TRANSPORTATION PLANNERS AND ENGINEERS

bunt & associates

Broadway + Commercial Redevelopment

Transportation Assessment & Management Study

Issued for Rezoning Application

Prepared for

Westbank Projects Corp. / Crombie REIT

Date

May 29, 2019

Project No.

4241-52

May 29, 2019
4241-52

Daniel Balas
Perkins + Will
1220 Homer Street
Vancouver, BC
V6B 2Y5

Dear Daniel:

Re: Broadway + Commercial Redevelopment
Transportation Assessment and Management Study (TAMS)

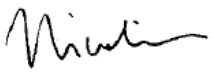
As requested, Bunt has prepared a Transportation Assessment & Management Study (TAMS) report to support the proposed Broadway + Commercial Redevelopment. The TAMS was prepared based on an agreed Terms of Reference with the City of Vancouver Transportation Department.

The following TAMS report reviews existing and future opening-day traffic conditions for the proposed site and the surrounding street network as well as relevant City policies, proposed development content, site plan design review, and TDM and Active Modes.

Please do not hesitate to contact us should you have any questions regarding this report.

Yours truly,
Bunt & Associates





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Project No. 4241-52
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EXECUTIVE SUMMARY

Westbank Projects Corp. and Crombie REIT are proposing to redevelop the property at 1780 East Broadway from the existing Safeway grocery store to a mixed-use development with three residential towers on top of a commercial/office podium. The site is immediately adjacent to the Broadway-Commercial Drive SkyTrain station, one of the busiest transit hubs in Vancouver. The opening day of the development is assumed to be 2026. The following report provides a detailed assessment of transportation impact and a summary of transportation demand management (TDM) plan.

The non-residential component of the development will include an on-site Safeway grocery store, commercial retail stores, daycare, fitness centre, and office area. A full-movement signalized access from Broadway is planned to provide customer parking access for Safeway and retail stores. The loading access on Broadway will be restricted to right-in/right-out only for Safeway and retail loading activities. The vehicle access to residential and office parking and loading will be located off 10th Avenue.

The traffic operational analysis examined three different peak hours including Weekday AM, Weekday PM and Saturday peak, in both existing and future full-build out horizon years. The table below summarizes the estimated site vehicle trips generated by the development.

Table E.1: Estimated Peak Hour Site Vehicle Trips (Including Internal Capture)

LAND USE	AM PEAK HOUR			PM PEAK HOUR			SAT PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Safeway & Retail – Primary	144	133	277	183	189	372	156	160	316
Safeway & Retail – Pass-by	36	33	69	94	98	192	55	56	111
Residential	35	114	149	48	29	77	44	27	71
Daycare	72	63	135	36	41	77	13	8	21
Fitness	6	6	12	8	6	14	15	15	30
Office	24	3	27	1	15	16	4	5	9
TOTAL	**317**	**352**	**669**	**370**	**378**	**748**	**287**	**271**	**558**

As shown, the site is estimated to generate approximately 560 to 750 vehicle trips (two-way) during the studied peak-hour periods, while the existing site generates approximately 240 to 470 vehicle trips during the same studied periods. Therefore, the development is anticipated to generate approximately 200 to 430 net new vehicle trips to the street network during the studied peak periods. In context, this is equivalent to approximately 3 to 7 vehicles per minute on average during peak hour periods.

Under the existing condition analyses, there are several left-turn movements that were assessed to operate with LOS "F", including:

- Northbound and Southbound left turns at Commercial & Broadway;
- Eastbound and Westbound left turns at Victoria Drive & Broadway; and,
- Eastbound and westbound left turns at Commercial Drive & 12th Avenue.

Lengthy delays at these left turns are due to the lack of protected-permissive left turn phasing. A potential mitigation measure would be introducing advanced left-turn phasing for these movements by increasing the overall cycle length of the intersections or reducing the green time of opposing movements. The trade-off in introducing advanced left-turn phasing for these movements, however, would be the increase the overall delay of the study network as indicated by the SimTraffic simulations. Given this, the introduction of advance left-turn phases was not assumed for the future conditions analysis.

Overall, the net increase in traffic on the study road network does not have a material impact on traffic operational performance. The study intersections were found to continue operating with acceptable delays at the full build-out of the site. The left-turn movements with operational issues continue to exist in the future conditions; however, it is important to note that the increase in these left-turn traffic volumes and vehicle queues can still be accommodated within the available left-turn queue storage.

Because the location of the development is located within 100m walking distance of a SkyTrain station, the base parking reduction that can be obtained without providing a TDM plan is 20% for Rental and 10% for other Land Use. With the provision of a TDM Plan, additional reduction in parking may be obtained for up to 40% additional for Rental and 20% additional for other land uses. The project will seek the maximum parking reduction for all uses, except for the Safeway. The development is planning to provide a total of 632 parking stalls with the following breakdown:

- 357 parking stalls for the residential component, including residents and visitors;
- 149 stalls for Safeway; and
- 126 stalls for all other uses.

Given the proposed development comprises of over 45,000m^2 of floor area, it is subject to a mandatory provision of a TDM plan. The developer considers providing the following TDM strategies that are acceptable by the City to achieve the 30 TDM points for each land use:

- Additional Class A Bicycle Parking
- improved Access to Class A Bicycle Parking
- Bike Maintenance Facilities
- Public Bike Share Space
- Walking Improvements
- Carshare Vehicles and Spaces
- Multi-modal Wayfinding Signage
- Provide reduced parking Supply
- Unbundling parking
- Provide 10% of Class A bicycle parking spaces to be sized for non-standard bikes (i.e. cargo, recumbent, trailers, etc.)
- Offer on-site bike repair services to residents on a semi-annual basis for 10 years
- Provision of On-site Day Care Facility

1. INTRODUCTION

1.1 Study Purpose & Objectives

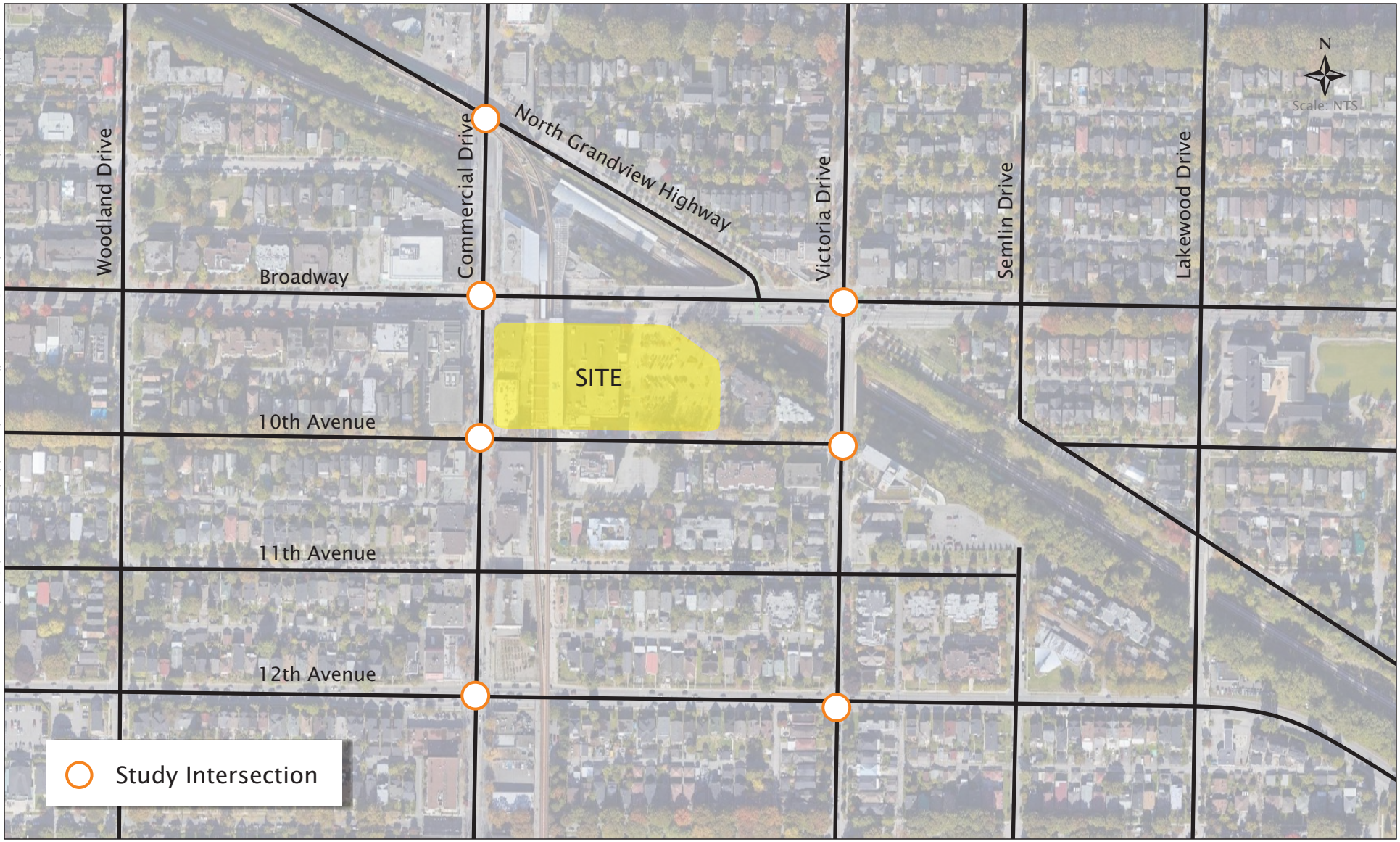
Westbank Projects Corp. and Crombie REIT (the Client) are proposing to redevelop the property at 1780 East Broadway, located at the southeast of the intersection of Broadway and Commercial Drive immediately east of the Broadway-Commercial Drive SkyTrain station. The site covers an area of 150,632 ft^2 (approximately 2.42 acres) with a Safeway grocery store currently operating on-site. The site's driveway accesses are located on East Broadway and East 10th Avenue. Bunt & Associates Engineering Ltd. (Bunt) was commissioned by the Client to provide transportation consulting services to support their development application, including the preparation of a Transportation Assessment and Management Study (TAMS).

1.2 Study Scope & Area

A study scope has been confirmed with the City of Vancouver Engineering Department and it includes seven (7) intersections on the local street network adjacent to the development site. The approved Study Terms of Reference is included in **Appendix A.** The study intersections and their existing control and configuration are summarized in **Table 1.1** below. The site location and the study area boundary are also illustrated graphically in **Exhibit 1.1**.

Table 1.1: Study Intersections & Traffic Control

INTERSECTION	CONTROL
Commercial Drive & North Grandview Highway	Signalized
Commercial Drive & East Broadway	Signalized
Commercial Drive & East 10th Avenue	Pedestrian/Cyclist Activated Signal with Stop Sign Control on East 10th Ave
Commercial Drive & East 12th Avenue	Signalized
Victoria Drive & East Broadway	Signalized
Victoria Drive & East 10th Avenue	Three-leg unsignalized intersection with Stop Sign Control on East 10th Avenue
Victoria Drive & East 12th Avenue	Signalized



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Exhibit 1.1

Site Location & Study Intersections

Broadway Commercial
4241-52 May 2019

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1.3 Organization of Report

This report has been set out in the following manner:

- **Section 2** describes existing transportation system conditions, establishes the general scope for the planned study network, relevant policies and plans along with existing operational analysis;
- **Section 3** presents the background traffic forecasts, vehicle trip generation for the project and assesses the effect of the development traffic on the study road network;
- **Section 4** outlines the development and specifically the transportation aspects including design principles, street network design, parking and vehicle servicing;
- **Section 5** presents a Transportation Demand Management (TDM) Plan that is required as part of the rezoning submission requirements for Large Site rezoning application;
- **Section 6** concludes the report with a summary of the TAMS along with recommendations.

1.4 Proposed Development

The proposed redevelopment will be planned as a dense mixed-use community with both market condominium and market rental units. The non-residential uses will include an on-site Safeway grocery store, commercial retail stores, daycare, fitness centre, and office area. A full-movement signalized access from Broadway is planned mid-block (between Commercial Drive and Victoria Drive) to provide customer parking access for Safeway and other retail stores on-site. The loading access on Broadway will be restricted to right-in/right-out only for Safeway and other retail loading activities. Vehicle access to residential and office parking and loading will be located off 10th Avenue.

Table 1.2 summarizes the proposed land uses, based on the project statistics received from Perkins + Will on May 7, 2019. The development's site plan is included in **Exhibit 1.2**.

Table 1.2: Proposed Land Uses

LAND USE	AREA	UNITS
Residential (Condo)	416,486 sq-ft	532 units
Residential (Rental)	120,613 sq-ft	148 units
Commercial (Safeway)	50,249 sq-ft	-
Retail (CRU)	10,860 sq-ft	-
Commercial (Daycare)	12,271 sq-ft	-
Commercial (Fitness)	9,365 sq-ft	-
Office	49,042 sq-ft	-
TOTAL	**666,886 SQ-FT**	**680 UNITS**

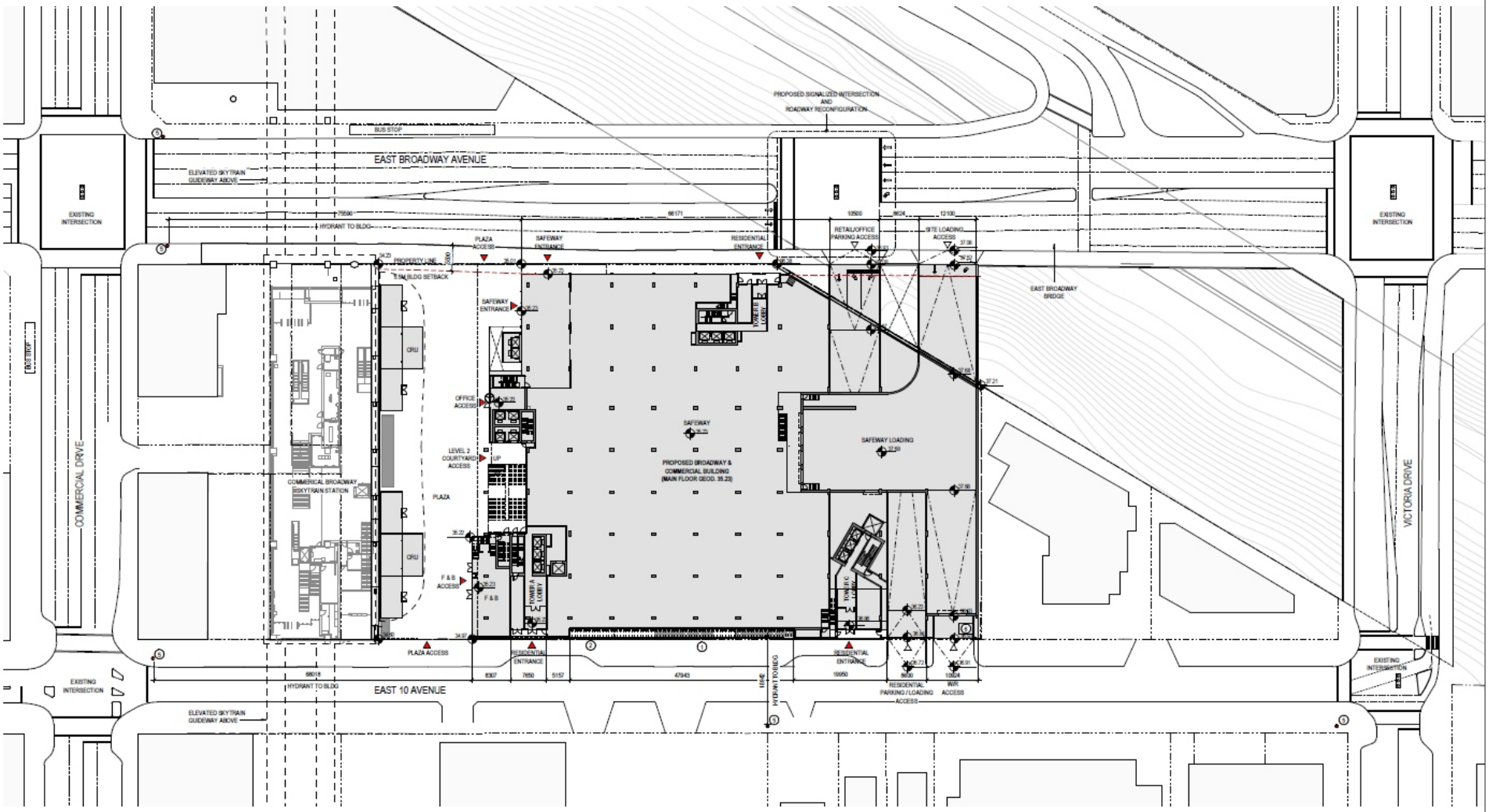


Exhibit 1.2
Site Plan

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Broadway Commercial
May 2019

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2. EXISTING CONDITIONS

2.1 Land Use

The development site is located southeast of the intersection of Broadway and Commercial Drive – a vital place in the Grandview Woodland neighbourhood. The property also sits immediately adjacent to the Commercial-Broadway SkyTrain station, one of Metro Vancouver's busiest transit hubs. The site currently has a 38,000 ft^2 Safeway store with 167 parking spaces provided in a surface parking lot.

The updated Grandview-Woodland Community Plan, released in July 2016, has allowed for larger building forms to come into the area to take advantage of the area's proximity to rapid transit services and other amenities. Specifically for the location of this development site, the plan allows for 10+ stories directly adjacent to the Commercial-Broadway SkyTrain station. **Exhibit 2.1** illustrates the existing land uses in the study area.

2.2 Existing Transportation Network

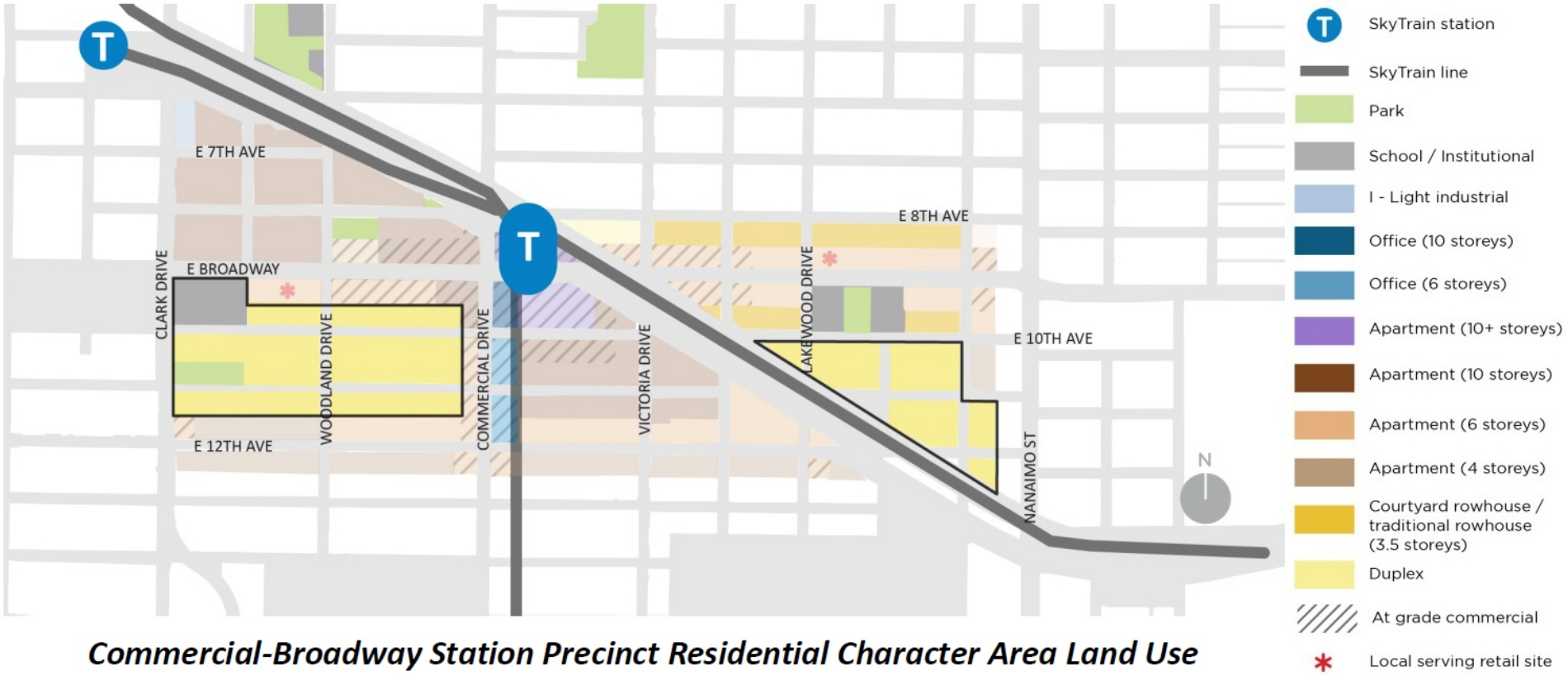
2.2.1 Road Network

Exhibit 2.2 illustrates the existing laning and traffic control within the study area road network. A brief description of each of the streets in the study network is provided below, along with **Table 2.1** summarizing the operating characteristics of each street.

Table 2.1: Existing Street Characteristics

STREET	CLASSIFICATION	NUMBER OF TRAVEL LANES	POSTED SPEED	PARKING FACILITIES
Broadway	Arterial	6	50 km/hr	No parking
Commercial Drive	Secondary Arterial	4	50 km/hr	Metered parking on both sides
Victoria Drive	Secondary Arterial	3	50 km/hr	On-street parking on the east side
E 10th Avenue	Local	2	30 km/hr	On-street parking on the south side
E 12th Avenue	Secondary Arterial	4	50 km/hr	No parking on both sides 7am-7pm
North Grandview Highway	Minor Arterial	2	50km/h	No parking

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Commercial-Broadway Station Precinct Residential Character Area Land Use

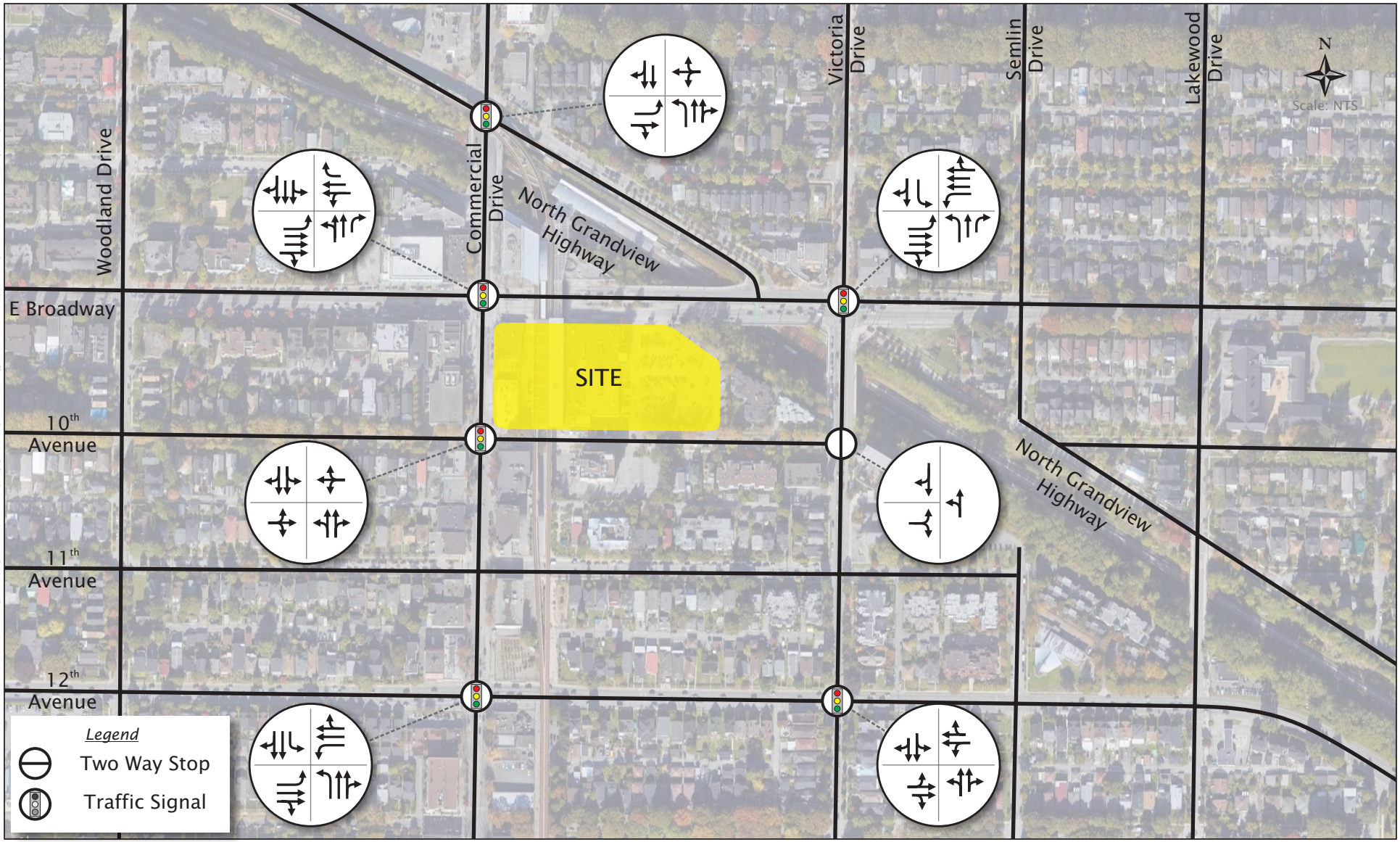
From: Grandview-Woodland Community Plan, City of Vancouver, July 2016

Exhibit 2.1
Existing Land Uses

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Exhibit 2.2

Existing Laning & Traffic Control

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Broadway Commercial
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Broadway

Broadway is classified as an east-west major arterial road in the City of Vancouver Transportation Plan. It is also part of TransLink's Major Road Network (MRN), which serves the 99 B-line and route 9. Broadway is also identified as a designated truck route in the City's street network.

