	A	0.02	1
	NB LTR	A	0.00	0		0.00	0	A	0.00	0
	SB LTR	A	0.02	1	A	0.03	1	A	0.02	1
24 th St & Haywood Ave <i>(all-way stop)</i>	OVERALL	A			A			A		
	EB LTR	A	0.14		A	0.14		A	0.06	
	WB LTR	A	0.08		A	0.05		A	0.03	
	NB LTR	A	0.27		A	0.23		A	0.11	
	SB LTR	B	0.43		A	0.27		A	0.08	
24 th St & Marine Dr <i>(signalized)</i>	OVERALL	B	0.53		B	0.51		A	0.36	
	EB LTR	B	0.58	34	B	0.62	53	B	0.37	34
	WB L	A	0.22	8	A	0.16	8	A	0.07	5
	WB TR	A	0.24	15	A	0.26	22	A	0.20	19
	NB LTR	B	0.11	10	B	0.18	18	B	0.14	10
	SB LTR	B	0.50	33	B	0.38	33	B	0.29	16
24 th St & Dundarave Ln <i>(minor road stop)</i>	WB LTR	A	0.01	0	A	0.01	0	A	0.00	0
	NB LTR	A	0.00	0	A	0.00	0	A	0.00	0
	SB LTR	A	0.00	0	A	0.00	0	A	0.00	0
24 th St & Bellevue Ave N <i>(all-way stop)</i>	OVERALL	A			A			A		
	WB LTR	A	0.08		A	0.17		A	0.09	
	NB LTR	A	0.07		A	0.08		A	0.06	
	SB LTR	A	0.14		A	0.08		A	0.04	
24 th St &	EB LR	A	0.04	1	A	0.05	1	A	0.04	1

INTERSECTION/ TRAFFIC CONTROL	MOVE- MENT	AM			PM			SAT		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
Bellevue Ave S <i>(minor road stop)</i>	NB T		0.02	0		0.02	0		0.01	0
	SB T		0.01	0		0.01	0		0.01	0
25 th St & Mathers Ave <i>(all-way stop)</i>	OVERALL	A			A			A		
	EB LTR	A	0.07		A	0.06		A	0.04	
	WB LTR	A	0.16		A	0.15		A	0.08	
	NB LTR	A	0.12		A	0.19		A	0.07	
	SB LTR	A	0.09		A	0.04		A	0.04	
24 th St & Mathers Ave <i>(all-way stop)</i>	OVERALL	B			A			A		
	EB LTR	A	0.17		A	0.26		A	0.11	
	WB LTR	B	0.52		A	0.32		A	0.13	
	NB LTR	B	0.32		A	0.18		A	0.06	
	SB LTR	A	0.17		A	0.08		A	0.02	

Table B.2: Background 2023 Vehicle Operations Results

INTERSECTION/ TRAFFIC CONTROL	MOVE- MENT	AM			PM			SAT		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
25 th St & Haywood Ave <i>(minor road stop)</i>	EB LTR	B	0.08	2	B	0.10	3	A	0.05	1
	WB LTR	B	0.22	6	B	0.20	6	B	0.05	1
	NB LTR	A	0.01	0	A	0.02	1	A	0.02	1
	SB LTR	A	0.01	0	A	0.01	0	A	0.00	0
25 th St & Marine Dr <i>(signalized)</i>	OVERALL	A	0.35		B	0.39		A	0.24	
	EB LTR	A	0.41	25	A	0.44	36	A	0.29	22
	WB TR	A	0.34	19	A	0.30	24	A	0.24	18
	WB R	A	0.07	5	A	0.10	9	A	0.09	9
	NB L	B	0.12	6	B	0.14	9	B	0.10	7
	NB TR	B	0.09	5	B	0.28	18	B	0.12	9
	SB L	B	0.26	10	B	0.33	16	B	0.18	10
	SB TR	B	0.07	5	B	0.11	9	B	0.05	6
25 th St & Dundarave Ln <i>(minor road stop)</i>	WB LR	A	0.02	1	B	0.06	1	B	0.07	2
	NB T		0.06	0		0.11	0		0.06	0
	SB T		0.03	0		0.04	0		0.04	0
25 th St & Bellevue Ave N <i>(minor road stop)</i>	EB LR	A	0.01	0	B	0.02	0	B	0.02	0
	WB LTR	A	0.10	2	B	0.19	5	B	0.12	3
	NB LT		0.00	0		0.00	0	A	0.00	0
	SB TR		0.03	0		0.04	0		0.04	0
25 th St & Bellevue Ave S <i>(minor road stop)</i>	EB LTR	A	0.02	1	A	0.04	1	A	0.02	1
	NB LTR	A	0.00	0		0.00	0	A	0.00	0
	SB LTR	A	0.02	1	A	0.03	1	A	0.02	1
24 th St &	OVERALL	B			A			A		