For the section of Broadway between Commercial Drive and Victoria Drive, the two-way traffic volume is approximately 3,000 vehicles per hour (vph) and 3,600 vph during the Weekday Morning and Afternoon peak hour traffic periods respectively. During the Saturday Mid-day peak hour period, the traffic volume is approximately 2,500 vph. Broadway operates as a two-way road with three lanes per direction in the vicinity of the development site.

Commercial Drive

Commercial Drive is a north-south secondary arterial road with either two or three travel lanes in each direction. There are numerous retail stores and restaurants along the entire corridor. The two-way vehicle volumes are approximately 1,100 vph and 1,200 vph during the Weekday Morning and Afternoon peak hours, respectively. Saturday peak hour volume on Commercial Drive is approximately 1,200 vph two-way.

Victoria Drive

Victoria Drive runs parallel on the east side of Commercial Drive. It is also classified as a secondary arterial road in the city network. Victoria Drive has two southbound travel lanes and one northbound travel lanes, with on-street parking generally be permitted for the section within the study area. The two-way traffic volumes on the corridor within the study area are approximately 800 vph and 900 vph during the Weekday Morning and Afternoon peak hours, respectively. During Saturday peak hour, the two-way traffic volume would be lower to approximately 750 vph.

East 10th Avenue

East 10th Avenue is a local road with one travel lane in each direction. As part of the Transportation 2040 by the City of Vancouver, the 10th Avenue corridor is identified as an important local-street bikeway for people of all ages and abilities to walk and cycle. The two-way vehicle traffic volumes on this corridor near the development site are moderate - approximately 360 vph during the Weekday Afternoon peak hour. During Weekday Morning and Saturday Mid-day peak hours, the two-way traffic volumes are observed to be around 200-250 vph.

East 12th Avenue

East 12th Avenue runs parallel south of East 10th Avenue. It is classified as a secondary arterial road with two travel lanes in each direction. The westbound left turn currently is prohibited at East 12th Avenue and Victoria Drive from 7:30 AM to 9:30 AM on weekdays. The two-way vehicle traffic volumes on this corridor near the development site are approximately 3,100 vph and 3,300 vph during the Weekday Morning and Afternoon peak hours respectively. During Saturday peak hour, the two-way traffic volume is around 2,900 vph.

North Grandview Highway

North Grandview Highway stretches diagonally between Clark Drive and Nanaimo Street. Within the study network, it is classified as a minor arterial road with one travel lane in each direction. At the intersection of Commercial Drive and North Grandview Highway, no eastbound through, southbound left, and northbound right movements are allowed, except for buses and bicycles. North Grandview Highway also has painted bike lane in each direction, which forms part of the Central Valley Greenway. Only buses and bicycles can travel eastbound through the section of North Grandview Highway east of Commercial Drive. The two-way traffic volume is most dominant during Weekday Morning peak hour, with approximately 600 vph. This is due to over 200 vehicles turning westbound right on Broadway to North Grandview Highway, in order to avoid travel delay at Commercial Drive. During the Weekday Afternoon and Saturday peak hours, the two-way traffic volume decreases to approximately 300 vph and 200 vph, respectively.

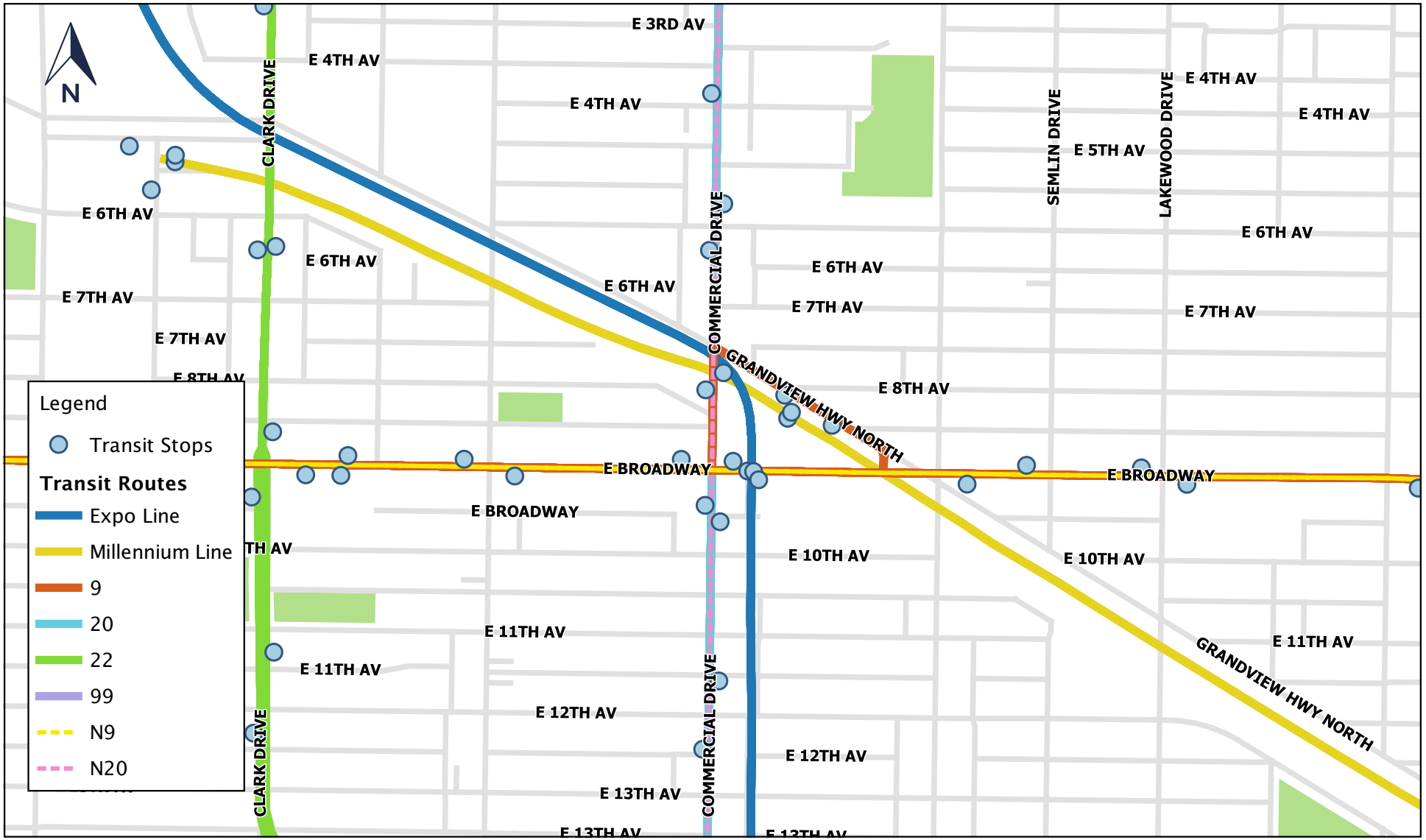
2.2.2 Transit Network

Located at the southeast corner of Commercial Drive and Broadway, the development site provides immediate access to rapid transit facilities including the Expo Line, Millennium Line, and the 99 B- Line, making it one of the best connected locations in Metro Vancouver. Nearby transit stops also provide connections to the 20, N20, 9, and N9 bus lines. Such proximity to rapid transit and local bus network is also a key factor in determining parking supply later described in **Section 4**.

Exhibit 2.3 shows the existing transit stops in close proximity to the site and **Table 2.2** below summarizes the nearby transit stops and bus routes within walking distance of the site and their service frequency.

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

STOP LOCATION	DIRECTION	STOP #	AMENITY	ROUTES SERVICED	WALKING DISTANCE
Commercial-Broadway SkyTrain Station	-	-	-	Expo Line, Millennium Line	120m
E Broadway FS Commercial Dr	Eastbound	52102	-	9, 99, N9	50m
E Broadway FS Commercial Dr	Westbound	58182	-	9, N9	160m
Commercial Dr FS E Broadway	Southbound	50963	Bus Shelter	20, N20	90m
Commercial Dr FS E 10th Ave	Northbound	51221	-	20, N20	70m



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Exhibit 2.3

Transit Routes & Stops

4241-52

Broadway Commercial
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Table 2.3: Existing Transit Service Frequency

ROUTE		WEEKDAY SERVICE SPAN		HEADWAY (MIN.)				
#	DIRECTION	START	END	AM	MID-DAY	PM	EVENING	WEEKEND
Expo Line	Waterfront / King George	5:32 am	1:16 am	2-5	6	2-5	6-8	6
	Waterfront / Production Way-University	5:37 am	1:11 am	6-7	6	6-7	6-8	6
Millennium Line	VCC-Clark/Lafarge Lake-Douglas	1:22 am	1:29 am	3-4	6	3-4	6-8	6
9	Granville / Alma / UBC	5:13 am	2:34 am	5-10	5-10	3-5	10	7-10
99 B-Line	UBC	5:47 am	2:23 am	3-5	4-5	3-5	5-10	5-10
N9	Coquitlam Central Station / Downtown	2:00 am	5:39 am	-	-	-	20 - 40	30-40
20	Downtown	4:43 am	2:29 am	3-8	8	7-9	7-15	8
N20	Victoria / Downtown	1:16 am	3:58 am	-	-	-	20-30	30

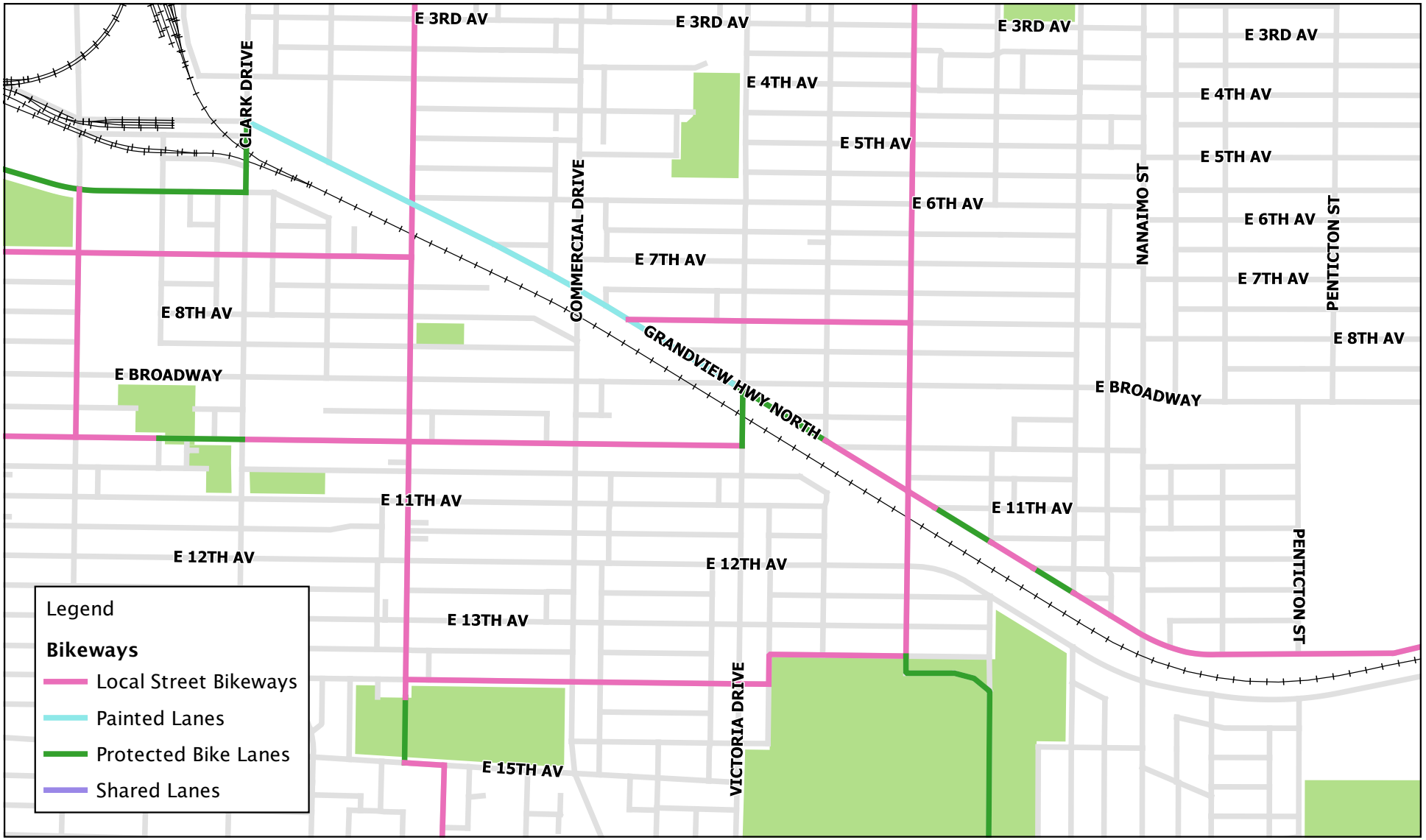
2.2.3 Cycling & Pedestrian Networks

The study network is well-connected for cyclists. For cyclists, the nearby 10th Avenue Bike Route and Central Valley Greenway provide east-west routes for cyclists. North-south connectivity is provided by the Woodland Drive bike route (400 meters to the west of this site), and the Lakewood Drive bike route (400 meters to the east of the site). The Commercial Drive Complete Street program currently underway will provide separated bicycle facilities along the corridor. This will allow for direct cyclist access to many of the shops and restaurants located along this street. In addition, the ongoing 10th Avenue Corridor Project also plans to upgrade 10th Avenue bikeway between Commercial Drive and Victoria Drive to be part of "AAA Network", where people of all ages and abilities can cycle on.

Exhibit 2.4 illustrates the existing cycling facilities within the surrounding network.

For pedestrians, sidewalks are provided on both sides of the street along 12th Avenue, Commercial Drive, Victoria Drive, and Broadway and the other roads in the surrounding area. Many of the daily needs of people are located within an easy walking distance of the proposed development including supermarkets, restaurants, and parks.

Exhibit 2.5 presents the existing pedestrian facilities within the study area.



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Exhibit 2.4

Cycling Facilities

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Exhibit 2.5

Pedestrian Facilities

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Broadway Commercial
September 2018

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2.3 Current Relevant Policies & Plans

This section outlines the City's policies and plans that are relevant to the proposed Broadway + Commercial redevelopment project.

2.3.1 Grandview-Woodland Community Plan

Grandview-Woodland neighbourhood is an evolving community located east of downtown Vancouver along Commercial Drive. The Grandview-Woodland Community Plan (the Plan) was approved by the City Council in July 2016. The Neighbourhood Centre area (covered in the Plan) was bounded by Clark Drive to the west, Burrard Inlet to the north, Nanaimo Street to the east, and East 12th Avenue to the south.

Grandview-Woodland neighbourhood is filled with both local and regional destinations including one of the busiest transit hubs – Commercial-Broadway SkyTrain station. The Plan aims to design streets to prioritize sustainable transportation choices and accessibility for people of all ages and abilities (AAA) while accommodating core service and delivery functions. In particular, Commercial Drive is envisioned as a "complete street" to provide direct and convenient access for all modes of transportation. Although a conceptual complete street design for Commercial Drive has not yet been developed, the Plan first focused on the area south of Graveley Street in which the street is wider. Potential measures could include reallocating two motor vehicle travel lanes to provide space for AAA cycling and improving the pedestrian realm through raised crosswalks and curb bulges to shorten crossings.

The Plan outlined the following key transportation policies in the vicinity of Broadway & Commercial to address the challenge of continued growth without increasing road space and achieve sustainability goals:

- Create a new mixed-use civic plaza as part of a renewed Safeway site with ground-floor commercial uses and new housing in buildings ranging from 12- to 24-storeys;
- Create a new office space close to the rapid transit station;
- Improve safety at collision hotspots including the entire Commercial Drive corridor and the 10th Avenue corridor, particularly intersections at Clark Drive, Commercial Drive and Victoria Drive;
- Support new and improved public spaces by bikeway enhancements (e.g. by removing car traffic on East 10th Avenue between Commercial Drive and Victoria Drive);
- Explore opportunities of AAA bike lanes on Commercial Drive to directly serve destinations by reallocating travel lanes south of Graveley and creating connections to existing network; and
- Reduce parking requirements, where appropriate, for new developments that are located near transit hubs. Consider the potential of shared parking as part of larger developments in key areas including Broadway and Commercial.

2.3.2 City's 10th Avenue Corridor Project

As a top priority in the Transportation 2040 plan, the City is also in the process of upgrading the 10th Avenue Corridor to be more safe, accessible and comfortable for people of all ages and abilities to walk and cycle. One of the priority areas for the bikeway upgrade is between Commercial Drive and Victoria Drive, which is the development site's south frontage. The City noticed that there was more vehicle traffic

along this segment than the rest of the Corridor because of people accessing the existing Safeway and the intersection of 10th Avenue and Victoria Street has no traffic signals, which makes it difficult for people walking and cycling to cross.

In November 2016, the City proposed the following design improvements be considered for this segment of the 10th Avenue bikeway:

- New signal at Victoria Street and 10th Avenue;
- New crosswalk in front of Commercial-Broadway Station;
- New protected bike lane on the south side of the street (bi-directional);
- 10th Avenue (Victoria to Commercial) be converted to one-way westbound, except for bikes;
- New passenger zone on 10th Ave in front of the Commercial-Broadway Station;
- Residential permit parking spaces removed from 10th Avenue;
- Temporary removal of meter parking and a passenger zone from 10th Avenue near Commercial Drive;
- Traffic diverters at Commercial Drive.

Based on Bunt's recent discussion with the City in September 2018, the City advised that the future of the segment of the 10thAvenue bikeway between Commercial Drive and Victoria Drive is still to be designed and will be an iterative process based on the site plan proposed for the Broadway + Commercial Redevelopment, the expected trip generation and traffic demand for the site. As such, the City advised Bunt to assume existing two-way conditions for the section of 10th Avenue between Commercial Drive and Victoria Drive for the purpose of preparing traffic analysis for the future scenarios.

2.3.3 Greenest City 2020 Action Plan (2011)

City of Vancouver staff worked with Council, residents, businesses, other organizations, and all levels of government to implement the Greenest City 2020 Action Plan (GCAP) with the goal to become the greenest city in the world by 2020. The Action Plan is divided into 10 smaller plans, each with a long-term goal and 2020 targets. Combined, these 10 plans address three overarching areas of focus:

- Carbon
- Waste
- Ecosystems

In terms of Transportation, the two primary goals are:

1. Make the majority of trips (over 50%) in the City by foot, bicycle and public transit.
2. Reduce the average distance driven per resident by 20% from 2007 levels.

In order to achieve these goals, the highest priority actions outlined in the plan are:

- Complete a new Active Transportation Master Plan and update the Transportation Plan with direction from the GCAP.
- Improve pedestrian safety by developing and implementing a pedestrian safety study and action plan.
- Develop land use policies that enable the City to meet mobility and transportation targets.
- Work with partners to advocate for rapid transit for the Broadway Corridor.
- Pursue the development of a bike-share program in Vancouver's downtown and other high-potential cycling areas.

2.3.4 Transportation 2040 Action Plan (2012)

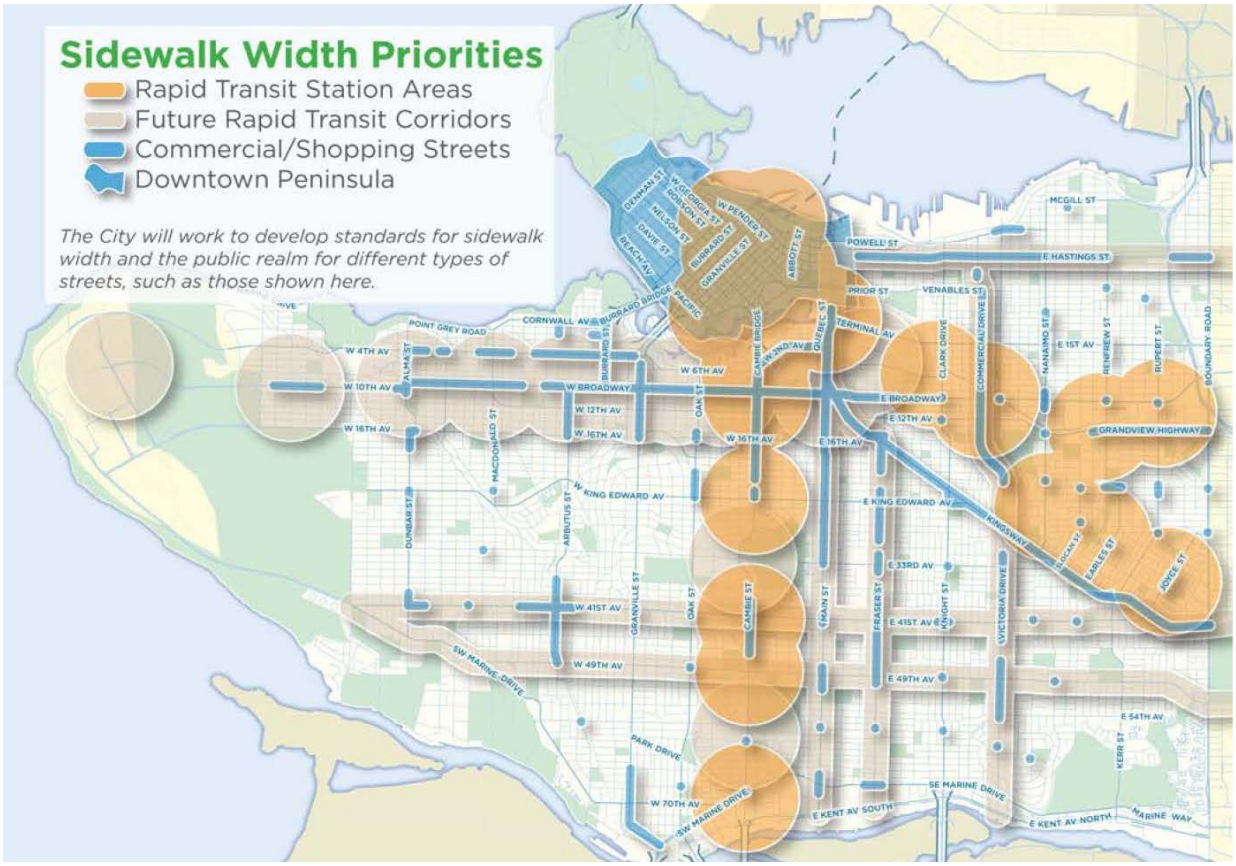
The Transportation 2040 Action Plan, adopted by Vancouver City Council in October 2012, is a long-term strategic vision for the City of Vancouver that will help guide transportation and land use decisions and public investments for the years ahead.

In relation to the Greenest City 2020 Action Plan, the Transportation 2040 Plan builds on the Greenest City's transportation goals by stating that its travel mode goal is to "make at least two-thirds (67%) of trips on foot, bike, and transit by 2040". In comparison, the Greenest City 2020 Action Plan aims to make at least 50% of trips on foot, bike, and transit by 2020.

Based on the Transportation 2040 Action Plan, the project site falls within a "Sidewalk Width Priority" zone, as it is located close to an existing rapid transit station (Commercial-Broadway station). The Plan calls for the development of standards for sidewalk widths and the public realm for streets in these areas. **Figure 2.1** illustrates the Sidewalk Width Priority Zones throughout the City.

In addition, the Transportation 2040 Action Plan identified a number of policies concerning parking for new development projects. Specifically, the plan indicates that off-street parking requirements should be used to support reduced auto ownership and use. Further, the cost of housing and parking should be separated to increase housing affordability. The proposed development is well in keeping with these policy directions identified in the Transportation 2040 Plan.

Figure 2.1: Sidewalk Width Priorities



2.3.5 City of Vancouver Parking By-law

The City of Vancouver's Parking By-law (By-law 6059) regulates the provision of off-street parking for the parking of motor vehicles and bicycles within the City of Vancouver. In addition, the bylaw facilitates the loading and unloading of motor vehicles. As a policy identified in the Transportation 2040 Plan, the City will be undertaking an exercise to clarify the parking by-law to reflect broader City transportation objectives and to actively encourage strategies that reduce parking demand.