INTERSECTION/ TRAFFIC CONTROL	MOVE- MENT	AM			PM			SAT		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
Haywood Ave <i>(all-way stop)</i>	EB LTR	A	0.14		A	0.15		A	0.06	
	WB LTR	A	0.08		A	0.05		A	0.03	
	NB LTR	A	0.28		A	0.23		A	0.11	
	SB LTR	B	0.44		A	0.28		A	0.08	
24 th St & Marine Dr <i>(signalized)</i>	OVERALL	B	0.55		B	0.53		A	0.37	
	EB LTR	B	0.61	35	B	0.63	55	B	0.38	35
	WB L	A	0.21	8	A	0.17	8	A	0.08	6
	WB TR	A	0.25	16	A	0.26	22	A	0.21	20
	NB LTR	B	0.11	10	B	0.19	19	B	0.14	11
24 th St & Dundarave Ln <i>(minor road stop)</i>	WB LTR	A	0.01	0	A	0.01	0	A	0.00	0
	NB LTR	A	0.00	0	A	0.00	0	A	0.00	0
	SB LTR	A	0.00	0	A	0.00	0	A	0.00	0
24 th St & Bellevue Ave N <i>(all-way stop)</i>	OVERALL	A			A			A		
	WB LTR	A	0.08		A	0.17		A	0.09	
	NB LTR	A	0.07		A	0.08		A	0.06	
	SB LTR	A	0.14		A	0.08		A	0.04	
24 th St & Bellevue Ave S <i>(minor road stop)</i>	EB LR	A	0.04	1	A	0.05	1	A	0.04	1
	NB T		0.02	0		0.02	0		0.01	0
	SB T		0.01	0		0.02	0		0.01	0
25 th St & Mathers Ave <i>(all-way stop)</i>	OVERALL	A			A			A		
	EB LTR	A	0.07		A	0.06		A	0.04	
	WB LTR	A	0.17		A	0.15		A	0.09	
	NB LTR	A	0.12		A	0.20		A	0.07	
	SB LTR	A	0.10		A	0.05		A	0.04	
24 th St & Mathers Ave <i>(all-way stop)</i>	OVERALL	B			A			A		
	EB LTR	A	0.18		A	0.27		A	0.11	
	WB LTR	B	0.54		B	0.33		A	0.13	
	NB LTR	B	0.33		A	0.19		A	0.06	
	SB LTR	A	0.18		A	0.08		A	0.02	