On July 25, 2018, the City of Vancouver approved changes to its Parking By-law. The staff report emphasizes the importance of managing off-street parking for vehicles and bicycles and its influence to achieve long-term transportation goals. The City is investing significantly in transit, cycling and walking infrastructure along with a comprehensive housing strategy; this updated by-law helps ensure these elements align with the City's goals for Transportation 2040.

The amendment to this by-law will assist in advancing the Transportation 2040 actions by improving access to buildings, taking steps to address the needs of changing mobility, and driving investments in Transportation Demand Management (TDM) measures that encourage sustainability.

The most significant changes put forward in the staff report that would affect this project includes:

- Require the provision of passenger loading spaces for all land uses;
- Increase requirements for bicycle parking and end-of-trip facilities to better reflect current and future cycling mode share; and
- Provision of a mandatory TDM plan to achieve certain TDM points based on the scale of the development.

2.3.6 TransLink's Major Road Network (MRN)

Broadway is part of TransLink's Major Road Network (MRN), of which TransLink provides funding for the operations, maintenance and rehabilitation, as well as shares the cost of eligible capital improvements. As part of the MRN, it is required that "without TransLink approval, municipalities cannot take, authorize or permit any action that would reduce people moving capacity" within the MRN. In other words, any potential changes along Broadway would need to ensure traffic operations be maintained at its present level. This particular point has been taken into consideration as part of the site plan development process

2.3.7 Summary

The development site is situated within a Neighbourhood Centre Plan Area that has a vision to promote and support sustainable transportation modes ahead of private automobile uses. Transportation plans and initiatives in the vicinity of the site are geared toward creating a lively and active streetscape along Commercial Drive and Broadway, as well as providing a safe and comfortable environment for pedestrians and cyclists.

2.4 Data Collection

2.4.1 Traffic Data Collection Program

Traffic counts were conducted by Bunt in both May & September 2016 and March 2017, covering the weekday afternoon (3:00 pm to 6:00 pm) and Saturday (11:00 am – 2:00 pm) peak traffic periods on the adjacent street network. Based on the data collected, the peak hours were identified to be 4:45 pm to 5:45 pm and 1:00 pm to 2:00 pm for the Weekday PM and Mid-day Saturday peak periods respectively.

In addition, the City advised the AM Peak-hour scenario should also be covered as part of this study. Therefore, Bunt conducted additional traffic count in September 2018 to document the vehicle movement from the existing site driveways. It is noted that during all traffic counts, the east leg of Commercial Drive and East 10th Avenue was closed, so no volumes are observed in the existing conditions.

The traffic count data information for study intersections is summarized in **Appendix B**.

Table 2.4 summarizes the traffic count program and the peak hours for the individual intersection.

Table 2.4: Summary of Available and Counted Traffic Data

INTERSECTION	SOURCE	DATE OF COUNT	PEAK HOURS		
			AM	PM	SAT
North Grandview Highway / East Broadway	Bunt, CoV	March 23 & 25, 2017; September 14, 2018	7:45 AM – 8:45 AM	4:45 PM – 5:45 PM	1:00 PM – 2:00 PM
Safeway East Driveway / East 10th Avenue	Bunt	September 27, 2016 & March 25, 2017; September 14, 2018	8:00 AM – 9:00 AM	5:00 PM – 6:00 PM	11:45 AM – 12:45 PM
Safeway Entrance / East Broadway	Bunt	September 27, 2016 & March 25, 2017; September 14, 2018	7:45 AM – 8:45 AM	4:45 PM – 5:45 PM	12:15 PM – 1:15 PM
Safeway West Driveway / East 10th Avenue	Bunt	September 27, 2016 & March 25, 2017; September 14, 2018	7:45 AM – 8:45 AM	5:00 PM – 6:00 PM	11:45 AM – 12:45 PM
Commercial Drive / East 10th Avenue	Bunt, CoV	March 23 & 25, 2017; September 14, 2018	8:00 AM – 9:00 AM	4:45 PM – 5:45 PM	12:15 PM – 1:15 PM
Victoria Drive / East 10th Avenue	Bunt, CoV	March 23 & 25, 2017; September 14, 2018	8:00 AM – 9:00 AM	4:45 PM – 5:45 PM	12:15 PM – 1:15 PM
Commercial Drive / East Broadway	Bunt, CoV	May 3 & 14, 2016	7:45 AM – 8:45 AM	5:00 PM – 6:00 PM	1:45 PM – 2:45 PM
Victoria Drive / East Broadway	Bunt, CoV	May 3 & 14, 2016	7:45 AM – 8:45 AM	5:00 PM – 6:00 PM	1:30 PM – 2:30 PM
Commercial Drive / East 12th Avenue	Bunt	May 3 & 14, 2016	7:45 AM – 8:45 AM	4:45 PM – 5:45 PM	1:00 PM – 2:00 PM
Victoria Drive / East 12th Avenue	Bunt	May 3 & 14, 2016	8:00 AM – 9:00 AM	4:45 PM – 5:45 PM	1:00 PM – 2:00 PM
	OVERALL STUDY AREA PEAK HOUR		8:00 AM – 9:00 AM	4:45 PM – 5:45 PM	1:00 PM – 2:00 PM

CoV: City of Vancouver

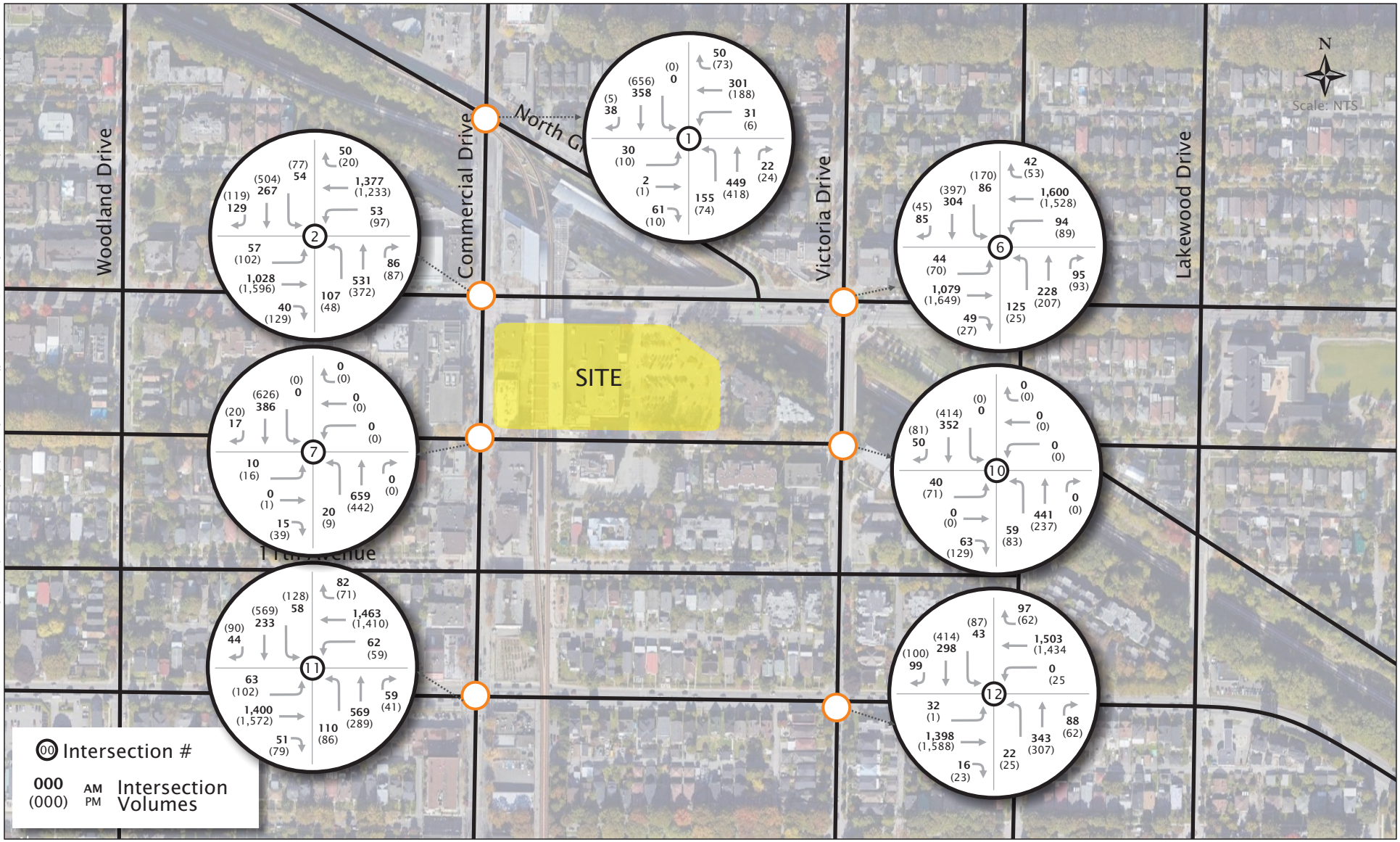
2.4.2 Peak Hour Traffic Volumes

Table 2.5 presents a summary of the two-way peak-hour vehicle movements for the streets in the study area. **Exhibit 2.6** and **Exhibit 2.7** present the vehicular traffic volume on the study network during Weekday and Saturday peak hours respectively.

Exhibit 2.8 and **Exhibit 2.9** show the pedestrian and cyclist volume at each study intersection during Weekday and Saturday peak hours.

Table 2.5: Existing Peak Hour Roadway Link Volumes

ROAD LINK	PEAK LINK VOLUMES (VEH/HR)		
	AM	PM	SAT
East Broadway	3,030	3,630	2,480
Commercial Drive	1,080	1,160	1,240
Victoria Drive	800	910	750
East 10th Avenue	210	360	250
East 12th Avenue	3,130	3,340	2,920
North Grandview Highway	590	290	190



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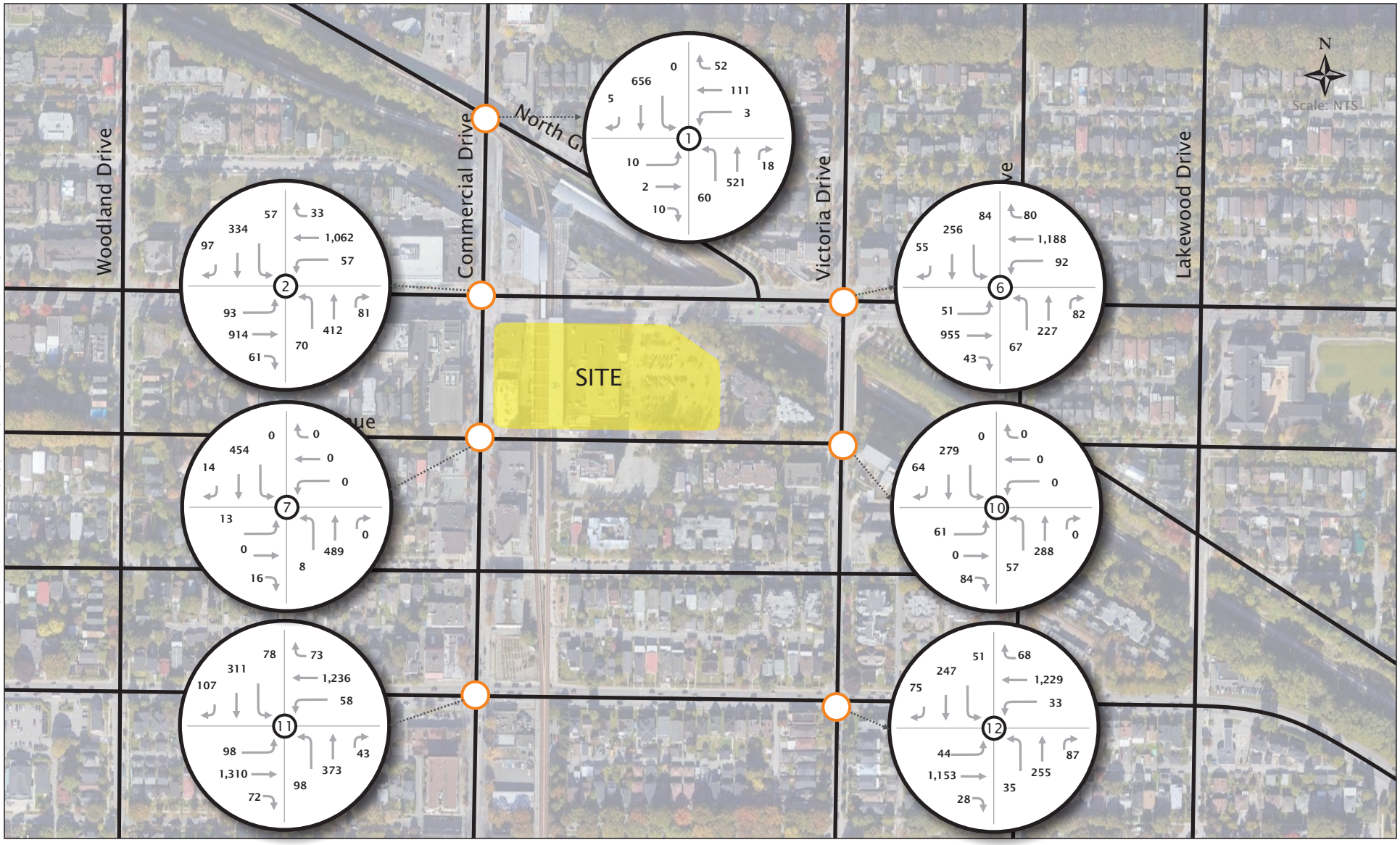
Exhibit 2.6

Existing Weekday Peak Hour Vehicle Traffic Volumes

4241-52

Broadway Commercial
October 2018

bunt associates



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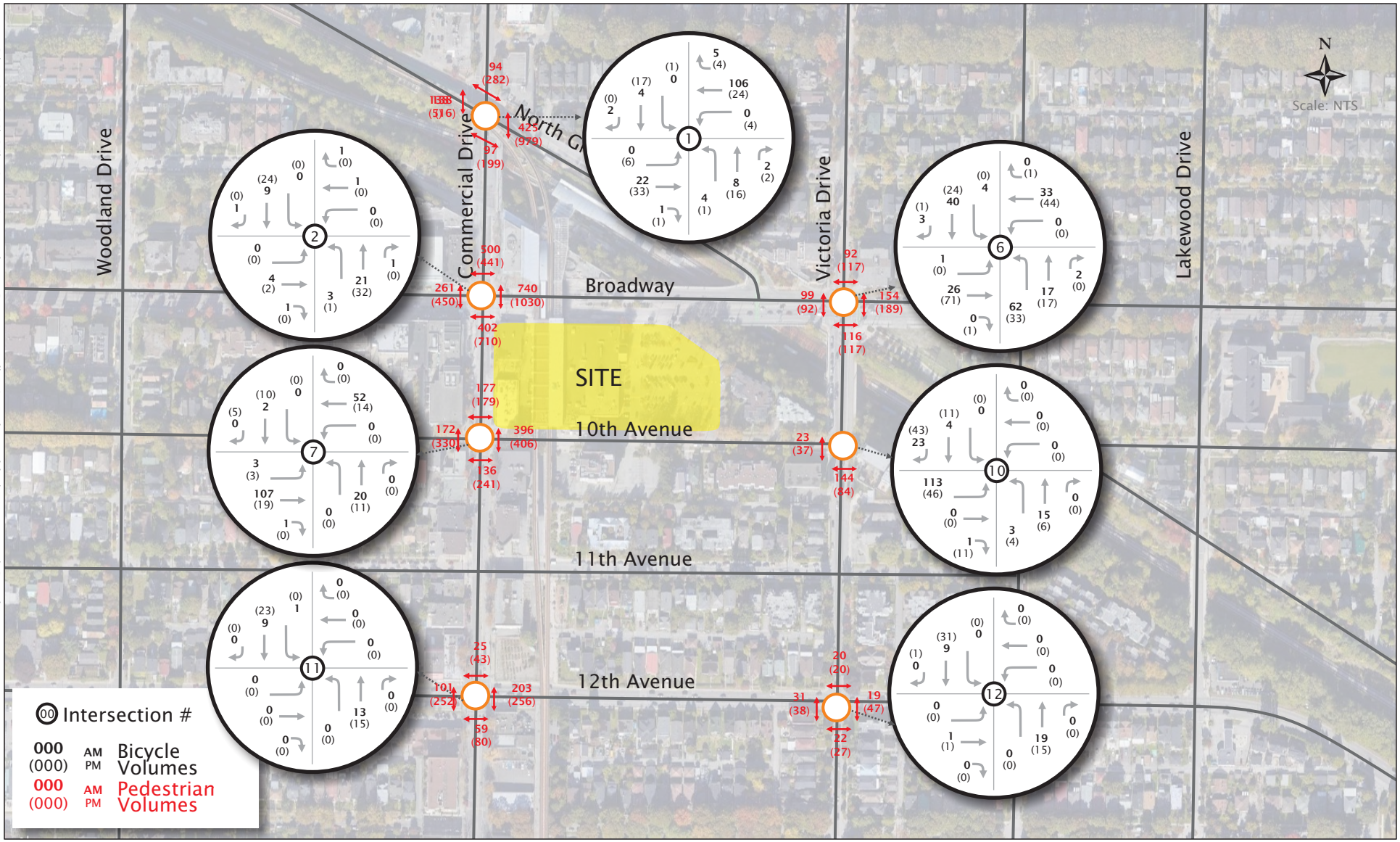
Exhibit 2.7

Existing Saturday Peak Hour Vehicle Traffic Volumes

4241-52

Broadway Commercial
October 2018

bunt associates



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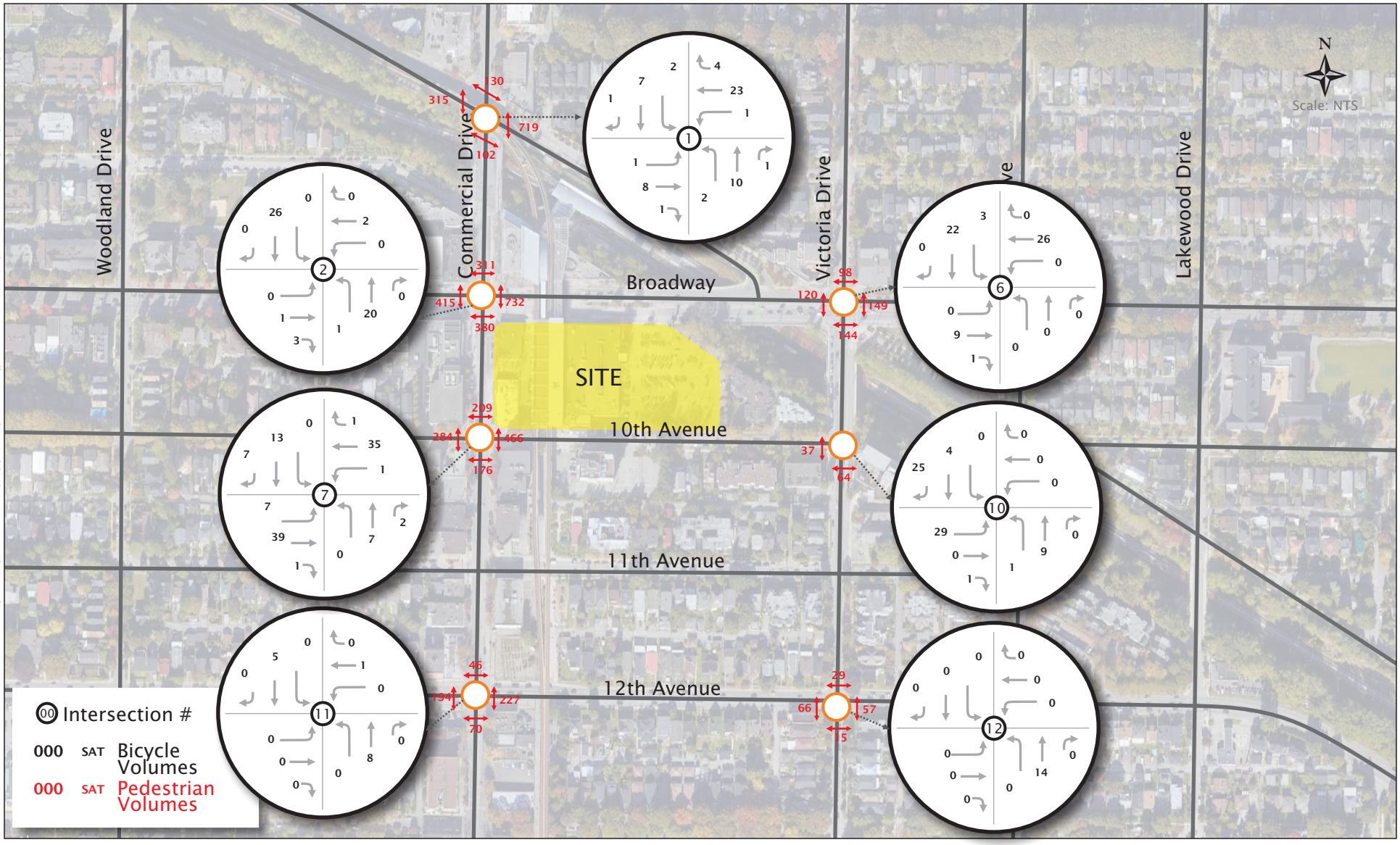
Exhibit 2.8

Existing Weekday Peak Hour Pedestrian & Cycling Traffic Volumes

4241-52

Broadway Commercial
October 2018

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Exhibit 2.9

Existing Saturday Peak Hour Pedestrian & Cycling Traffic Volumes

4241-52

Broadway Commercial
October 2018

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2.4.3 Existing Site Vehicle Trip Generation

Bunt has collected the vehicle trips at each existing driveway of Safeway, as well as observed the pick-up/drop-off vehicle trips to the Commercial-Broadway SkyTrain station at the existing site. To capture the "true" site trips generated by the existing Safeway, the pick-up/drop-off volumes observed at the existing Safeway surface parking lot were stripped out from the trips counted at the driveways. **Table 2.6** summarizes the existing site trip generation. The existing Safeway generates approximately 242, 469 and 362 vehicle trips during weekday AM, weekday PM and Saturday peak hours respectively.

Table 2.6: Existing Site Trip Generation

LAND USE	AM PEAK HOUR			PM PEAK HOUR			SAT PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Safeway	126	116	242	225	244	469	171	191	362

2.5 Existing Operations

2.5.1 Performance Thresholds

The existing operations of study area intersections and access points were assessed using the methods outlined in the latest version of Highway Capacity Manual (HCM), using the Synchro 10.2 analysis software (Build 0). The traffic operations were assessed using the performance measures of the 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 the 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 highly congested intersection where drivers may have to wait through several signal cycles. In downtown and Town Centre contexts, during peak demand periods, V/C ratios over 0.90 and even 1.0 are common.

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

Signalized Intersections:

- Overall intersection Level of Service = LOS D or better;
- Overall intersection V/C ratio = 0.85 or less;
- Individual movement Level of Service = LOS E or better; and,
- Individual movement V/C ratio = 0.90 or less.

Unsignalized Intersections and Roundabouts:

- Individual movement Level of Service = LOS E or better, unless the volume is very low in which case LOS F may be 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 6th Edition output for individual movement LOS is reported. HCM 6th Edition does not generate overall V/C ratios for intersections. For signalized three-legged intersection, the HCM 6th Edition methodology in Synchro 10 does not generate results, because it is not standard NEMA four-leg phasing. Therefore, for any intersections that do not generate HCM 6th results, please refer to the HCM 2000 reports. The LOS and 95th Percentile Queues are reported as estimated by SimTraffic, the micro-simulation module of the Synchro software;

- For unsignalized two-way stop-controlled intersections: HCM 6th Edition V/C output is reported just for individual lanes as the HCM methodology does not report overall performance. SimTraffic estimated queues and delays have also been reported, as the HCM 6th Edition methodology does not directly take into account the gaps afforded by adjacent signalized intersections. The LOS and 95th Percentile Queues are reported as estimated by SimTraffic.

The performance reporting conventions noted above have been consistently applied throughout this document; the detailed SimTraffic outputs are provided in **Appendix C.** Detailed HCM6 reports are provided in **Appendix D**. Where HCM6 does not generate outputs for certain intersections, please refer to the HCM 2000 reports provided in **Appendix E**.

2.5.2 Existing Conditions Analysis Assumptions

Signal Timing:

Signal Timings are entered as per the signal timing plans received from the City.

Synchro Parameters:

Conflicting pedestrian volumes, conflicting cyclist volumes and heavy vehicle percentage are entered as per the existing traffic counts. Peak hour factors (PHF) are entered as the overall PHF of each individual intersection. Also, the HOV lane on the westbound travel direction along Broadway is not coded in the Synchro model.

2.5.3 Existing Operational Analysis Results

Exhibit 2.10, **Exhibit 2.11**, and **Exhibit 2.12** present the Simtraffic operational analysis of existing traffic conditions during Weekday AM, Weekday PM and Saturday Mid-day peak hours respectively.