Table B.3: Background 2033 Vehicle Operations Results

INTERSECTION/ TRAFFIC CONTROL	MOVE- MENT	AM			PM			SAT		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
25 th St & Haywood Ave <i>(minor road stop)</i>	EB LTR	B	0.09	2	B	0.12	3	A	0.05	1
	WB LTR	B	0.26	8	C	0.23	7	B	0.06	1
	NB LTR	A	0.01	0	A	0.03	1	A	0.02	1
	SB LTR	A	0.01	0	A	0.01	0	A	0.00	0
25 th St & Marine Dr <i>(signalized)</i>	OVERALL	A	0.38		B	0.44		A	0.26	
	EB LTR	A	0.44	27	A	0.47	40	A	0.31	25
	WB TR	A	0.36	21	A	0.31	26	A	0.26	19
	WB R	A	0.08	6	A	0.11	10	A	0.10	9
	NB L	B	0.14	7	B	0.16	11	B	0.11	7
	NB TR	B	0.10	6	B	0.32	21	B	0.14	10
	SB L	B	0.30	12	B	0.38	19	B	0.20	10
	SB TR	B	0.08	6	B	0.12	11	B	0.06	6
25 th St & Dundarave Ln <i>(minor road stop)</i>	WB LR	A	0.02	1	B	0.07	2	B	0.08	2
	NB T		0.07	0		0.12	0		0.07	0
	SB T		0.03	0		0.04	0		0.05	0
25 th St & Bellevue Ave N <i>(minor road stop)</i>	EB LR	A	0.01	0	B	0.02	1	B	0.02	1
	WB LTR	A	0.10	3	B	0.21	6	B	0.13	3
	NB LT		0.00	0		0.00	0	A	0.00	0
	SB TR		0.04	0		0.04	0		0.05	0
25 th St & Bellevue Ave S <i>(minor road stop)</i>	EB LTR	A	0.03	1	A	0.04	1	A	0.03	1
	NB LTR	A	0.00	0		0.00	0	A	0.00	0
	SB LTR	A	0.02	1	A	0.03	1	A	0.02	1
24 th St & Haywood Ave <i>(all-way stop)</i>	OVERALL	B			A			A		
	EB LTR	A	0.16		A	0.17		A	0.07	
	WB LTR	A	0.10		A	0.06		A	0.04	
	NB LTR	B	0.32		A	0.26		A	0.13	
	SB LTR	B	0.49		A	0.31		A	0.09	
24 th St & Marine Dr <i>(signalized)</i>	OVERALL	B	0.60		B	0.57		B	0.39	
	EB LTR	B	0.66	41	B	0.67	64	B	0.43	39
	WB L	A	0.24	9	A	0.20	9	A	0.09	6
	WB TR	A	0.27	19	A	0.28	26	A	0.24	22
	NB LTR	B	0.12	11	B	0.22	22	B	0.13	12
	SB LTR	C	0.57	40	B	0.45	42	B	0.29	20
24 th St & Dundarave Ln <i>(minor road stop)</i>	WB LTR	A	0.01	0	A	0.01	0	A	0.00	0
	NB LTR	A	0.00	0	A	0.00	0	A	0.00	0
	SB LTR	A	0.00	0	A	0.00	0	A	0.00	0
24 th St & Bellevue Ave N <i>(all-way stop)</i>	OVERALL	A			A			A		
	WB LTR	A	0.09		A	0.19		A	0.10	
	NB LTR	A	0.08		A	0.09		A	0.07	
	SB LTR	A	0.16		A	0.09		A	0.05	
24 th St &	EB LR	A	0.04	1	A	0.06	1	A	0.05	1

INTERSECTION/ TRAFFIC CONTROL	MOVE- MENT	AM			PM			SAT		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
Bellevue Ave S <i>(minor road stop)</i>	NB T		0.02	0		0.02	0		0.01	0
	SB T		0.01	0		0.02	0		0.01	0
25 th St & Mathers Ave <i>(all-way stop)</i>	OVERALL	A			A			A		
	EB LTR	A	0.08		A	0.06		A	0.04	
	WB LTR	A	0.19		A	0.17		A	0.09	
	NB LTR	A	0.14		A	0.22		A	0.09	
	SB LTR	A	0.11		A	0.05		A	0.04	
24 th St & Mathers Ave <i>(all-way stop)</i>	OVERALL	B			B			A		
	EB LTR	A	0.21		B	0.31		A	0.12	
	WB LTR	C	0.61		B	0.37		A	0.14	
	NB LTR	B	0.38		A	0.21		A	0.07	
	SB LTR	B	0.20		A	0.09		A	0.02	

Table B.4: Total 2023 Vehicle Operations Results

INTERSECTION/ TRAFFIC CONTROL	MOVE- MENT	AM			PM			SAT		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
25 th St & Haywood Ave <i>(minor road stop)</i>	EB LTR	B	0.08	2	B	0.11	3	A	0.05	1
	WB LTR	B	0.22	7	B	0.20	6	B	0.05	1
	NB LTR	A	0.01	0	A	0.02	1	A	0.02	1
	SB LTR	A	0.01	0	A	0.01	0	A	0.00	0
25 th St & Marine Dr <i>(signalized)</i>	OVERALL	A	0.35		B	0.40		A	0.24	
	EB LTR	A	0.41	25	A	0.44	36	A	0.29	23
	WB TR	A	0.34	19	A	0.30	24	A	0.24	18
	WB R	A	0.07	5	A	0.10	9	A	0.09	9
	NB L	B	0.13	7	B	0.16	10	B	0.10	7
	NB TR	B	0.10	6	B	0.29	19	B	0.13	9
	SB L	B	0.26	10	B	0.34	17	B	0.19	10
25 th St & Dunderave Ln <i>(minor road stop)</i>	WB LR	A	0.04	1	B	0.08	2	B	0.09	2
	NB T		0.06	0		0.11	0		0.06	0
	SB T	A	0.00	0	A	0.00	0	A	0.00	0
25 th St & Bellevue Ave N <i>(minor road stop)</i>	EB LR	A	0.01	0	B	0.02	1	B	0.02	1
	WB LTR	A	0.10	2	B	0.19	5	B	0.12	3
	NB LT		0.00	0		0.00	0	A	0.00	0
	SB TR		0.03	0		0.04	0		0.05	0
25 th St & Bellevue Ave S <i>(minor road stop)</i>	EB LTR	A	0.03	1	A	0.04	1	A	0.03	1
	NB LTR	A	0.00	0		0.00	0	A	0.00	0
	SB LTR	A	0.02	1	A	0.03	1	A	0.02	1

INTERSECTION/ TRAFFIC CONTROL	MOVE- MENT	AM			PM			SAT		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
24 th St & Haywood Ave <i>(all-way stop)</i>	OVERALL	B			A			A		
	EB LTR	A	0.14		A	0.15		A	0.06	
	WB LTR	A	0.09		A	0.06		A	0.04	
	NB LTR	A	0.29		A	0.24		A	0.12	
	SB LTR	B	0.44		A	0.28		A	0.08	
24 th St & Marine Dr <i>(signalized)</i>	OVERALL	B	0.55		B	0.53		A	0.37	
	EB LTR	B	0.62	36	B	0.64	57	B	0.39	36
	WB L	A	0.23	9	A	0.20	8	A	0.09	6
	WB TR	A	0.25	16	A	0.26	22	A	0.21	20
	NB LTR	B	0.12	10	B	0.19	19	B	0.15	11
	SB LTR	B	0.52	35	B	0.40	36	B	0.30	17
24 th St & Dundarave Ln <i>(minor road stop)</i>	WB LTR	A	0.01	0	A	0.01	0	A	0.00	0
	NB LTR	A	0.01	0	A	0.00	0	A	0.00	0
	SB LTR	A	0.00	0	A	0.00	0	A	0.00	0
24 th St & Bellevue Ave N <i>(all-way stop)</i>	OVERALL	A			A			A		
	WB LTR	A	0.09		A	0.17		A	0.09	
	NB LTR	A	0.07		A	0.09		A	0.06	
	SB LTR	A	0.14		A	0.08		A	0.04	
24 th St & Bellevue Ave S <i>(minor road stop)</i>	EB LR	A	0.04	1	A	0.05	1	A	0.05	1
	NB T		0.02	0		0.02	0		0.01	0
	SB T		0.01	0		0.02	0		0.01	0
25 th St & Mathers Ave <i>(all-way stop)</i>	OVERALL	A			A			A		
	EB LTR	A	0.07		A	0.06		A	0.04	
	WB LTR	A	0.17		A	0.15		A	0.09	
	NB LTR	A	0.12		A	0.20		A	0.08	
	SB LTR	A	0.10		A	0.05		A	0.04	
24 th St & Mathers Ave <i>(all-way stop)</i>	OVERALL	B			A			A		
	EB LTR	A	0.18		A	0.27		A	0.11	
	WB LTR	B	0.54		B	0.33		A	0.13	
	NB LTR	B	0.34		A	0.19		A	0.06	
	SB LTR	A	0.18		A	0.08		A	0.02	