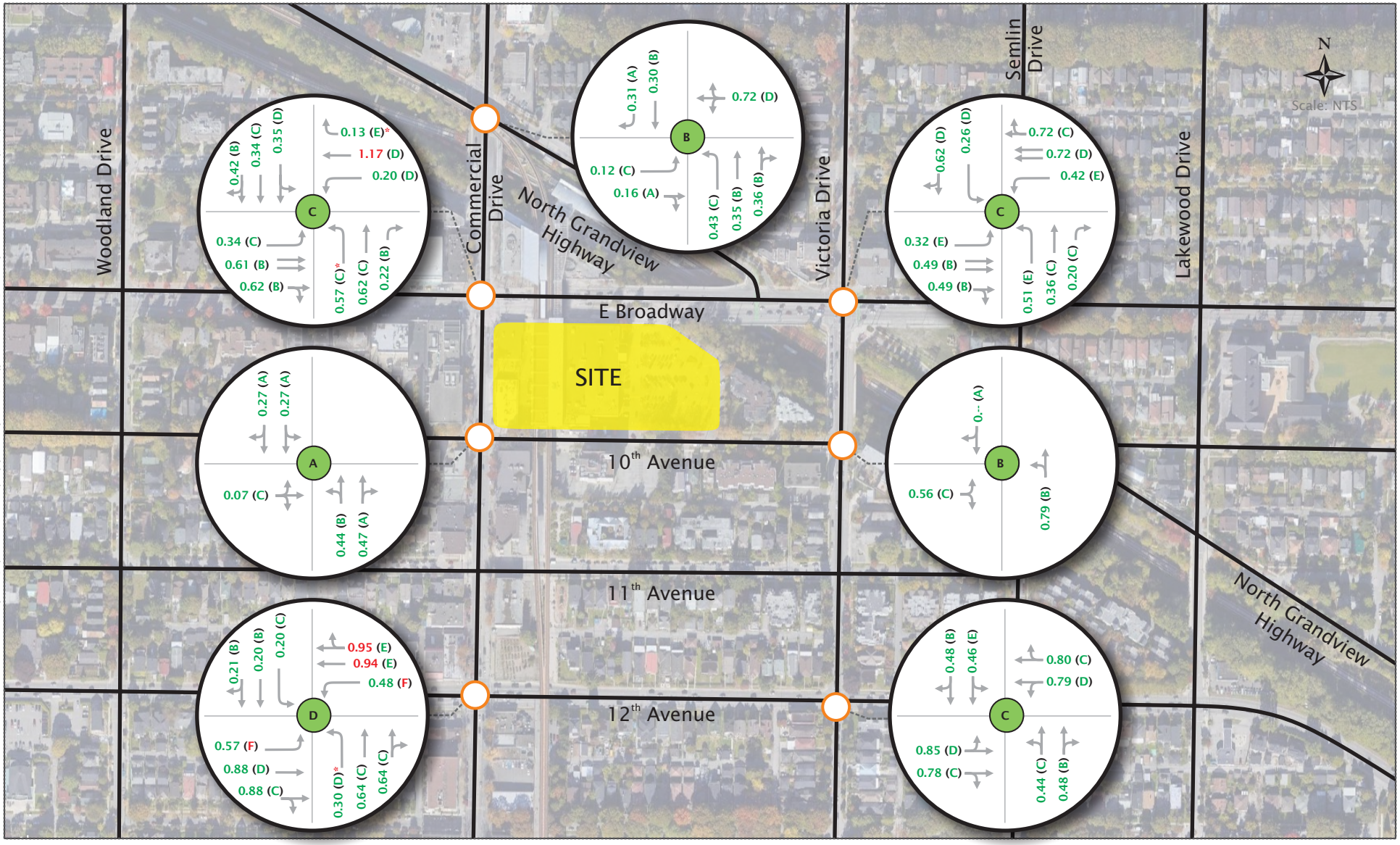
Weekday AM Peak Hour

During the AM peak hour period, the study area intersections were found to operate with low delays. All intersections were LOS D or better. A high V/C ratio (1.17) was found for the eastbound through movement at Commercial Drive & Broadway. The 95th percentile queue of the northbound left turn and westbound right turn movement at this intersection was also found to exceed the storage length slightly, extending beyond the intersection at East 10th Avenue.

At Commercial Drive & East 12th Avenue, the westbound through and right turn movements were assessed to have high V/C ratios at 0.94 and 0.95 respectively. In addition, because the eastbound and westbound left turns do not have advanced left-turn phasing, the delays for these two left turn traffic were found to be LOS F. However, these left turn volumes can be accommodated with the current available left-turn storages.

Weekday PM Peak Hour

All study intersections were found to operate with LOS D or better. Certain individual movements in the study network operate with long delays, overcapacity or with queues exceeding the available left-turn storages. At Commercial Drive & Broadway, the eastbound through, eastbound right-turn, and westbound through movements were found to have V/C ratios greater than 0.90. The 95th percentile queue of westbound right-turn was again found to exceed its available storage length because the HOV lane takes up most of the road space. The northbound left movement was found to have a LOS F.



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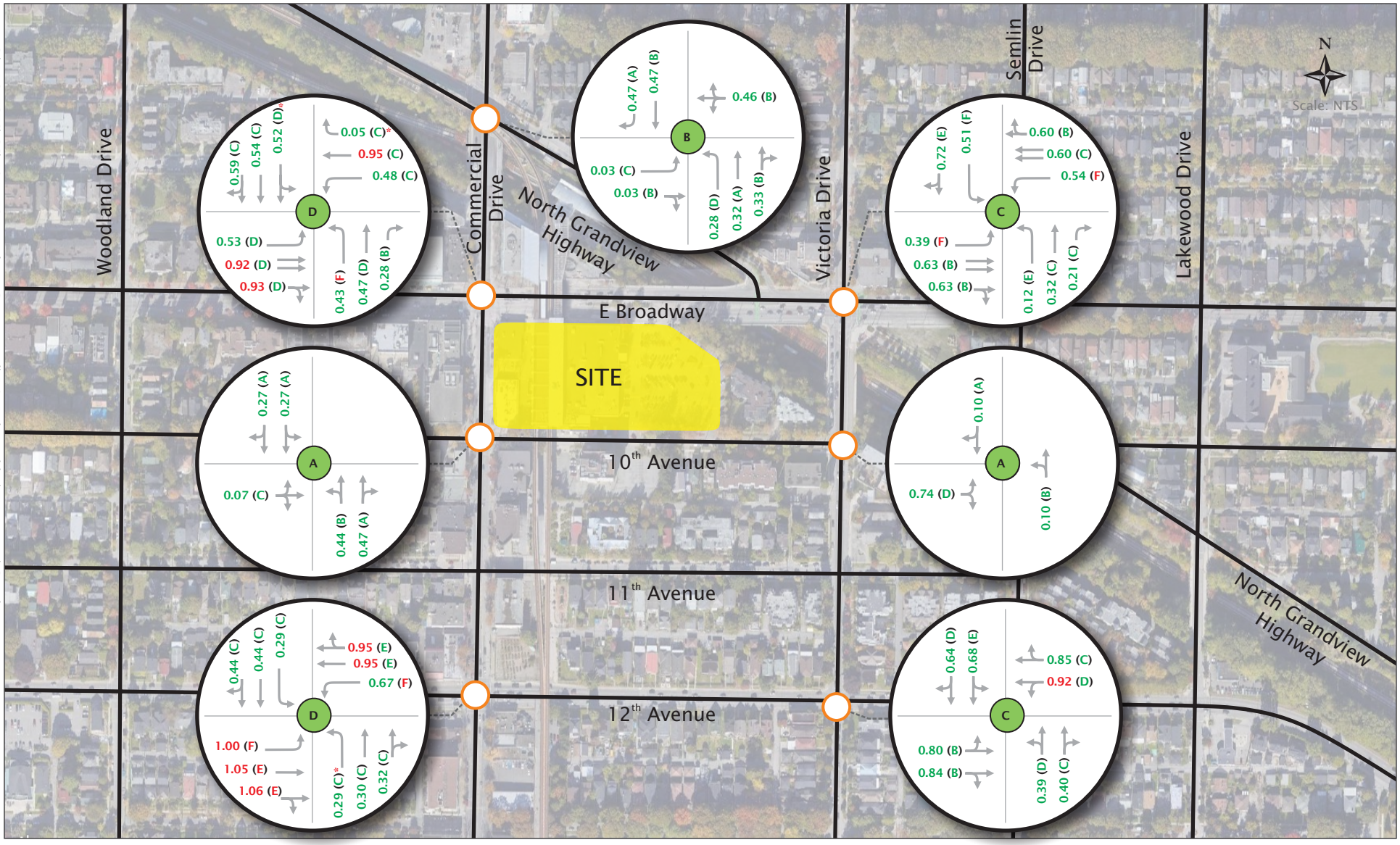
Exhibit 2.10

Existing AM Peak Hour Traffic Performance

4241-52

Broadway Commercial
October 2018

bunt associates



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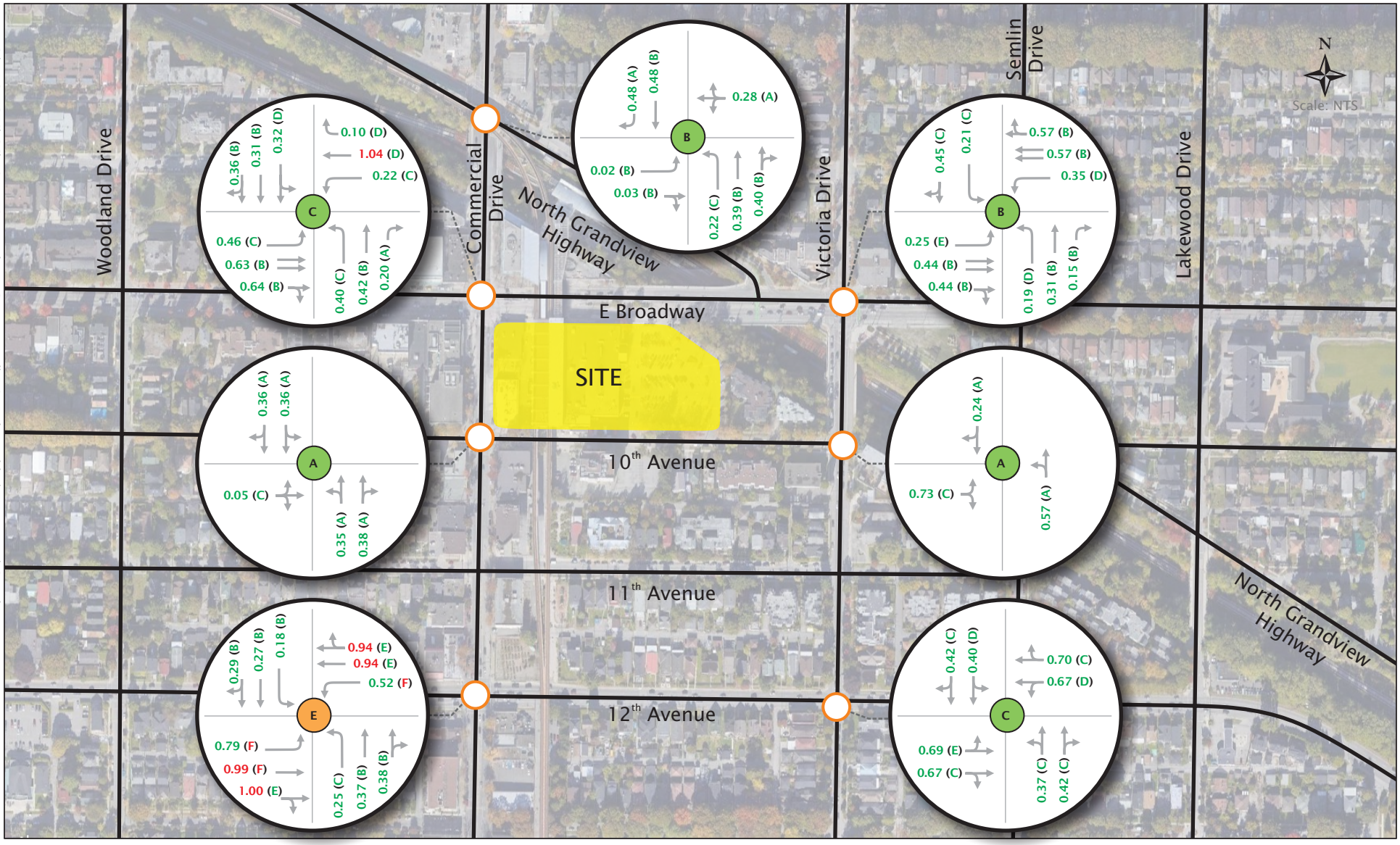
Exhibit 2.11

Existing PM Peak Hour Traffic Performance

4241-52

Broadway Commercial
October 2018

bunt associates



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Exhibit 2.12

Existing Saturday Peak Hour Traffic Performance

4241-52

Broadway Commercial
October 2018

bunt associates

The southbound through/left turn movement's 95th percentile queue was found to exceed the available storage length and extended beyond the next intersection at East 8th Avenue and North Grandview Highway. This is because the northbound and southbound left turns currently do not have any separate storage lane or advanced left-turn phasing.

At Commercial Drive & 12th Avenue, the westbound through and right turn movements were also found to both have high V/C ratios of 0.95. All of the eastbound movements were also found to exceed capacity threshold, with a LOS E or F. Again, because the eastbound and westbound left turns currently do not have advanced left-turn phasing, the delays for these two left turn traffic were found to be LOS F. But these left turn volumes can be accommodated with the existing left-turn lanes.

At Victoria Drive & 12th Avenue, the westbound through/left movement was found to have a high V/C ratio of 0.92. Currently, left-turn movements were permitted during the PM peak hour for the westbound left-turn vehicles and therefore impeding traffic flow through 12th Avenue.

Saturday Peak Hour

The study network was found to operate with acceptable delays, except an overall LOS E at Commercial Drive & 12th Avenue. Similar capacity and delay issues exist at this intersection: the eastbound through and right turn movements were found to operate with V/C ratios near 1.0; the westbound through and right turn movements were also found to have high V/C ratios of 0.94. The eastbound left and through movements as well as the westbound left turn movement were also found to operate with LOS F. It should be noted that these left turn volumes can be accommodated with the existing left-turn lanes.

2.6 North Grandview Highway & Commercial Drive Intersection Review

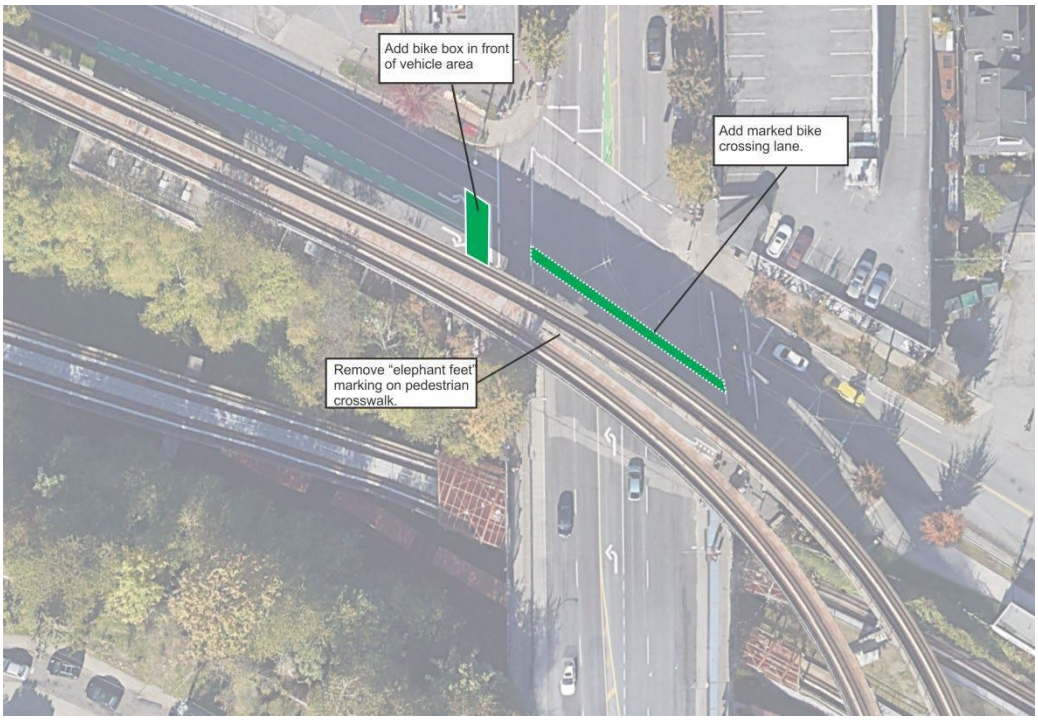
As part of the study scope for the TAMS report, the City requested that a review of the intersection of North Grandview Highway & Commercial Drive be conducted. The following presents our findings of the intersection review.

A field review was conducted on the morning of October 4, 2018, to observe the operation of the intersection. The east leg of the intersection is restricted to buses and bicycles only in the eastbound direction. Pedestrian crosswalks are available at all legs of the intersection. The eastbound approach (west leg) of the intersection is currently configured with one left-turn lane and one right-turn lane for vehicles, with an eastbound bicycle lane between the two vehicle lanes as shown in the picture to the right.



The bicycle crossing for this painted bicycle lane, however, is located at the pedestrian crosswalk at the south leg of the intersection. To provide better guidance for eastbound cyclists crossing the intersection, it is recommended that changes to pavement markings can be provided at this intersection to include bike box and marked bike crossing at the eastbound approach as an interim improvement measure, as shown in **Figure 2.2** below.

Figure 2.2: Eastbound Bicycle Interim Improvement at North Grandview Highway & Commercial



As noted earlier, the City will be undertaking a complete street design for the Commercial Drive corridor in the future. The final configuration for the North Grandview Highway & Commercial Drive intersection may be different in the future and therefore the proposed pavement marking changes could be implemented as an interim improvement until such time the complete street design for Commercial Drive is completed.

3. FUTURE TRAFFIC CONDITIONS

3.1 Traffic Forecasts

3.1.1 Traffic Forecast Methodology

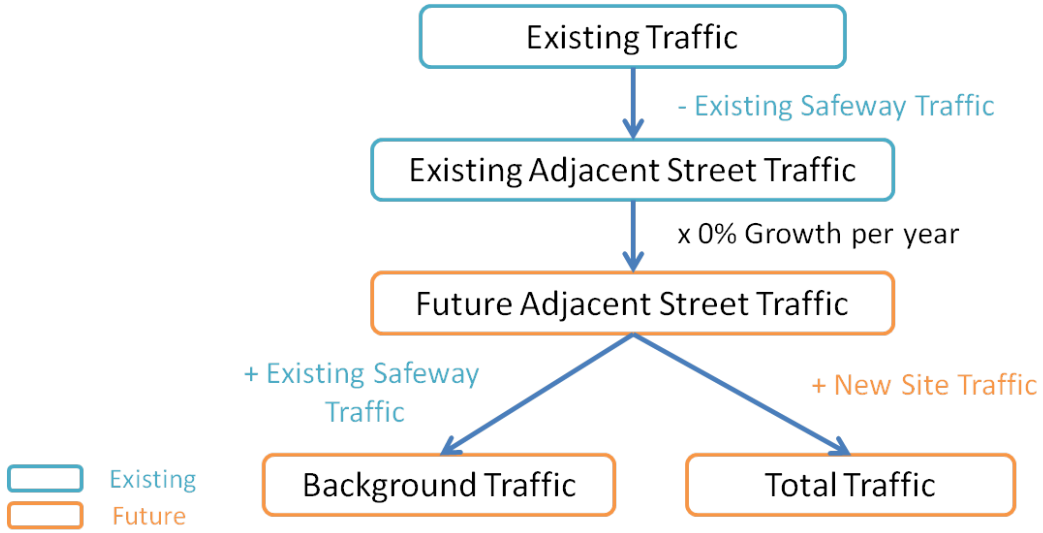
Figure 3.1 illustrates the process of estimating both future background traffic and total traffic, based on existing traffic observations. Background traffic is traffic that would be present on the road network if the site did not redevelop. Total traffic is traffic with the full build out of the proposed development.

The forecast starts with stripping out the existing site traffic from existing traffic counts, then apply a growth rate on the remaining existing adjacent street traffic. For the future traffic conditions, it is assumed that no background traffic growth would apply to the study network, as traffic volumes were generally found to be stable along the arterial streets. Furthermore, with the section 10th Avenue being a bikeway, it is assumed that any future development on the south side of 10th Avenue that may take place as a result of the land use changes allowed under the Grandview Woodland Community Plan would take vehicle access off away from 10th Avenue, and therefore will not generate any background traffic growth.

To generate background traffic, the future adjacent street traffic needs to add back to the existing site traffic. In this case, due to the zero background growth, the background traffic would be the same as existing traffic volumes.

To estimate future total traffic of full build-out (assumed 2026), the new site traffic is added to the future adjacent street traffic.

Figure 3.1: Traffic Forecast Methodology



3.1.2 Site Traffic

Trip Generation

Table 3.1 presents the base vehicle trip rates from Bunt's observations and ITE 10th Edition Trip Generation Manual. It is assumed that the future Safeway will operate similarly as existing, but with a gross floor area increasing from currently 35,000 sq-ft to 50,000 sq-ft. Based on the ITE trip rates for grocery centre, the fitted curve indicates that with a greater floor area, the trip rates in fact decrease. So in order to estimate future trip rates for the Safeway with a larger floor area, the ratio of reduction in trip rates based on ITE fitted curve is applied to existing observed Safeway trip rates.

Bunt's observed trip rates at multi-family residential developments near rapid transit stations in Metro Vancouver are used for the residential condo and rental units in this proposed development. As a comparison, these rates observed by Bunt previously are very close with the ITE land use code 222 'Multi-family Housing (High Rise)' vehicle trip rates in the "Dense Multi-use Urban" context. For other land uses, standard ITE trip rates are applied.

Table 3.1: Peak Hour Vehicle Trip Rates

LAND USE	SOURCE	MEASURE	AM PEAK HOUR			PM PEAK HOUR			SAT PEAK HOUR		
			IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Safeway	Existing Counts adjusted for increased floor area	1,000 sq-ft	3.58	3.30	6.88	5.87	6.37	12.24	4.36	4.87	9.23
Residential - Condo	Bunt	Unit	0.05	0.17	0.22	0.13	0.08	0.21	0.12	0.07	0.19
Residential - Strata	Bunt	Unit	0.05	0.17	0.22	0.13	0.08	0.21	0.12	0.07	0.19
Retail	ITE 820	1,000 sq-ft	0.58	0.36	0.94	1.83	1.98	3.81	2.34	2.16	4.50
Daycare	ITE 565	1,000 sq-ft	5.83	5.17	11.00	2.95	3.33	6.28	1.07	0.63	1.70
Fitness	ITE 492	1,000 sq-ft	0.67	0.64	1.31	0.89	0.68	1.57	1.56	1.63	3.19
Office	ITE 710	1,000 sq-ft	1.00	0.16	1.16	0.14	0.74	0.88	0.29	0.24	0.53

Given the mixed-use nature of the proposed development, some of the trips generated by the site are expected to be internal trips that are contained within the site (i.e. residents going to the retail stores to shop, etc.). These internal trips have the same origin and destination as the site; they do not create additional trips on the road network outside of the site. In this study, only retail vehicle trips have been discounted for internal trip making, as vehicle trip rates for multifamily-residential and office already account for high density and mixed use.

Based on the methodology outlined in the Trip Generation Handbook, 3rd Edition and NHCRP Report 684, at full build-out, internal capture percentage was estimated to be 7% during the AM peak period, 19% during the PM peak period, and 22% during the Saturday peak period.

In addition, the proposed land use of Safeway grocery store and retail stores will naturally generate an amount of pass-by traffic. A pass-by trip, by the definition from ITE, is made as an intermediate stop on the way from an origin to a primary trip destination without any route diversion. For example, a person may choose to pick up some groceries at Safeway on his or her way home. The remaining site-generated traffic is considered as "primary trips", which are made specifically to visit the proposed site. Based on the ITE database, the estimated average pass-by traffic percentage of retail trips is 34% in the weekday PM peak hour and 26% in the Saturday peak hour. The weekday AM peak hour does not have any specific ITE data, for this analysis and based on engineering judgment, the pass-by percentage is assumed to be 20%.

Table 3.2 summarizes the anticipated future site generated vehicle trips after accounting internal capture for the proposed development based on the above rates.

Table 3.2: Estimated Peak Hour Site Vehicle Trips (Including Internal Capture)

LAND USE	AM PEAK HOUR			PM PEAK HOUR			SAT PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Safeway & Retail – Primary	144	133	277	183	189	372	156	160	316
Safeway & Retail – Pass-by	36	33	69	94	98	192	55	56	111
Residential	35	114	149	48	29	77	44	27	71
Daycare	72	63	135	36	41	77	13	8	21
Fitness	6	6	12	8	6	14	15	15	30
Office	24	3	27	1	15	16	4	5	9
TOTAL	317	352	669	370	378	748	287	271	558

As shown, the site is estimated to generate approximately 560 to 750 vehicle trips during the studied peak hour periods. The inbound and outbound traffic are almost evenly split during each peak hour.