Table B.5: Total 2033 Vehicle Operations Results

INTERSECTION/ TRAFFIC CONTROL	MOVE- MENT	AM			PM			SAT		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
25 th St & Haywood Ave <i>(minor road stop)</i>	EB LTR	B	0.09	2	B	0.12	3	A	0.05	1
	WB LTR	B	0.26	8	C	0.23	7	B	0.06	1
	NB LTR	A	0.01	0	A	0.03	1	A	0.02	1
	SB LTR	A	0.01	0	A	0.01	0	A	0.00	0
25 th St & Marine Dr <i>(signalized)</i>	OVERALL	B	0.38		B	0.43		A	0.27	
	EB LTR	A	0.44	27	A	0.47	40	A	0.31	25
	WB TR	A	0.36	21	A	0.31	26	A	0.26	19
	WB R	A	0.08	6	A	0.11	10	A	0.10	9
	NB L	B	0.15	8	B	0.16	11	B	0.12	7
	NB TR	B	0.11	6	B	0.32	22	B	0.15	10
	SB L	B	0.30	12	B	0.38	20	B	0.21	11
	SB TR	B	0.09	6	B	0.12	11	B	0.06	6
25 th St & Dundarave Ln <i>(minor road stop)</i>	WB LR	A	0.04	1	B	0.07	2	B	0.10	3
	NB T		0.07	0		0.12	0		0.07	0
	SB T	A	0.00	0		0.04	0	A	0.00	0
25 th St & Bellevue Ave N <i>(minor road stop)</i>	EB LR	A	0.01	0	B	0.02	1	B	0.02	1
	WB LTR	A	0.10	3	B	0.21	6	B	0.13	3
	NB LT		0.00	0		0.00	0	A	0.00	0
	SB TR		0.04	0		0.04	0		0.05	0
25 th St & Bellevue Ave S <i>(minor road stop)</i>	EB LTR	A	0.03	1	A	0.04	1	A	0.03	1
	NB LTR	A	0.00	0		0.00	0	A	0.00	0
	SB LTR	A	0.02	1	A	0.03	1	A	0.02	1
	OVERALL	B			A			A		
24 th St & Haywood Ave <i>(all-way stop)</i>	EB LTR	A	0.16		A	0.17		A	0.07	
	WB LTR	A	0.10		A	0.06		A	0.04	
	NB LTR	B	0.32		A	0.26		A	0.13	
	SB LTR	B	0.49		A	0.31		A	0.09	
	OVERALL	B	0.60		B	0.57		B	0.40	
24 th St & Marine Dr <i>(signalized)</i>	EB LTR	C	0.68	43	B	0.67	63	B	0.44	40
	WB L	A	0.28	10	A	0.20	9	A	0.10	6
	WB TR	A	0.28	19	A	0.28	26	A	0.24	22
	NB LTR	B	0.12	11	B	0.22	22	B	0.14	12
	SB LTR	B	0.54	41	B	0.45	42	B	0.30	20
24 th St & Dundarave Ln <i>(minor road stop)</i>	WB LTR	A	0.01	0	A	0.01	0	A	0.00	0
	NB LTR	A	0.01	0	A	0.00	0	A	0.00	0
	SB LTR	A	0.00	0	A	0.00	0	A	0.00	0
24 th St & Bellevue Ave N <i>(all-way stop)</i>	OVERALL	A			A			A		
	WB LTR	A	0.10		A	0.19		A	0.10	
	NB LTR	A	0.08		A	0.09		A	0.07	
	SB LTR	A	0.16		A	0.09		A	0.05	
24 th St &	EB LR	A	0.05	1	A	0.06	1	A	0.05	1