Table 3.3 summarizes the amount of net new vehicle trips from the proposed development, after subtracting the existing vehicle trips at Safeway. The development is anticipated to generate approximately 427, 279 and 196 net new vehicle trips to the street network during weekday AM, weekday PM and Saturday peak hours respectively. In context, this is equivalent to approximately 3-7 vehicles per minute during peak hours.

Table 3.3: Net Increase of Peak Hour Site Vehicle Trips

LAND USE	AM PEAK HOUR			PM PEAK HOUR			SAT PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Proposed Mixed-use Development	317	352	669	370	378	748	287	271	558
- Existing Safeway	126	116	242	225	244	469	171	191	362
NET NEW TRIPS	191	236	427	145	134	279	116	80	196

Trip Distribution & Assignment

Trip distribution and was based on an analysis of existing traffic flow patterns in the surrounding road network, taking into account observed directional at the gateways to the study area road network. The trip assignment was based on logical routings from site access points to the study area external gates. **Table 3.3** outlines the trip distribution used to assign the new traffic generated by the proposed development for all land use types.

Table 3.4: Estimated Trip Distribution

ORIGIN/DESTINATION	AM PEAK HOUR		PM PEAK HOUR		SAT PEAK HOUR	
	IN (%)	OUT (%)	IN (%)	OUT (%)	IN (%)	OUT (%)
Commercial Drive – North	5%	7%	7%	5%	9%	8%
North Grandview Hwy – West	1%	6%	0%	3%	1%	1%
Victoria Drive – North	6%	4%	7%	5%	5%	5%
Broadway – West	14%	20%	20%	16%	15%	17%
Broadway - East	21%	15%	20%	21%	19%	17%
12th Avenue – West	19%	20%	19%	19%	20%	20%
12th Avenue – East	20%	20%	18%	19%	19%	20%
Commercial Drive – South	9%	4%	5%	8%	7%	7%
Victoria Drive - South	5%	4%	4%	4%	5%	5%
TOTAL	100%	100%	100%	100%	100%	100%

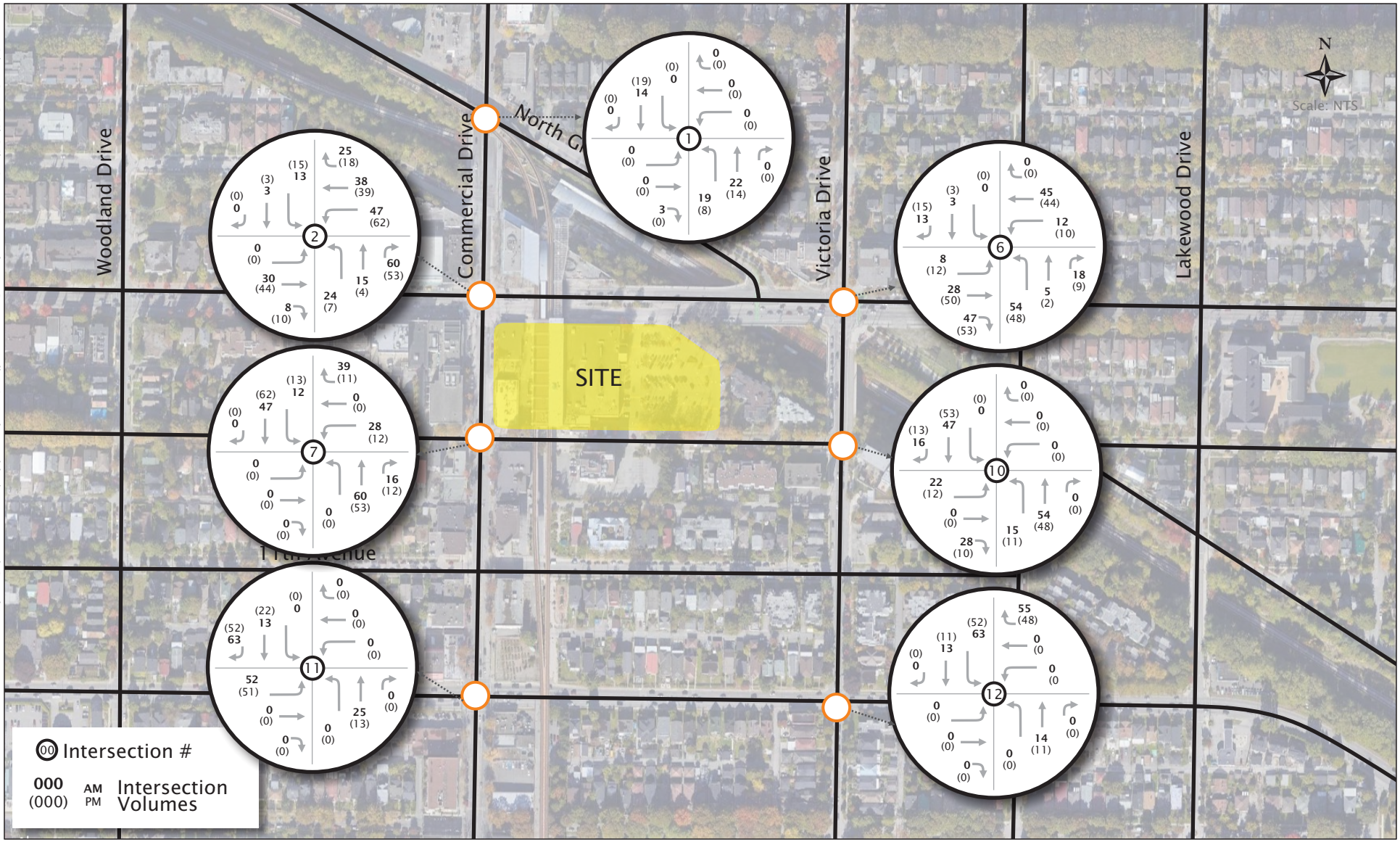
Exhibit 3.1 and **Exhibit 3.2** present the resulted site traffic during weekday and Saturday peak hours respectively.[1]

[1] The site traffic volumes exhibits (and subsequent analysis in this section) are based on an earlier version of the site plan with a slightly different development statistics. The difference in site vehicle trip generation is within 10 to 20 vehicle trips during the studied peak-hours and therefore they have not been updated specifically. It is Bunt's opinion that the slight increase site vehicle trips will not materially change the conclusion of the traffic analysis.

Table 3.5 summarizes the net change of vehicular traffic at each existing study intersection. As shown, the net increase of traffic ranges approximately 3% to 7% at most intersections, except an increase of 14%-18% at the intersections of 10th Avenue & Victoria Avenue and 10th Avenue & Commercial Drive.

Table 3.5: Net Change in Future Intersection Vehicle Volumes with New Site Trips

INTERSECTION	AM PEAK HOUR VOLUMES			PM PEAK HOUR VOLUMES			SAT PEAK HOUR VOLUMES		
	BACK-GROUND	SITE	% CHANGE	BACK-GROUND	SITE	% CHANGE	BACK-GROUND	SITE	% CHANGE
North Grandview Highway / East Broadway	1,497	58	4%	1,465	41	3%	1,448	40	3%
Commercial Drive / East Broadway	3,779	263	7%	4,384	255	6%	3,271	203	6%
Victoria Drive / East Broadway	3,831	233	6%	4,353	246	6%	3,180	183	6%
Commercial Drive / East 10th Avenue	1,107	202	18%	1,153	163	14%	994	136	14%
Victoria Drive / East 10th Avenue	1,005	182	18%	1,015	147	14%	833	123	15%
Commercial Drive / East 12th Avenue	4,194	153	4%	4,496	138	3%	3,857	114	3%
Victoria Drive / East 12th Avenue	3,939	145	4%	4,128	122	3%	3,305	104	3%



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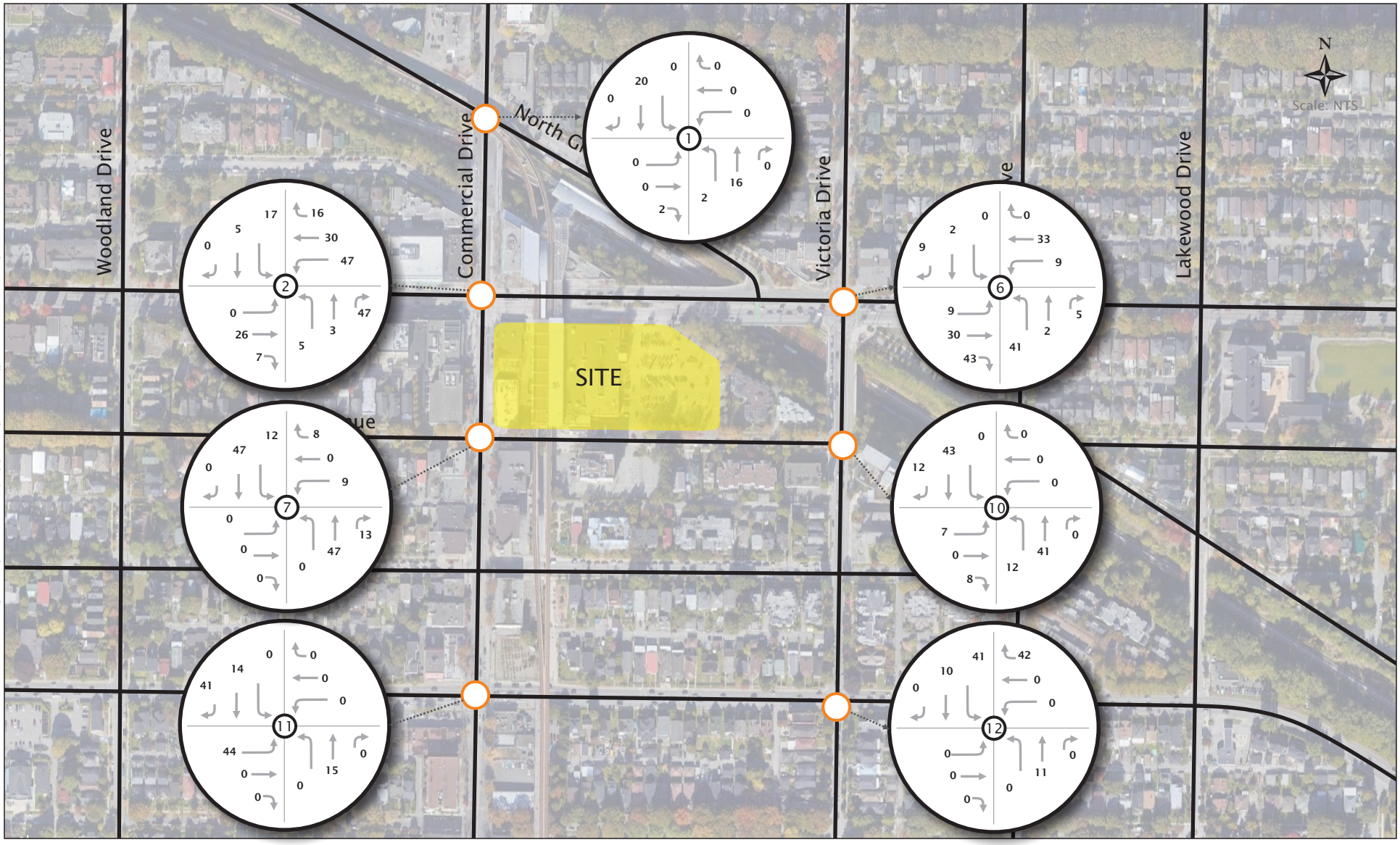
Exhibit 3.1

Weekday Peak Hour Site Traffic Forecasts

4241-52

Broadway Commercial
October 2018

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Exhibit 3.2

Saturday Peak Hour Site Traffic Forecasts

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3.1.3 Trip Generation by Mode

Based on the total external vehicle trips generated by the proposed development, site trips generated by pedestrians, cyclists, and transit can be estimated for each land use. For residential and shopping trips, because the trip rates are observed near a transit station in Metro Vancouver, the person trips for these two uses are converted by dividing the Auto mode share in the Vancouver-Broadway area as defined in the *McElhanney's 2017 Transportation Panel Survey (May 2018).* For other land uses that were assessed using standard ITE trip rates, the office and community-use person trips (to the fitness centre and daycare) are converted assuming an Auto mode split of 90%. After converting to person trips for each land use, the person trips are multiplied by the split of each transportation mode to get the trips generated by each mode.

Figures 3.2 – 3.5 present the existing mode share in the local area for each proposed land use.

Figure 3.2: Mode Share of Residential Trips

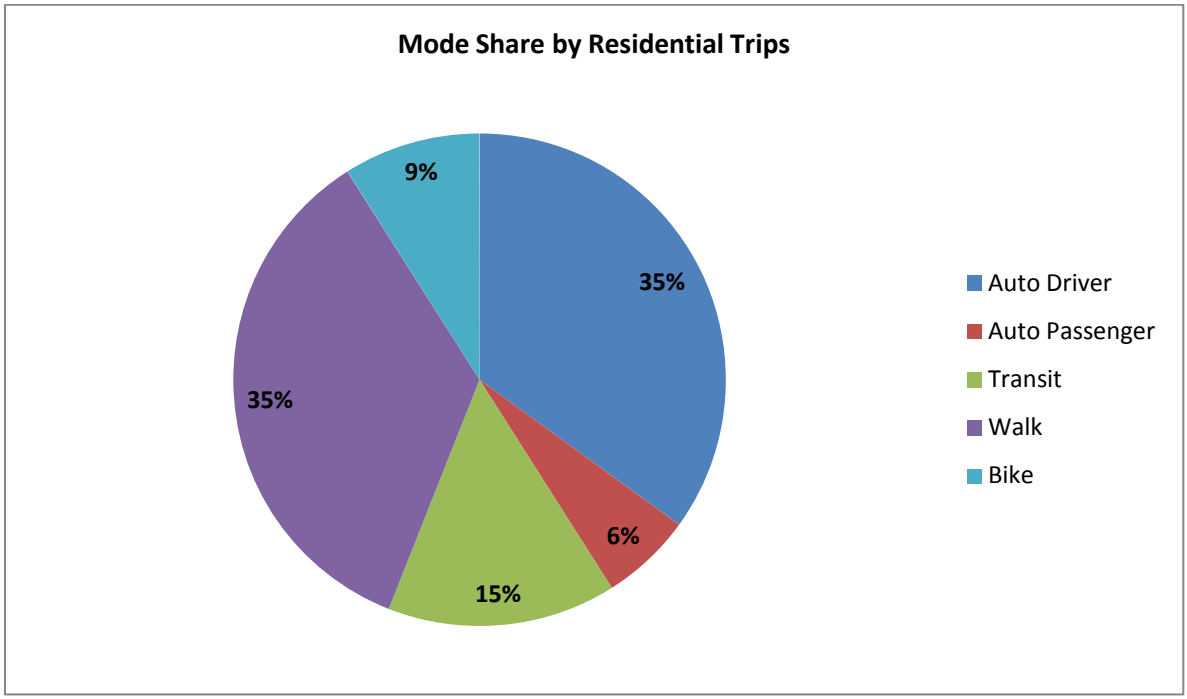


Figure 3.3: Mode Share of Shopping Trips

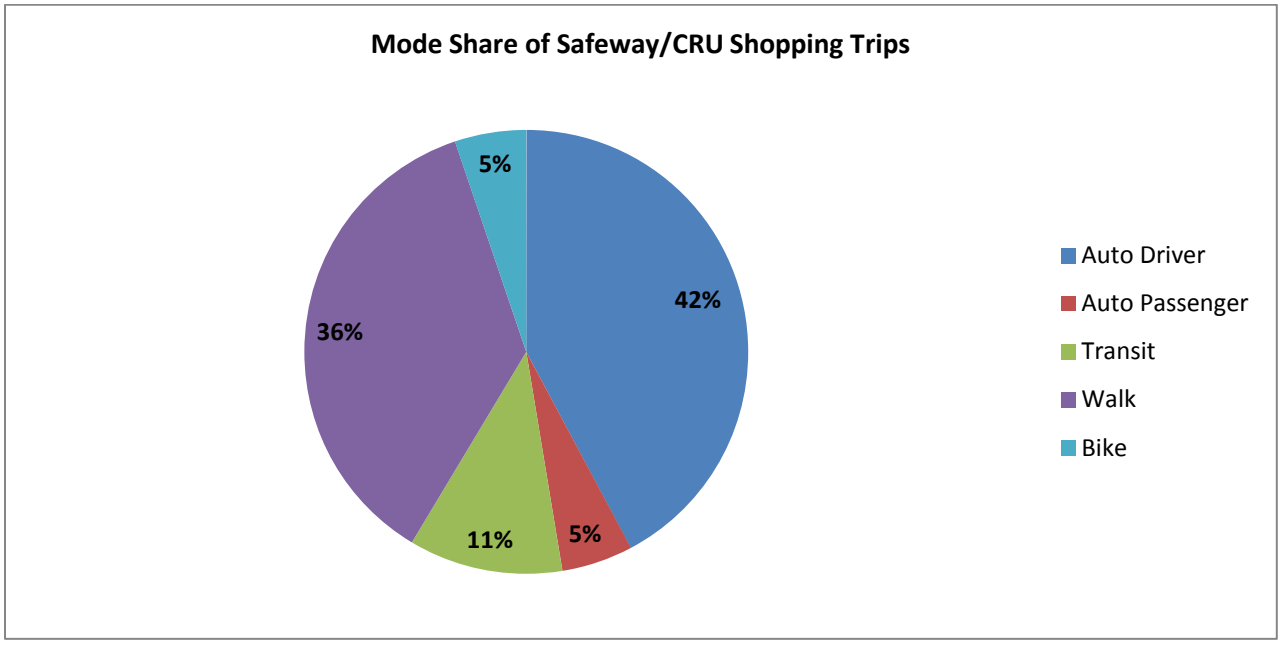


Figure 3.4: Mode Share of Office Trips

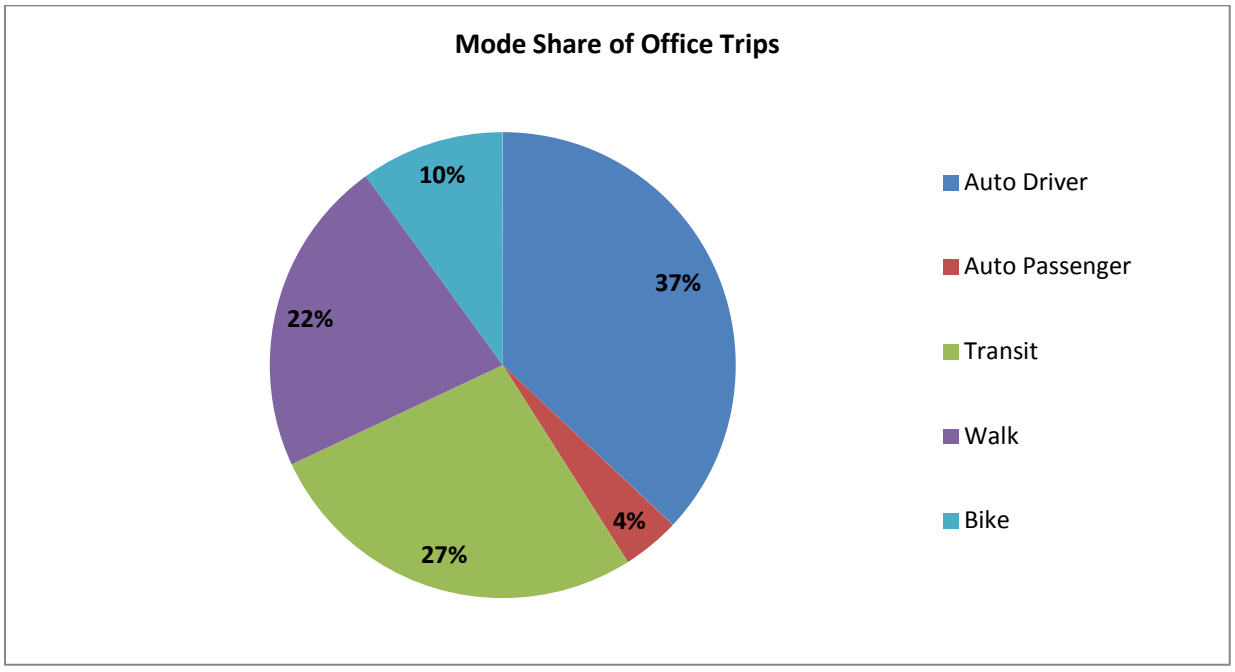


Figure 3.5: Mode Share of Recreational/Social Trips

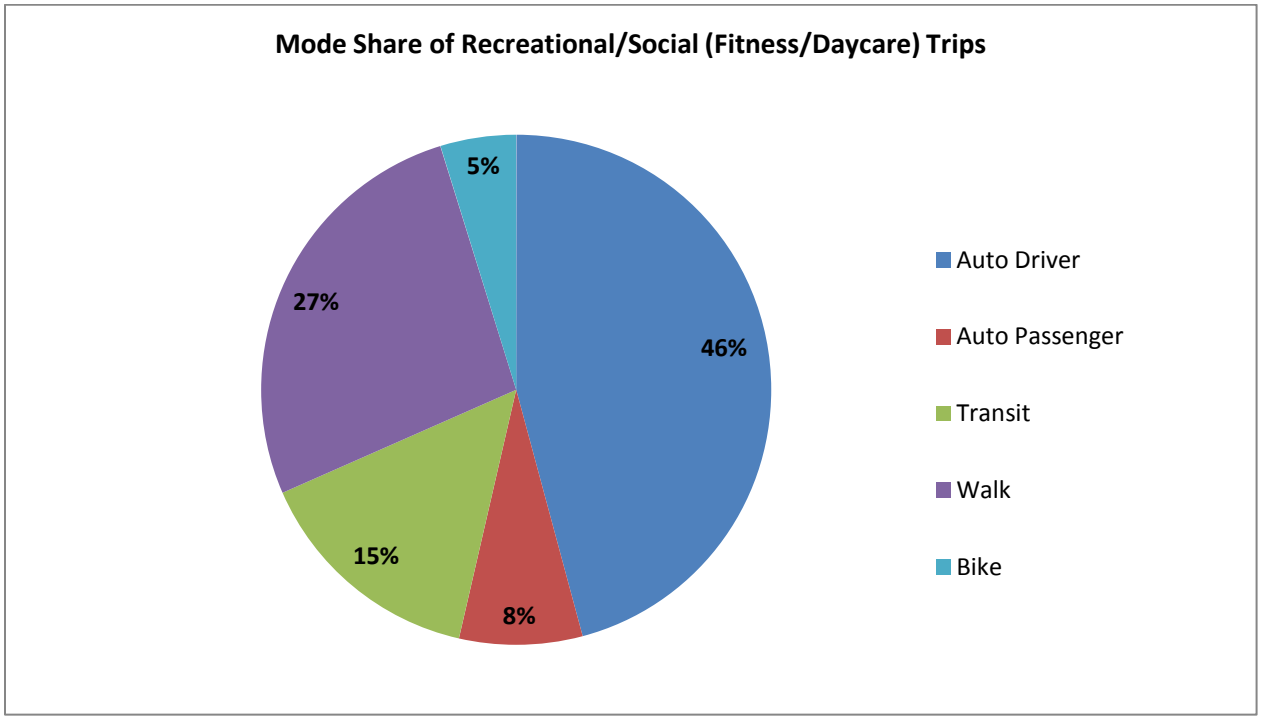


Table 3.6 to 3.9 presents the person trips generated by auto drivers, auto passengers, transit users, pedestrians, and cyclists, for each land use respectively: Residential, Safeway/CRU, Office, Fitness/Daycare.

Table 3.10 summarizes all person trips by each mode. As shown, during the weekday morning and afternoon peak hours, the proposed development is estimated to generate approximately 1,423 and 1,663 trips respectively. Among these trips, about 500 - 600 persons will be walking and about 100 persons will be cycling. During the Saturday peak hour, the site is estimated to generate 1,258 person trips, of which around 450 persons will be walking and 75 persons will be cycling.

Table 3.6: Residential Person Trips By Mode

MODE	AM PEAK HOUR			PM PEAK HOUR			SAT PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Auto Driver	35	114	149	48	29	77	44	27	71
Auto Passenger	6	20	26	8	5	13	8	5	13
Transit	15	49	64	21	12	33	19	12	31
Walk	35	114	149	48	29	77	44	27	71
Bike	9	29	38	12	8	20	11	7	18
TOTAL	100	326	426	138	82	220	126	78	204

Table 3.7: Safeway/CRU Person Trips By Mode

MODE	AM PEAK HOUR			PM PEAK HOUR			SAT PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Auto Driver	180	166	346	277	287	564	211	216	427
Auto Passenger	22	20	42	34	35	69	26	27	53
Transit	48	44	92	73	76	149	56	57	113
Walk	155	142	297	237	246	483	181	185	366
Bike	22	20	42	34	35	69	26	27	53
TOTAL	427	392	819	655	679	1,334	500	512	1,012

Table 3.8: Office Person Trips By Mode

MODE	AM PEAK HOUR			PM PEAK HOUR			SAT PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Auto Driver	10	1	11	1	6	7	1	2	3
Auto Passenger	1	0	1	0	1	1	0	0	0
Transit	7	1	8	0	5	5	1	2	3
Walk	6	1	7	0	4	4	1	1	2
Bike	3	0	3	0	2	2	0	1	1
TOTAL	27	3	30	1	18	19	3	6	9

Table 3.9: Fitness/Daycare Person Trips By Mode

MODE	AM PEAK HOUR			PM PEAK HOUR			SAT PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Auto Driver	36	32	68	19	21	40	9	6	15
Auto Passenger	6	5	11	3	4	7	2	1	3
Transit	12	10	22	6	7	13	3	2	5
Walk	21	19	40	11	12	23	5	3	8
Bike	4	3	7	2	2	4	1	1	2
TOTAL	79	69	148	41	46	87	20	13	33

Table 3.10: Total Person Trips By Mode

MODE	AM PEAK HOUR			PM PEAK HOUR			SAT PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Auto Driver	261	313	574	345	343	688	265	251	517
Auto Passenger	35	45	80	45	45	90	36	33	68
Transit	82	104	186	100	101	201	79	73	151
Walk	217	276	493	297	292	589	231	216	448
Bike	38	52	90	48	47	95	38	36	74
TOTAL	633	790	1,423	835	828	1,663	649	609	1,258

3.1.4 Opening Day Total Traffic

Exhibit 3.3 and **Exhibit 3.4** present the total 2026 vehicular traffic at the study network with the future proposed development, during weekday and Saturday peak hours respectively.

3.2 Future Traffic Operations

3.2.1 Future Conditions Analysis Assumptions

For the future conditions analysis, it is assumed the new intersection for site access on Broadway would be signalized. For this intersection, the following Synchro parameters are applied:

- Conflicting pedestrian volumes of 100 pedestrians were coded for all available crosswalks, i.e. on the west, north and south side.
- Heavy vehicle percentages were zero at the turning movements in and out of the site and default 2% on the eastbound and westbound through movements, because loading activities would happen in a separate access point.
- Cycle lengths were 75 seconds, 80 seconds and 70 seconds at this intersection, which are consistent with the cycle length of the adjacent intersections.
- Westbound left movement was coded with a protected-permissive phase.

For other intersections, existing analysis assumptions are applied.

3.2.2 Potential Mitigations

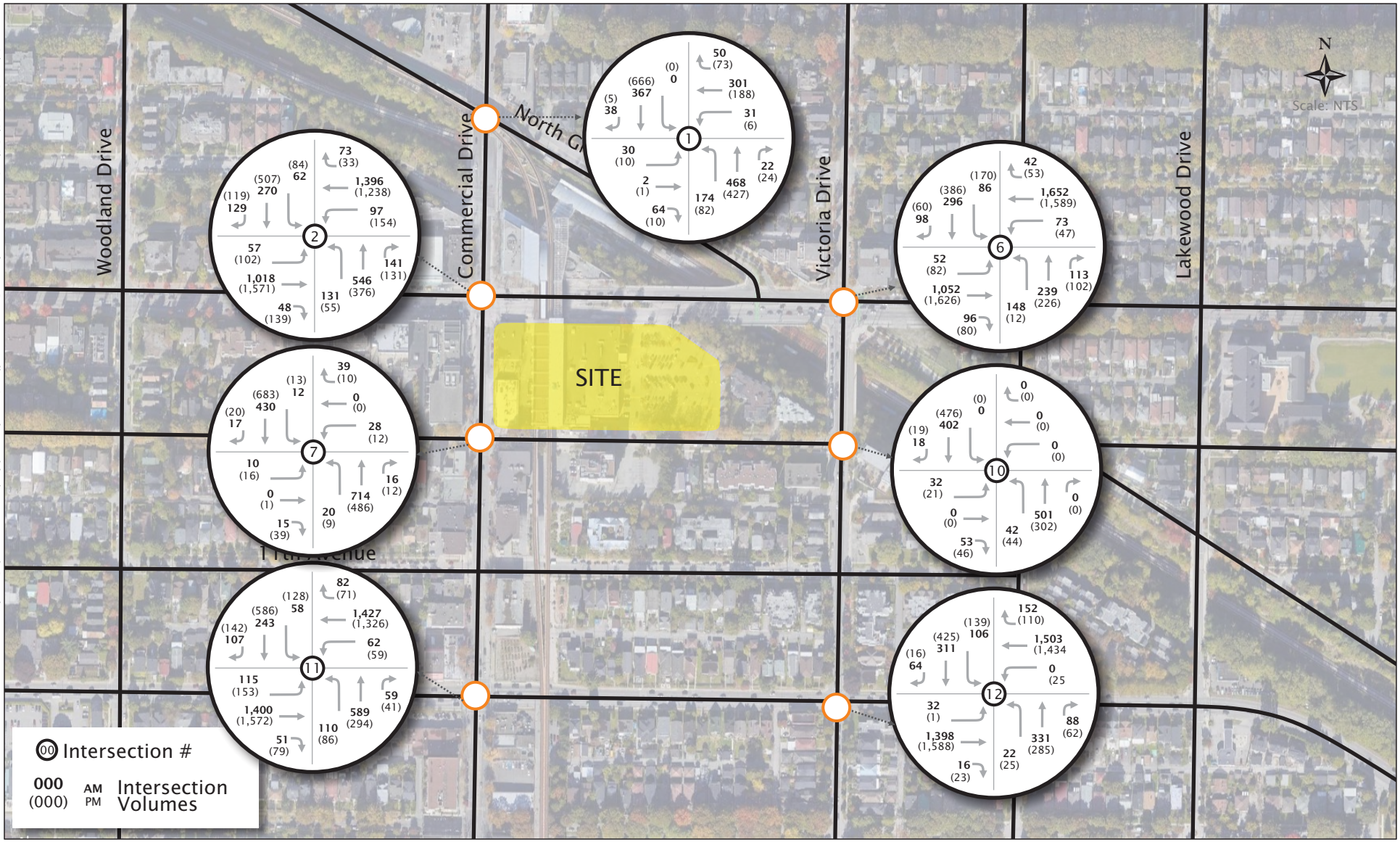
Although potential mitigations could be applied to some of the study intersections with operational issues, they are not recommended in the analysis. The specific reasons are explained in the following paragraphs.

Commercial Drive & Broadway

The northbound left turn could be improved with a protected-permissive phase. However, this mitigation requires increasing the cycle length of the intersection, or reduce the eastbound/westbound green time. Given the issue that eastbound and westbound through movements are already at capacity threshold during weekday peak hours, this introduction of advanced northbound left turn would increase the delay through Broadway even further, and therefore it is not recommended.

Victoria Drive & Broadway

Similarly, the eastbound and westbound left turns could be introduced with advanced left-turn phasing. However, this would increase cycle length or reduce green time at the opposing north-south movements. Overall, based on SimTraffic simulation test, this would exacerbate the overall delay of the intersection. In addition, the current left-turn storages are able to accommodate the 95th queue lengths of these left turns. So no mitigation is recommended here.



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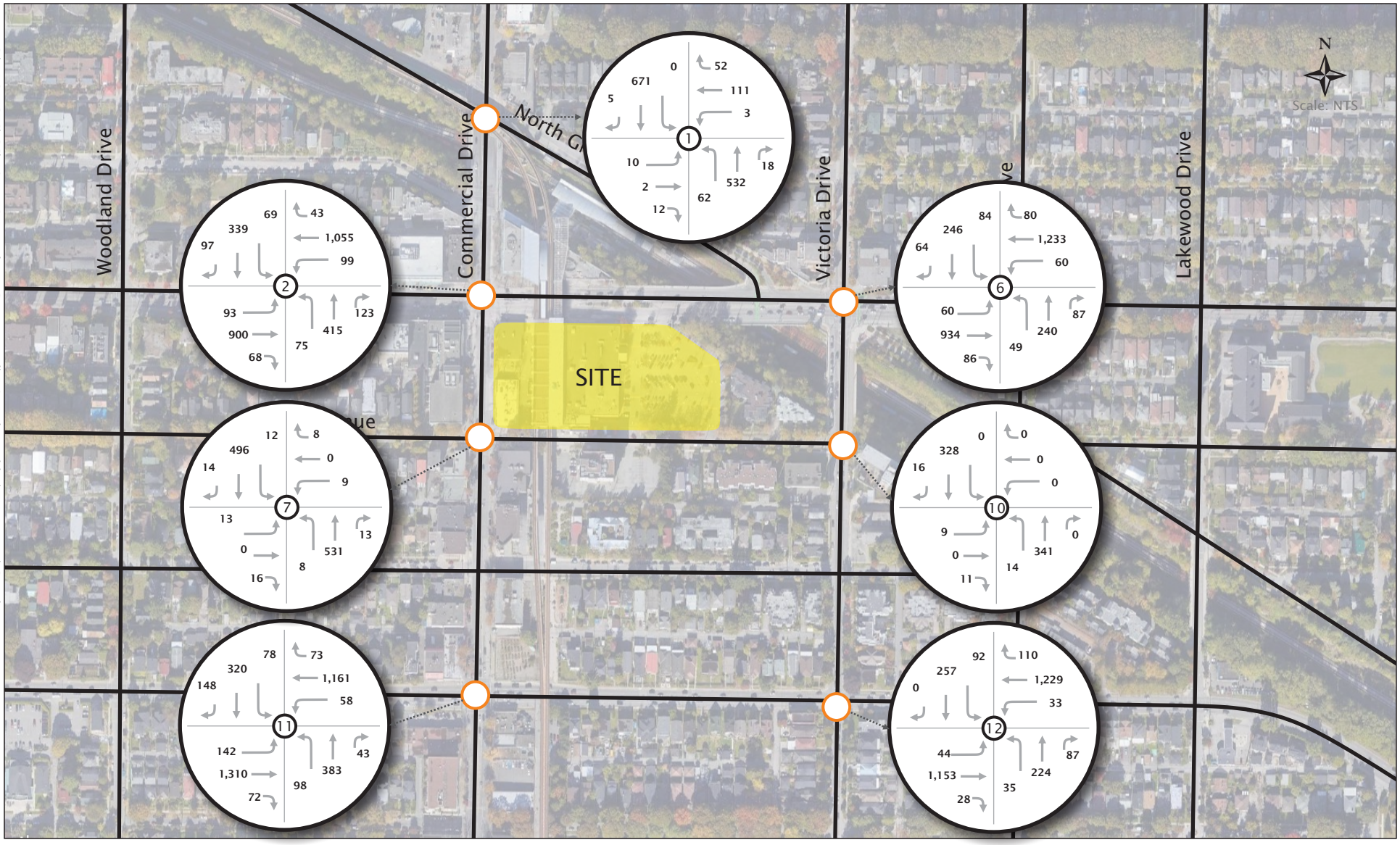
Exhibit 3.3

Opening Day (2026) Weekday Peak Hour Total Traffic Forecasts

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Exhibit 3.4

Opening Day (2026) Saturday Peak Hour Total Traffic Forecasts

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Commercial Drive & East 12th Avenue

The existing eastbound and westbound left turns could be improved with a protected-permissive phasing, but this again would either lengthen the cycle length or reduce the green time on north-south movements. Overall, based on SimTraffic simulation test, this would exacerbate the overall delay of the intersection. In addition, the current left-turn storages are able to accommodate the 95th queue lengths of these left turns. So no mitigation is recommended here.

Victoria Drive & East 12th Avenue

The capacity issue at westbound through movement (V/C ratio = 0.92) during the weekday PM peak hours could be mitigated, by restricting the left turns, similar to the restriction during the AM peak hours. However, this turning restriction would cause these left-turn vehicles to travel further west and turn left at Commercial Drive. Because the westbound left turn at Commercial Drive does not have an advanced phasing, and the current traffic is already at capacity and, it is not recommended to restrict the left turn at Victoria Drive during Weekday PM peak hour.

3.2.3 Future Total Traffic Operations

Exhibit 3.5, Exhibit 3.6 and **Exhibit 3.7** present the traffic operational results from SimTraffic and HCM 6th Edition, during weekday AM, weekday PM and Saturday peak hours respectively.

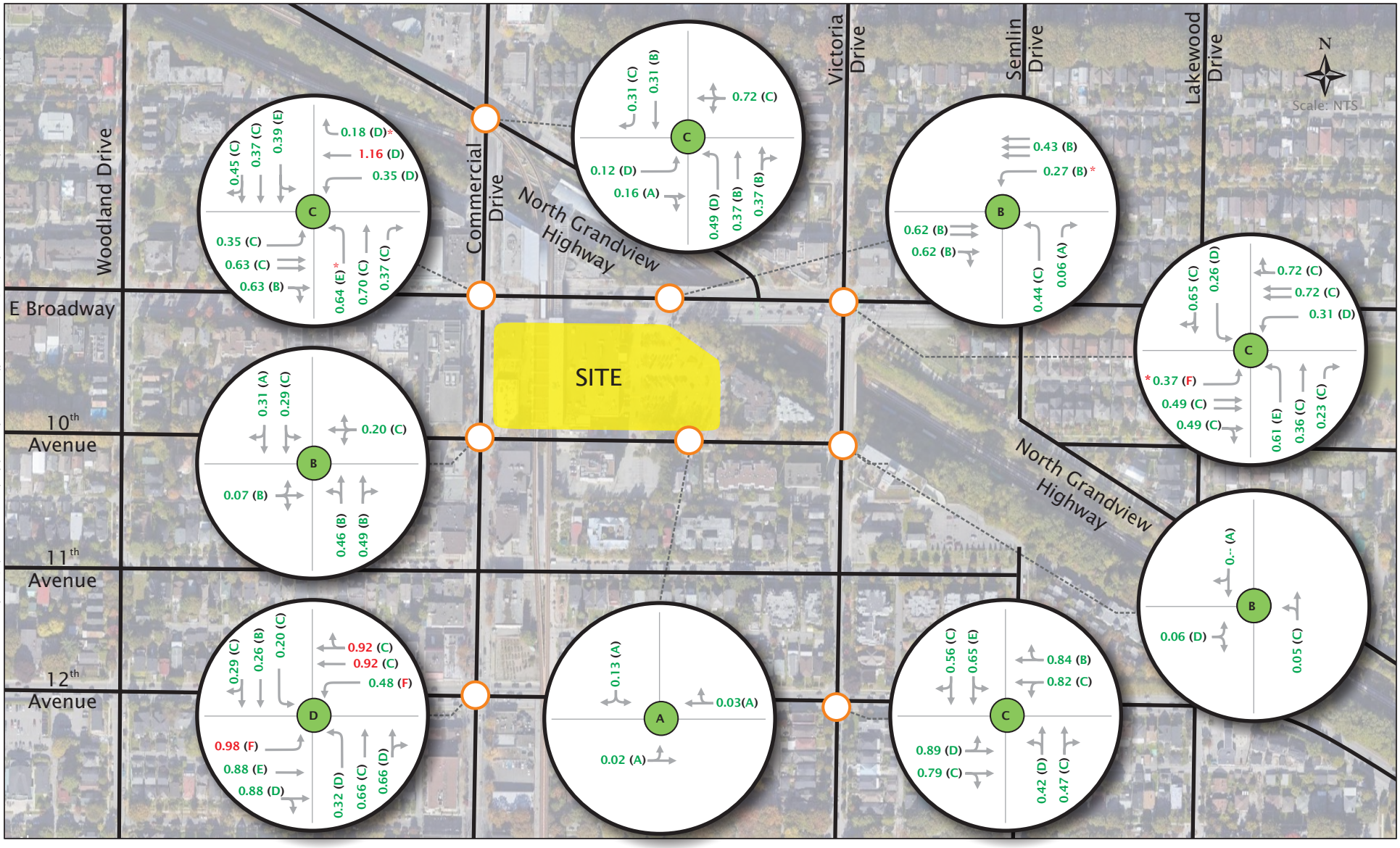
2026 Weekday AM Peak Hour

During the AM peak period, all study area intersections were still found to operate with low delays – LOS D or better. A high V/C ratio (1.16) was found for the eastbound through movement at Commercial Drive & Broadway. The 95th percentile queue of the northbound left turn and westbound right turn movement at this intersection was also found to exceed the storage length slightly.

At the new signalized access on Broadway, the intersection was found to perform with a LOS 'B' and low delays in general. The 95th percentile queue of westbound left turn was estimated to slightly exceed the available storage; by observing the simulations, it was found that this is because the westbound through movement has dominant traffic and blocks some of the left turn vehicles getting into the storage bay. It is noted that the average queue of this westbound let turn movement was found to be less than the storage queue.

At Victoria Drive & Broadway, the slight increase in eastbound left turn traffic was found to make this movement to a LOS F. But it should be noted that the 95th percentile queue can still be accommodated with the available storage length.

At Commercial Drive & 12th Avenue, the eastbound left, westbound through and right turn movements are also found to have high V/C ratios of 0.98, 0.92 and 0.92 respectively. In addition, because the eastbound and westbound left turns do not have advanced left-turn phasing, the delays for these two left turn traffic were found to be LOS F. However, these left turn volumes can be accommodated with the currently available storage length.



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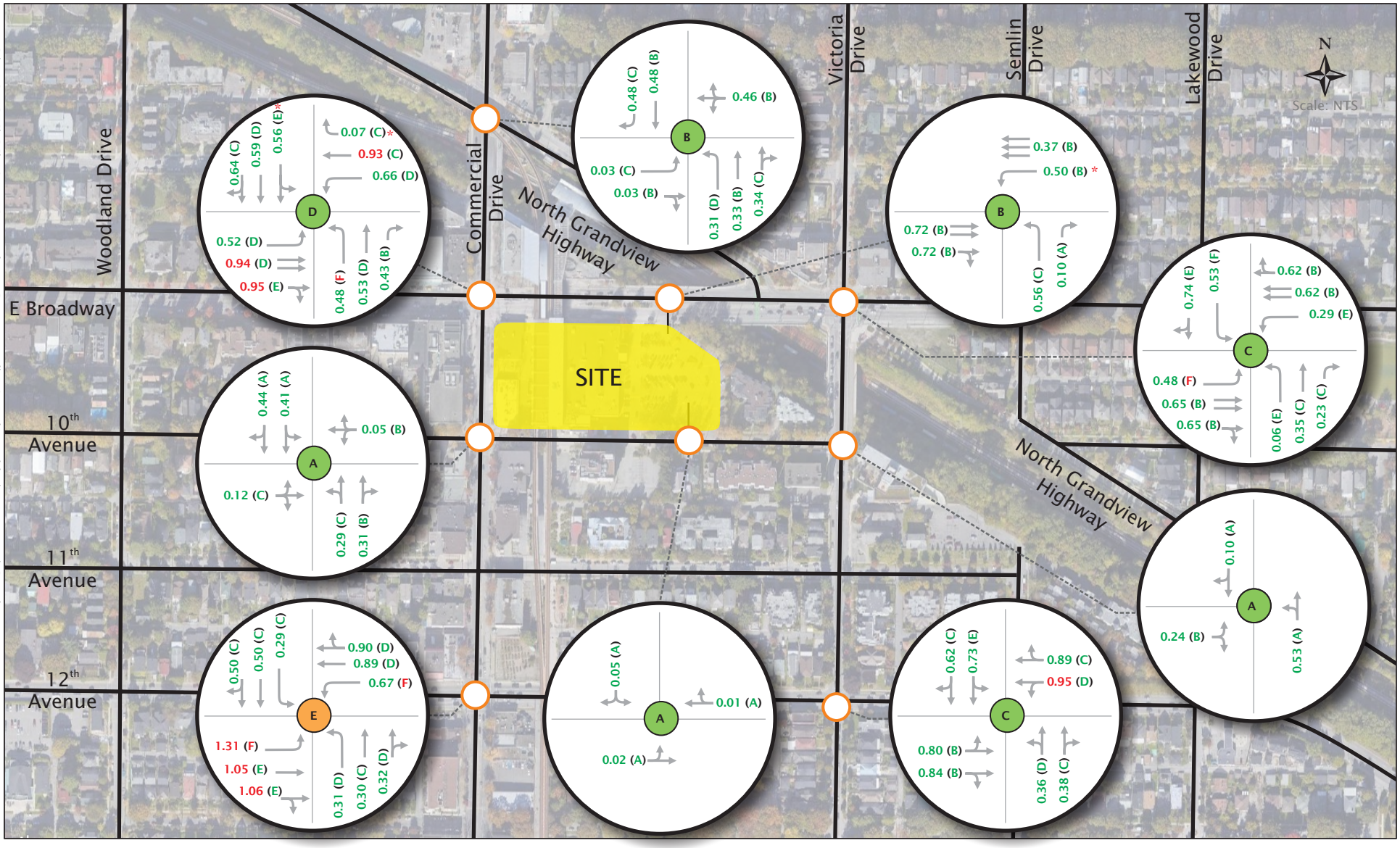
Exhibit 3.5

Total 2026 AM Peak Hour Traffic Performance

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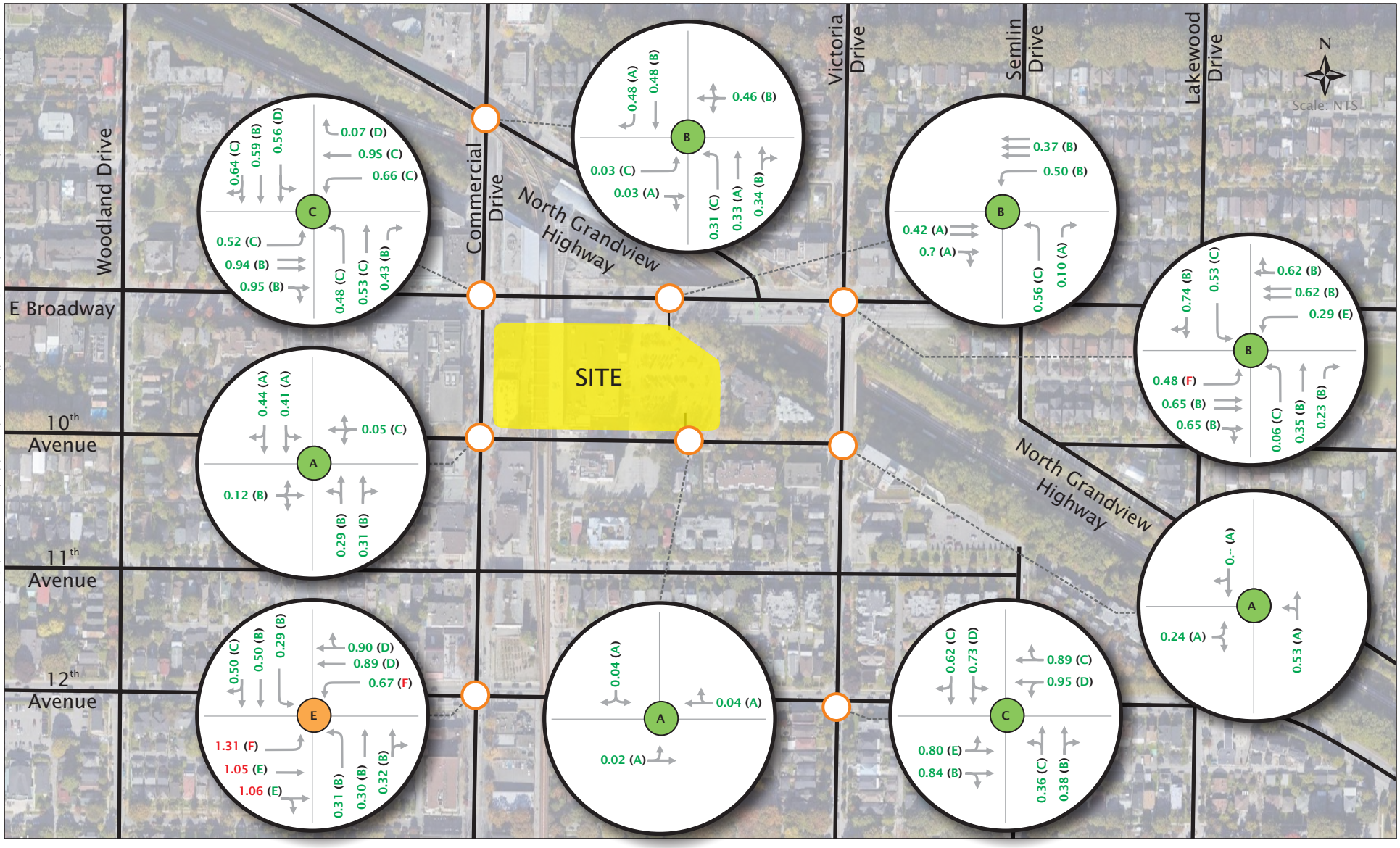
Exhibit 3.6

Total 2026 PM Peak Traffic Performance

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Exhibit 3.7

Total 2026 Saturday Peak Traffic Performance

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2026 Weekday PM Peak Hour

All study intersections were found to operate with acceptable delays, with the exception of a LOS E at Commercial Drive and 12th Avenue. At Commercial Drive & Broadway, the eastbound through, eastbound right turn, and westbound through movements were found to have V/C ratios greater than 0.90. The 95th percentile queue of westbound right turn was again found to slightly exceed its storage length because the HOV lane takes most of the road space. The northbound left movement was still found to have a LOS F. The southbound through/left turn movement's 95th percentile queue was found to exceed the storage length.

The new signalized access on Broadway was found to perform with a LOS 'B' and low delays in the weekday PM peak hour. The 95th percentile queue of westbound left turn was still estimated to slightly exceed the available storage, but the average queue of this westbound let turn movement was found to be less than the storage queue.

At Victoria Drive & Broadway, the eastbound left turn was found to have a LOS F. However, the current storage length can accommodate its 95th percentile queue, so the left turn vehicles would not block the through traffic most of the time.

At Commercial Drive & 12th Avenue, the eastbound movements were found to both have high V/C ratios greater than 1, with a LOS E or F. Again, because the eastbound and westbound left turns currently do not have advanced left-turn phasing, the delays for these two left turn traffic were found to be LOS F. But these left turn volumes can be accommodated with the currently available storage length. At Victoria Drive & 12th Avenue, the westbound through/left movement was again found to have a high V/C ratio of 0.95.

2026 Saturday Peak Hour

The study network was found to operate with acceptable delays, with the exception of a LOS E at Commercial Drive & 12th Avenue. Similar capacity and delay issues from the existing conditions remained at this intersection: the eastbound movements were found to operate over 1; the eastbound left turn and the westbound left turn movement were also found to operate with LOS F. Despite these operational issues, the left turn volumes can still be accommodated with the currently available storage length. No queuing issues were identified.

3.2.4 Summary of Traffic Impacts

Overall, the net increase in traffic on the study road network does not have a material impact on traffic operational performance. The study intersections were found to continue operating with acceptable delays in the full build-out of the site.

In the existing conditions, there are several left-turn movements, including the northbound and southbound left turns at Commercial & Broadway, eastbound and westbound left turns at Victoria Avenue & Broadway, eastbound and westbound left turns at Commercial Drive & 12th Avenue, were found to operate with LOS F. They experience long delays because they do not have protected-permissive left turn phasing.

These movements continue to operate with long delays in future conditions; however, it is important to note that the increase in this left-turn traffic can still be accommodated with current storage length. In order to avoid increasing overall network delays, the potential mitigation of introducing protected-permissive phasing for these left turn movements was not recommended.

4. SITE PLAN DESIGN REVIEW

4.1 Site Access Design

Access to the development site has been considered carefully for various transportation modes.

4.1.1 Walking

As part of the development proposal, a public plaza will be provided along the western edge of the site, providing a north-south pedestrian connection between Broadway and East 10th Avenue. The public plaza will also link to the existing sidewalks on Broadway and East 10th Avenue, providing a direct connection to the Broadway SkyTrain station. A pedestrian crosswalk will also be available at the new signalized, full-movement access on Broadway, allowing future residents and commercial patrons to cross mid-block on Broadway to access to the 99 B-line and the Millenium Line SkyTrain service.

4.1.2 Cycling

Ample secured bicycle parking will be provided for the development, with direct ramp access to bicycle parking on the P1 level from the East 10th Avenue bikeway. A bicycle elevator is also planned at the southwest corner of the site, providing access to the secured bicycle parking in the lower parkade levels (i.e. P2 and below).

4.1.3 Vehicle Access

Two access points are planned for general purpose vehicles, one located on Broadway (signalized, full movement access for retail and community use patrons), and one located on East 10th Avenue (unsignalized, for residents and office patrons only, as well as loading access for non-Safeway uses). In addition, a right-in/right-out access is also planned on Broadway to accommodate loading activities for the Safeway store.

4.2 Parking Supply

4.2.1 Vehicle Parking

The parking requirements are based on the updated City of Vancouver Parking By-law. According to the City's updated Bylaw, a development can obtain a scaled parking reduction based on the site's proximity to high-quality transit. There are three different categories of transit accessibility, they are summarized as follows:

- **Level A, within**:
  - 100 m walking distance of any one (1) existing FTN route, including B-Line stops, or
  - 200 m walking distance of any intersection of two (2) existing FTN routes, including B-Line routes, or
  - 400 m walking distance of a SkyTrain station.

- **Level B, within:**
  - 101 m to 200 m walking distance to any one existing FTN route, including B-Line stops, or
  - 201 – 400 m walking distance of any intersection of two (2) existing FTN routes, including B-Line routes, or
  - 401 to 800 m walking distance of a SkyTrain station.
- **Level C, greater than:**
  - 200 m walking distance of any one (1) existing FTN route, including B-Line stops, or
  - 400 m walking distance of any intersection of two (2) existing FTN routes, including B-Line routes, or
  - 800 m walking distance of a SkyTrain station.

Given that the location of the development is located in an area within Level "A" Transit Accessibility, the base parking reduction that can be obtained without providing a TDM plan is 20% for Rental and 10% for other Land Use. With the provision of a TDM Plan, additional reduction in parking may be obtained for up to 40% additional for Rental and 20% additional for other land uses.

Table 4.1 summarizes the minimum vehicle parking supply requirement from the Parking By-law along with the parking reduction applied.

Table 4.1: Minimum Vehicle Parking Supply Requirement

LAND USE	QUANTITY	COV PARKING BY-LAW BASE RATE	BASE REQUIREMENT	TRANSIT ACCESSIBILITY REDUCTION - 20% RENTAL AND 10% FOR OTHER LAND USES	TDM PLAN REDUCTION - 40% RENTAL AND 20% FOR OTHER LAND USES	MINIMUM REQUIREMENT AFTER TRANSIT ACCESSIBILITY AND TDM REDUCTION	EQUIVALENT SUPPLY RATIO
Residential - Rental (148 units)	11,205 m²	A minimum of 1 space for each 125 m² of gross floor area	90	-18	-36	36	0.24 per unit
Residential Strata: Units less than 50sqm	237 units	A minimum of 0.5 space for every dwelling unit that has less than 50 m² of gross floor area	119	-12	-24	83	0.35 per unit
Residential Strata: Units 50sqm - 180 sqm (Total: 29,885 sqm)	295 units	For every dwelling unit that has 50 m² or more of gross floor area, at least 0.6 space for every dwelling unit plus one space for each 200m² of gross floor area, except that, for every dwelling unit which has a gross floor area of 180 m² or greater, there need be no more than 1.5 spaces for every dwelling unit.	357	-36	-71	250	0.85 per unit

LAND USE	QUANTITY	COV PARKING BY-LAW BASE RATE	BASE REQUIREMENT	TRANSIT ACCESSIBILITY REDUCTION - 20% RENTAL AND 10% FOR OTHER LAND USES	TDM PLAN REDUCTION - 40% RENTAL AND 20% FOR OTHER LAND USES	MINIMUM REQUIREMENT AFTER TRANSIT ACCESSIBILITY AND TDM REDUCTION	EQUIVALENT SUPPLY RATIO
Residential Visitor	680 units	A minimum of an additional 0.05 parking spaces for every dwelling unit and a maximum of an additional 0.1 spaces for every dwelling unit	34	0	0	34	0.05 per unit
Safeway	4,668 sqm	1 per 100 sq m up to 300 sq m GFA, and 1 additional space for each additional 70 sq m GFA, and a maximum of 1 space for each additional 46.5 sq m GFA.	145	-15	-29	102	0.93 per 1000 sq ft
CRU (General Retail)	324 sqm						
CRU (Food & Beverage Retail)	685 sqm						
Office	4,556 sqm						
Daycare	1,096 sqm	A minimum of one space for every 8 children; A minimum of 2 spaces for staff	2	-0.2	-0.4	1	No. of Children unknown at this point. Ratio based on CoV Child Care Technical Guidelines (1993)
Fitness	310 sqm	A minimum of one space for each 18.6 square metres of gross floor area.	36	-4	-7	25	2.60 per 1000 sq ft
		Residential Subtotal	*600*	*-66*	*-131*	*403*	
		Commercial Subtotal	*183*	*-18*	*-37*	*128*	
		PROJECT TOTAL	**783**	**-84**	**-168**	**531**	

4.2.2 Bicycle Parking

Well managed, secure, accessible and covered bicycle parking will be provided as part of the development plan. The development will supply at least 1,354 Class A spaces and 53 Class B spaces. The definition of Class A and Class B bicycle parking can be located in Section 6 "Off-Street Bicycle Space Regulations" of the Parking-By-law (May 2018). Additionally, the City of Vancouver's updated "Parking Bylaw Updates to Achieve Transportation 2040 Actions" includes a number of policy changes that are recommended and summarized below:

Class A Bicycle Parking Access

- Requirements for a minimum of 5% of bicycle parking spaces provided to accommodate non-standard bicycles such as recumbent, tandem, cargo bikes and trailers. This requires a larger space of 2.4 m x 0.9 m compared to a typical 1.8 m x 0.6 m bicycle parking space, as well as a wider access aisle of 1.5 m;
- Requirements for automatic openers on doors leading to and from bicycle parking;
- Allowances for stacked bicycle parking at up to 60% of the provided spaces;
- Adjustment of maximums for vertical spaces to accommodate the provision of stacked bicycle parking. A combined total of 60% of spaces may be vertical and stacked, with up to 30% of spaces being vertical; and,
- Adjustment to and minimums for lockers to 10% of the total number of spaces.

Class B Bicycle Parking Access

- Provided for the benefit of visitors to buildings and are typically located outside, on private property, in the form of bike racks; and,
- In order to improve the usability of Class B bicycle parking, increased spacing requirements and dimensions are recommended; currently sized at 0.3 m x 1.8 m.

Table 4.2 summarizes the bicycle parking requirements based on the City of Vancouver's updated bylaw.

Table 4.2: Bicycle Parking Supply Requirement

LAND USE	QUANTITY	REQUIRED RATE FOR CLASS A	REQUIRED RATE FOR CLASS B	REQUIRED NUMBER OF CLASS A	REQUIRED NUMBER OF CLASS B
Residential - Units less than 65m²	395 units	A minimum of 1.5 spaces for every dwelling unit under 65 m².	A minimum of 2 spaces for any development containing at least 20 dwelling units, and one additional space for every additional 20 dwelling units.	593	35
Residential – Units 65m² - 105m²	285 units	A minimum of 2.5 spaces for every dwelling unit over 65m² and under 105m².		713	
Residential Strata: Units over 105m²	N/A	A minimum of 3 spaces for every dwelling unit over 105m².		0	
Safeway	4,668m²	A minimum of 1 space for each 340m² of gross floor area.	A minimum of 6 spaces for any development containing a minimum of 1,000 square metres of gross floor area.	17	6
CRU (General Retail)	324m²				
CRU (Food & Beverage Retail)	685m²				
Office	4,556m²	A minimum of 1 space for each 170m² of gross floor area.	A minimum of 6 spaces for any development containing a minimum of 2,000 square metres of gross floor area.	27	6
Daycare	1,140m²	No requirement	No requirement	0	0
Fitness	895m²	A minimum of 1 space for each 250m² of gross floor area.	A minimum of 6 spaces for any portion of each 500 square metres of gross floor area.	4	6
			Residential Subtotal	*1,306*	*35*
			Non-Residential Subtotal	*48*	*18*
			PROJECT TOTAL	**1,354**	**53**

The By-law also has a requirement for the provision of clothing lockers, water closets, wash basins and showers along with the Class A bicycle spaces for the Office and Retail & Services land use categories. For the 48 Class A bicycle spaces required for the Non-Residential Use, a total of 4 water closets, 2 wash basins, and 4 showers are required to be provided for each gender.

4.3 Parking Layout & On-Site Vehicle Circulation

The manoeuvring of loading and passenger vehicles within the site plan was reviewed using Transoft AutoTurn software package. The turning swath paths were provided to the Project Architect (Perkins+Will) informing the site plan design. Detailed turning swath diagrams can be provided as part of the Development Permit submission in the future.

4.4 Service Vehicle Operations

The City of Vancouver's Parking Bylaw (No. 6059) outlines loading requirements for different uses in new projects. **Table 4.3** summarizes the requirements that are relevant to the proposed development along with the required loading spaces.

Table 4.3: Loading Bylaw Rates

LAND USE	QUANTITY	CLASS A	CLASS B	CLASS C	CLASS A	CLASS B	CLASS C
Residential	680 units	No Requirement	At least one space for 100 to 299 units; a minimum of one additional space for 300 to 499 units; and at least one additional space for any portion of each additional 200 units.	No Requirement	0	4	0
Commercial - Safeway	5,677m²	No Requirement	A minimum of one space for the first 465m² of gross floor area plus one space for any portion of the next 1,860m² and one additional space for each additional 2,325m².	At least one space for 2,000m² to 5,000 m² of gross floor area for manufacturing use, retail use; and at least two spaces for more than 5,000m² of gross floor area for any such use or combination of uses No requirement for less than 2 000 square metres of gross floor area.	0	4	2
Commercial - CRU							
Commercial – Restaurant							
Commercial - Office	4,556m²	At least one space for 1 000 to 7,500m²	At least one space for 500 to 5,000m²; at least two spaces for more than 5,000 to 10,000 m² of gross floor area;	No Requirement	1	2	0
Commercial - Daycare	1,140m²	n/a	n/a	n/a	0	0	0
Commercial - Fitness	895m²	No Requirement	No requirement for less than 100m² of gross floor area. A minimum of one space for each 2,800m² of gross floor area.	No requirement for less than 2,000m² of gross floor area.	0	1	0
				Residential Subtotal	*0*	*3*	*0*
				Commercial Subtotal	*1*	*7*	*2*
				PROJECT TOTAL	**1**	**10**	**2**

Based on the by-law, the development would require 3 Class B loading spaces for the residential component and 7 Class B loading spaces for the commercial component. In addition, 1 Class A and 2 Class C loading spaces would also be required to support the development.

According to the City's By-law, the definitions of the various Classes of loading are summarized below:

- Class A: off-street loading space must be at least 5.5 m long, 2.7 m wide and 2.3 m high;
- Class B: must be at least 8.5 m long, 3.0 m wide and 3.9 m high; and
- Class C: must be at least 17.0 m long, 3.5 m wide and 4.3 m high.

The loading requirements shown above do not take into account the opportunity to share loading spaces among the residential and commercial uses, which could have different periods of peak loading activity.

5. TDM & ACTIVE MODES

5.1 Definition

Transportation Demand Management (TDM) is defined as the "application of strategies and policies to reduce travel demand (specifically that of single-occupancy private vehicles), or to redistribute this demand in space or in time"[2]. 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.

5.2 City of Vancouver's New TDM Policy

The City of Vancouver has developed a TDM program (CoV TDM Program) using a framework modelled based on a "points menu". It includes the requirement for a comprehensive TDM program for all new developments in the Downtown with potential opportunities as well for City-wide new developments. The purpose of this program is to provide clarity and guidance for developers on the creation of a TDM plan, and a basis for staff to easily evaluate the plans. Some of the key elements from the City's updated Bylaw that are included in the program include the following:

- List of applicable TDM measures (the "TDM menu") and assigned point values in the form of an administrative bulletin that outlines a variety of TDM opportunities for new developments;
- Requiring TDM plans for all new developments within the Downtown, with the exception of residential developments within the West End and Robson North residential Parking Permit areas;
- Requiring TDM plans for all new developments on large sites City-wide;
- Incentivizing provision of TDM plans for new developments outside of the Downtown and residential developments within the West End and Robson North residential Parking Permit areas through parking requirement reductions;
- Providing a reduction for developments that are in proximity to good transit, with higher reductions possible for rental housing; and,
- Monitoring of TDM plans to enable long-term assessment of TDM measure effectiveness.

Required TDM Projects

To determine if this development requires a TDM plan, the City has prescribed a list of thresholds regarding the development size and location. According to Section 3 of Appendix C of the updated by-law, the definitions for projects that require TDM plans are as follows:

- Projects in the Downtown, except for residential strata and non-social housing rental developments in the West End and Robson North Permit Area;

[2] http://ops.fhwa.dot.gov/tdm/index.htm FHWA Travel Demand Management home page

- Large Sites, as defined by the Rezoning Policy for Sustainable Large developments, involving a land parcel or parcels:
  - Having a total site size of 8,000 m2 (1.98 acres) or more, or;
  - Containing 45,000 m2 (484,375 ft2) or more new floor area.

For this development, the total new floor area is over 45,000 m^2. Therefore, the submission of a TDM Plan is mandatory as part of the development proposal. As a reference, **Appendix D** summarizes the TDM requirements flow chart.

5.3 Proposed TDM Plan

From the TDM measures outlined within the City of Vancouver Parking Bylaw, **Table 5.1** shows a summary of the TDM measures along with the maximum points each measure can achieve. According to the City's guidelines, a minimum of 30 points would need to be achieved for each component of uses proposed for the site.

Table 5.1: Proposed TDM Plan

CODE	DESCRIPTION	DETAILS	MAXIMUM POINTS ACHIEVED				NOTES
			RES. STRATA	RES. RENTAL	COMM. OFFICE	COMM. RETAIL	
ACT-01	Additional Class A Bike Parking	Provide additional Class A bicycle parking, up to a maximum of 40% above minimum requirements as defined by the Parking By-law.	Not Used	Not Used	Not Used	3	The project proposes to add at least 5 more Class A bicycle spaces for the Retail use to get 3 TDM points
ACT-02	Improved Access to Class A Bicycle Parking	An entry for bicycles fully separated from the vehicle ramp for bicycle parking located underground.	2	2	2	2	
ACT-05	Bike Maintenance Facilities	Include bicycle maintenance facilities in a designated, secure area within the building with proper drainage, where sufficient workspace with bicycle maintenance tools and supplies are readily available on a permanent basis and offered in good condition to encourage bicycling.	2	2	2	2	
ACT-06	Improved End-of-Trip Amenities	Provide and maintain improved and/or additional end-of-trip amenities for employees, including but not limited to: clothes dryers (or hot air drying rack systems), permanent hair dryers, shower doors, secure facilities for charging bike lights and electric bike batteries, enhanced facility finishes.	Not Available	Not Available	6	2	

CODE	DESCRIPTION	DETAILS	MAXIMUM POINTS ACHIEVED				NOTES
			RES. STRATA	RES. RENTAL	COMM. OFFICE	COMM. RETAIL	
ACT-07	Public Bike Share Space	Provide space for Public Bike Share (PBS). It is assumed this would still apply based on earlier conversations with the City.	8	8	8	8	
ACT-09	Walking Improvements	Provide large scale improved and enhanced pedestrian facilities off-site. The project is providing a public plaza with pedestrian linkage to the SkyTrain station from the site.	6	6	6	6	
COM-02	Car share Vehicles and Spaces	Provide publicly accessible two-way car share vehicle(s) and space(s) on-site for at least 3 years, up to the following ratios: • Residential - Strata: A minimum of one (1) car share vehicle and space for every 50 Dwelling Units (11 required for 8 points); • Residential - Rental: A minimum of one (1) car share vehicle and space for every 25 Dwelling Units (6 required for 16 points); • Commercial - Office: Up to one (1) car share vehicle and space for each 4,600 square metres of gross floor area (1 required for 8 points). • Commercial - Retail: Up to one (1) car share vehicle and space for each 4,600 square metres of gross floor area (2 required for 3 points).	7	16	8	3	10 car-share spaces and vehicles are proposed and will be available for all users on-site.
SUP-03	Multi-modal Wayfinding Signage	Provide multi-modal wayfinding signage - probably at the plaza	Not Available	2	2	2	
PKG-02	Parking Supply	Provide off-street private vehicular parking in an amount no greater than the minimum parking requirement.	2	2	Not Used	Not Used	Safeway is asking for more parking than the minimums
OTH-01	Innovative Strategies	Unbundling Parking (i.e. the sales of parking stalls is separated from the sales of the unit. Similarly, the rent for the parking space is separated from the base rent for the rental units)	1	To be confirmed	To be confirmed	Not Used	
OTH-01	Innovative Strategies	Provision of On-site Day Care Facility	2	2	2	2	City confirmed up to 2 points will be awarded
		TOTAL	**30**	**40**	**36**	**30**	

6. CONCLUSIONS

The existing Safeway grocery store at 1780 East Broadway is proposed to redevelop as a mixed-use residential development with a new on-site Safeway, retail, office, daycare and fitness facilities. The site is well-served by transit, as it is located immediately adjacent to the Commercial-Broadway SkyTrain station. The site is also well-connected with pedestrian and cycling facilities on 10th Avenue and North Grandview Highway.

The opening day of the development is assumed to be 2026. A full-movement signalized access from Broadway is provided from Broadway to the customer parking access for Safeway and retail stores. The loading access on Broadway will be restricted to right-in/right-out only for Safeway and retail loading activities. The vehicle access to residential and office parking and loading will be located off 10th Avenue.

The traffic operational analysis examined three different peak hours including weekday AM, weekday PM and Saturday peak periods, in both existing and future full-build out horizon years.

In the existing conditions, the study network was found to operate with acceptable delays overall. However, some individual left-turn movements, such as the northbound and southbound left turns at Commercial & Broadway, eastbound and westbound left turns at Victoria Avenue & Broadway, eastbound and westbound left turns at Commercial Drive & 12th Avenue, were found to operate with long delays. This is because do not have protected-permissive left turn phasing. The potential mitigation of introducing protected-permissive left turns requires increasing the cycle length of the intersection or reducing the green time of opposing movements. The trade-off here, as SimTraffic simulation shows, will increase the overall delay of the network. Therefore, no mitigation was applied in future conditions analysis.

The existing Safeway generates approximately 240 to 470 vehicle trips during weekday AM, weekday PM and Saturday peak hours respectively. After accounting for internal trip capture due to the mixed-use nature, the proposed development is estimated to generate approximately 560 to 750 vehicle trips during the studied peak hour periods. Netting out the existing site traffic during each studied peak period, the development is anticipated to generate approximately 240 to 470 net new vehicle trips to the street network during the peak hours. In context, this is equivalent to approximately 3 to 7 vehicles per minute on average during the peak hours. The inbound and outbound traffic are almost evenly split during each peak hour.

Overall, the net increase in traffic on the study road network does not have a material impact on traffic operational performance. The study intersections were found to continue operating with acceptable delays in the full build-out of the site. The left-turn movements with operational issues continue to exist in future conditions; however, it is important to note that the increase in these left-turn traffic volumes can still be accommodated with current storage length.

The existing 38,000 sq-ft Safeway provides 167 parking spaces. Because the location of the development is located in an area within 100m walking distance of a SkyTrain station, the base parking reduction that can be obtained without providing a TDM plan is 20% for Rental and 10% for other Land Use. With the

provision of a TDM Plan, additional reduction in parking may be obtained for up to 40% additional for Rental and 20% additional for other land uses. The project will seek the maximum parking reduction for all uses, except for Safeway. The development is planning to provide a total of 632 parking stalls with the following breakdown:

- 357 parking stalls for the residential component, including residents and visitors;
- 149 stalls for Safeway; and
- 126 stalls for all other uses.

Given the site area is over 45,000m^2, the redevelopment is required to provide a TDM plan. The developer considers providing the following TDM strategies that are acceptable by the City to achieve the 30 TDM points for each land use:

- Additional Class A Bicycle Parking
- improved Access to Class A Bicycle Parking
- Bike Maintenance Facilities
- Public Bike Share Space
- Walking Improvements
- Carshare Vehicles and Spaces
- Multi-modal Wayfinding Signage
- Provide reduced parking Supply
- Unbundling parking
- Provision of On-site Day Care Facility

APPENDIX A

Terms of Reference

MEMO

DATE: August 22, 2018
PROJECT NO: 4241-52
PROJECT: Broadway + Commercial Redevelopment
SUBJECT: Terms of Reference for TAMS (DRAFT)

TO: Rosemarie Draskovic
City of Vancouver

PREPARED BY: Christephen Cheng, P.Eng.; Nicole He, EIT

1. INTRODUCTION

Perkins + Will, on behalf of Westbank Projects Corp. and Crombie REIT, is in the process of assembling a rezoning application for a mixed-use residential/retail development located at Safeway site adjacent to the Commercial-Broadway SkyTrain station (1780 Broadway E).

The proposed development will be subject to the Sustainable Large Site Rezoning Policy, with a new Safeway grocery store of 50,000+ sq ft, 600+ dwelling units comprising of Strata and Market Rental housing, office and general retail uses. The following outlines the proposed Terms of Reference for the Transportation Assessment and Management Study (TAMS), which will be included as part of the Rezoning Application.

2. STUDY AREA & TIME PERIOD

Based on earlier discussion with the City, the proposed study area includes the following intersections:

Existing Intersections:

a. Commercial Drive at Broadway
b. Commercial Drive at E 10th
c. Commercial Drive at 12th
d. Victoria Drive at Broadway
e. Victoria Drive at E 10th
f. Victoria Drive at 12th
g. Commercial Drive at N Grandview Highway

The study time periods are proposed to cover the Weekday PM and Saturday peak-hour periods.

3. EXISTING CONDITIONS

The study will review the following existing conditions:

a. Existing multi-modal transportation network
b. Current relevant policies and plans
c. Assemble and collect new data (if not available) for the seven (7) existing intersections outlined in the study area.
d. Evaluate traffic operations at the seven (7) existing intersections listed using the latest Trafficware Synchro/SimTraffic software based on the latest Highway Capacity Manual (6th Edition) methodologies.

    i. The existing day scenario will be modelled using the signal timing plans obtained from the City.

4. FUTURE TRAFFIC CONDITIONS

4.1 Analysis Scenarios

The future traffic conditions will be evaluated for one horizon year at the build-out of the development. All 7 intersections identified in the Study Area along will be site access points will be evaluated using latest Trafficware Synchro/SimTraffic software based on the HCM6 methodologies.

Where appropriate, signal timing will be optimized to accommodate the future traffic conditions.

For the future traffic conditions, it is assumed that no background traffic growth would apply to the study network, as traffic volumes were generally found to be stable along the arterial streets. Furthermore, with the section 10th Avenue being a bikeway, it is assumed that any future development on the south side of 10th Avenue that may take place as a result of the land use changes allowed under the Grandview Woodland Community Plan would take vehicle access off away from 10th Avenue, and therefore will not generate any background traffic growth.

In light of the proposed changes to the 10th Avenue bikeway, two scenarios will be analysed for the future 10th Avenue:

- *One-way flow westbound from Victoria Drive.*
- *Two-way flow from Victoria Drive to the Safeway driveway access and a cul-de-sac.*

5. ACCESS, PARKING AND LOADING MANAGEMENT

The traffic study will address the following design elements:

- Access for all modes of transport as well as loading and servicing vehicles
- Review of facilities supporting active transportation

- Vehicle parking provision and design compliance with the bylaw as well as manoeuvrability within the site
- Loading/servicing space provision and design compliance with the bylaw as well as manoeuvrability within the site
- Should variances be requested for the parking or loading supply, a rationale will be provided to support the requested variances including provision of a Loading Management Plan.

6. TDM PLAN

Provide a TDM Plan to achieve the mandatory TDM points outlined in the approved Amendments to the Parking By-law for Large Site developments.

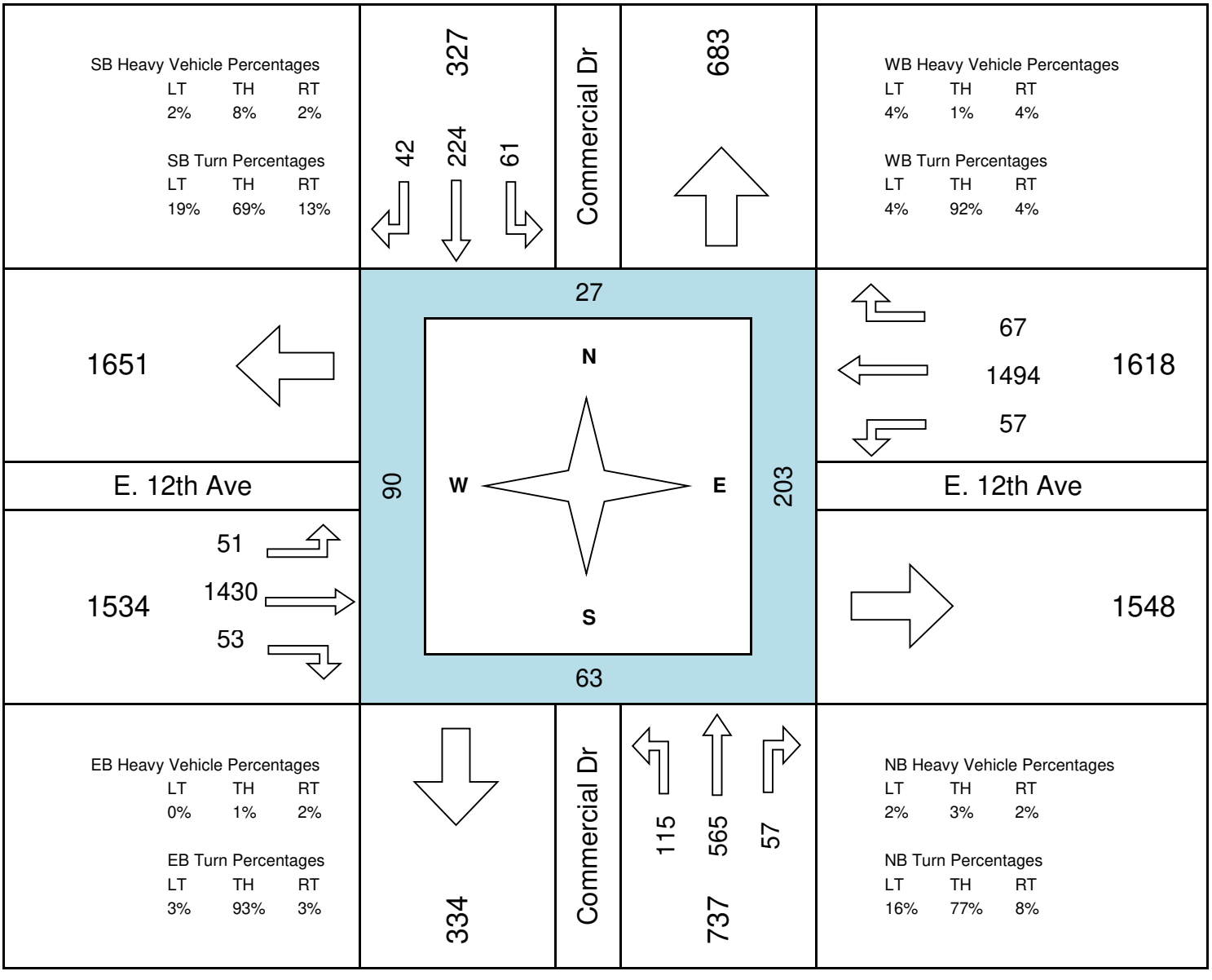
APPENDIX B

Traffic Data

Commercial Dr @ E. 12th Ave

Project #:	4181-26	Date:	May 3, 2016
Peak Hour:	07:45 — 08:45	Weather:	Sunny
Overall PHF:	0.98	Road Cond:	Dry
Notes:	0		

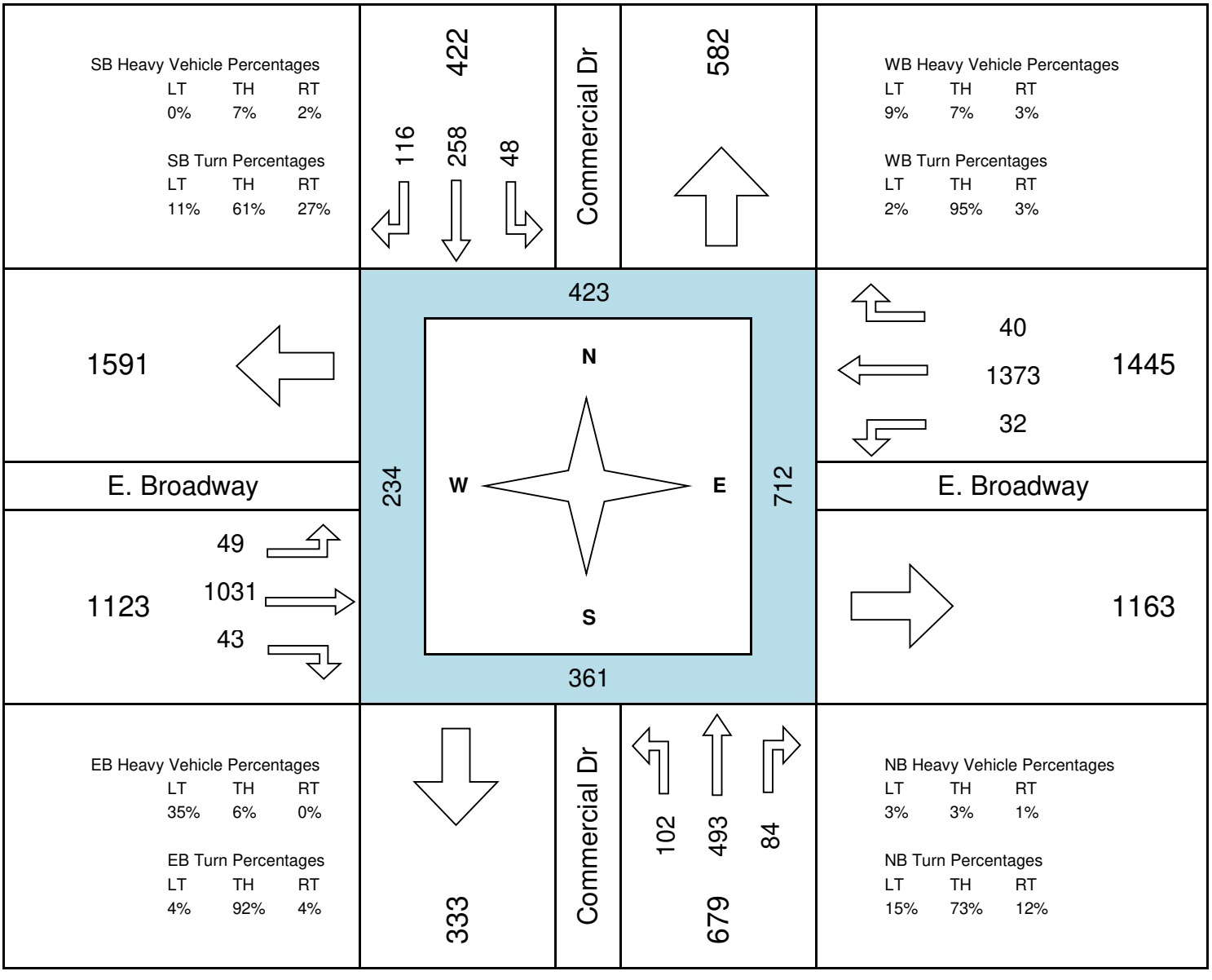
	Traffic Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
07:00 - 07:15	6	62	3	12	36	8	12	242	3	8	330	10	5	5	20	18
07:15 - 07:30	10	86	9	16	37	15	9	346	5	4	337	9	2	10	25	12
07:30 - 07:45	10	94	12	14	35	9	11	371	8	8	393	17	6	9	26	10
07:45 - 08:00	25	154	8	13	57	10	9	372	13	12	384	11	4	18	47	20
08:00 - 08:15	32	128	21	19	66	9	13	338	21	16	361	21	7	13	56	23
08:15 - 08:30	30	157	23	17	56	11	13	359	10	15	373	15	5	18	61	22
08:30 - 08:45	28	126	5	12	45	12	16	361	9	14	376	20	11	14	39	25
08:45 - 09:00	20	158	10	10	66	12	21	342	11	17	353	26	2	14	47	31
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}	32	157	23	19	66	12	16	372	21	16	384	21				
PHF	0.90	0.90	0.62	0.80	0.85	0.88	0.80	0.96	0.63	0.89	0.97	0.80				



Commercial Dr @ E. Broadway

Project #:	4181-26	Date:	May 3, 2016
Peak Hour:	07:45 — 08:45	Weather:	Sunny
Overall PHF:	0.97	Road Cond:	Dry
Notes:	0		

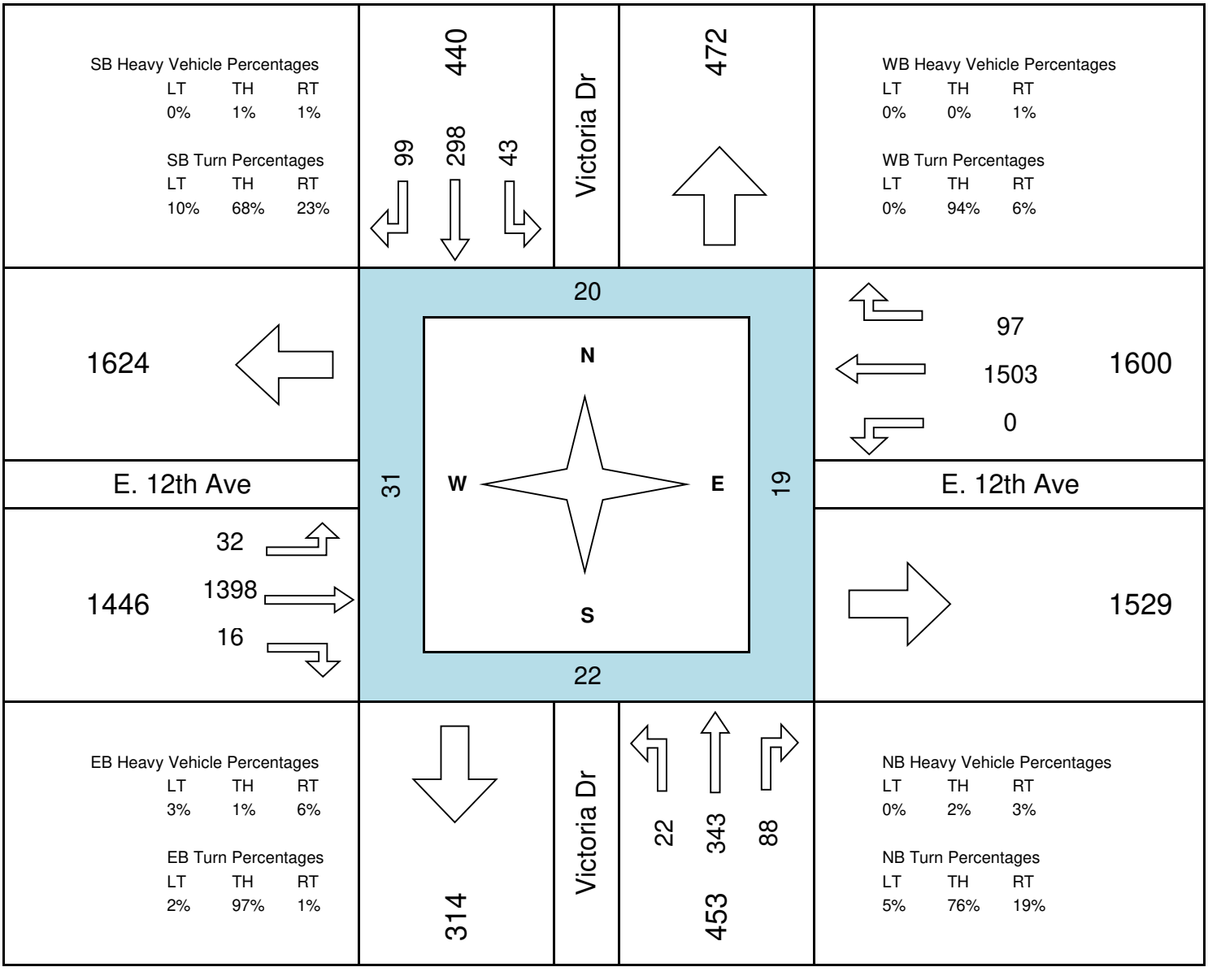
	Traffic Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
07:00 - 07:15	3	68	15	9	36	10	13	169	14	5	314	5	38	45	107	26
07:15 - 07:30	10	80	16	10	47	19	6	165	13	15	354	10	92	57	147	39
07:30 - 07:45	7	101	16	21	48	18	14	236	12	10	309	7	89	72	153	53
07:45 - 08:00	18	128	18	10	54	19	10	259	14	6	379	8	89	63	168	42
08:00 - 08:15	24	119	22	10	75	35	9	262	11	9	299	4	146	72	174	62
08:15 - 08:30	35	124	20	16	58	27	12	264	4	10	346	4	117	140	215	79
08:30 - 08:45	25	122	24	12	71	35	18	246	14	7	349	24	71	86	155	51
08:45 - 09:00	23	166	20	16	63	32	18	256	11	15	263	7	166	104	196	69
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}	35	128	24	16	75	35	18	264	14	10	379	24				
PHF	0.73	0.96	0.88	0.75	0.86	0.83	0.68	0.98	0.77	0.80	0.91	0.42				



Victoria Dr @ E. 12th Ave

Project #:	4181-26	Date:	May 3, 2016
Peak Hour:	08:00 — 09:00	Weather:	Sunny
Overall PHF:	0.96	Road Cond:	Dry
Notes:	0		

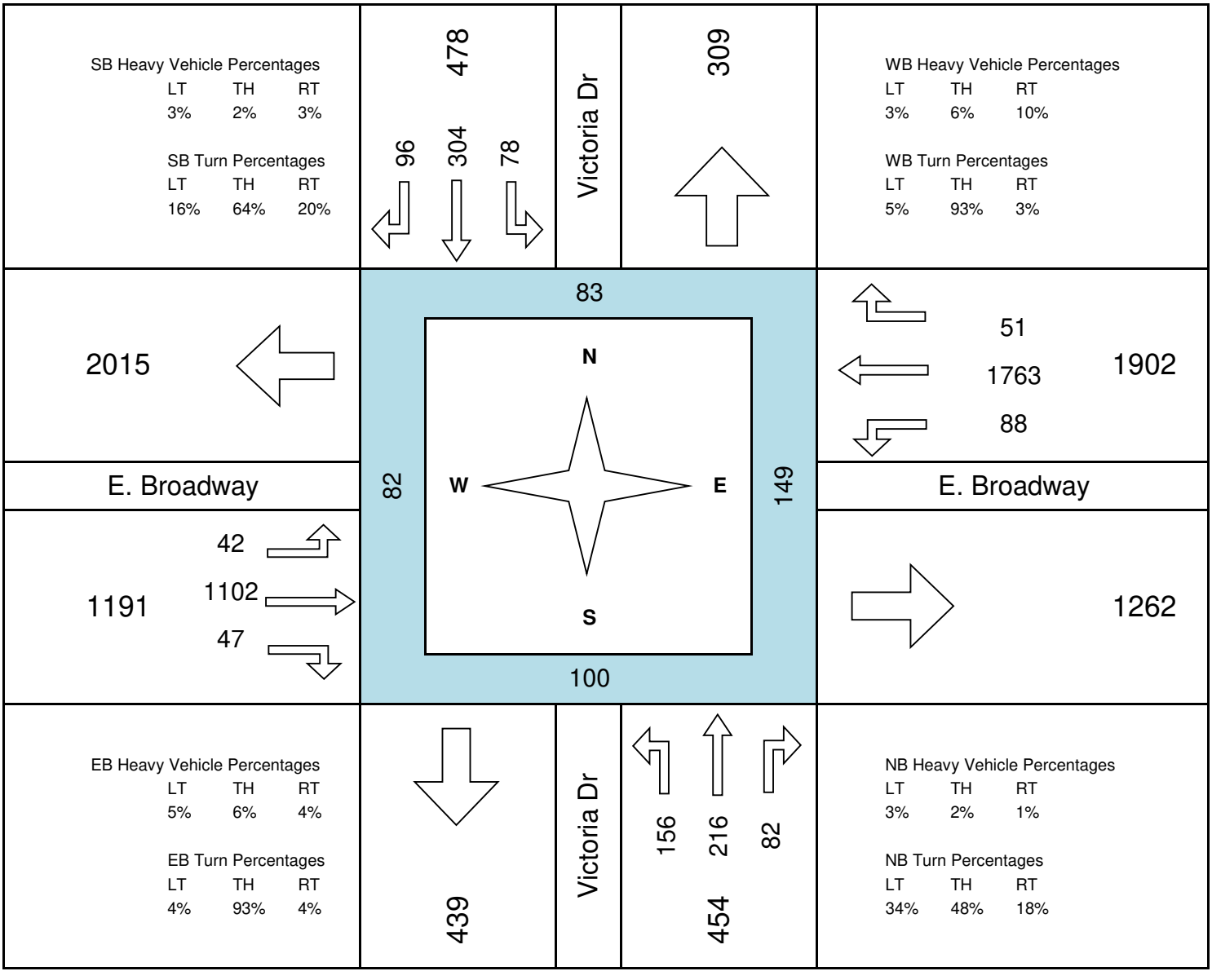
	Traffic Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
07:00 - 07:15	3	36	16	10	25	15	2	247	1	0	326	12	0	1	0	2
07:15 - 07:30	2	44	21	8	41	21	1	345	6	0	334	14	2	2	4	5
07:30 - 07:45	4	60	20	8	45	17	3	385	2	0	399	16	5	1	5	7
07:45 - 08:00	4	71	24	9	57	27	2	358	1	0	378	18	5	0	9	8
08:00 - 08:15	3	75	20	6	72	24	4	363	2	0	389	23	4	2	4	11
08:15 - 08:30	5	89	22	11	77	24	7	370	1	0	393	30	4	6	6	5
08:30 - 08:45	8	84	16	16	68	30	7	340	5	0	373	27	5	9	6	10
08:45 - 09:00	6	95	30	10	81	21	14	325	8	0	348	17	7	5	3	5
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}	8	95	30	16	81	30	14	370	8		393	30				
PHF	0.69	0.90	0.73	0.67	0.92	0.83	0.57	0.94	0.50		0.96	0.81				



Victoria Dr @ E. Broadway

Project #:	4181-26	Date:	May 3, 2016
Peak Hour:	07:45 — 08:45	Weather:	Sunny
Overall PHF:	0.92	Road Cond:	Dry
Notes:	0		

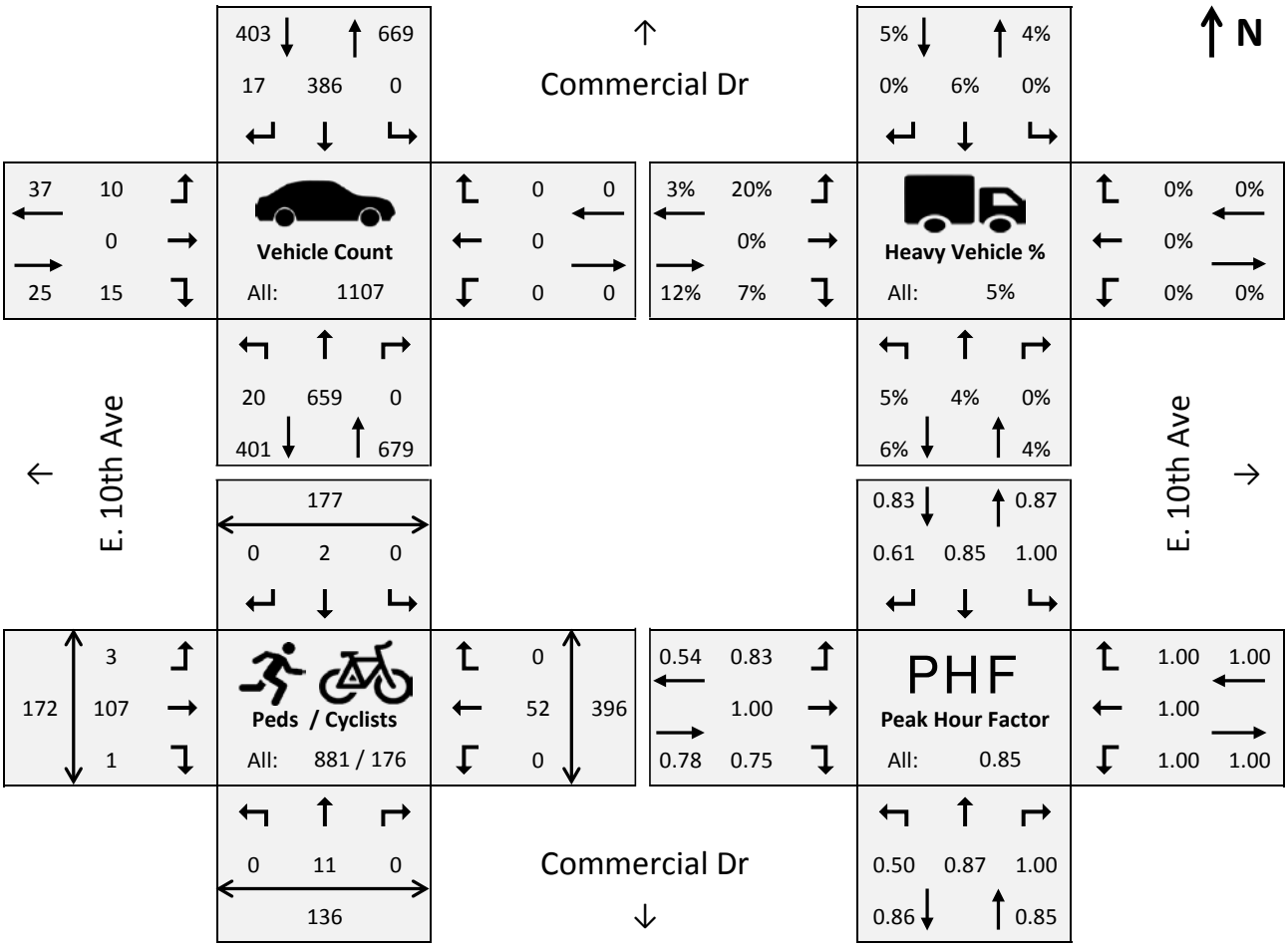
	Traffic Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
07:00 - 07:15	24	26	7	8	24	8	6	184	8	17	373	8	11	15	11	15
07:15 - 07:30	19	32	11	10	46	12	8	172	9	24	414	12	18	11	17	12
07:30 - 07:45	21	39	16	13	61	21	10	242	8	11	392	17	12	16	18	13
07:45 - 08:00	35	49	19	20	64	21	10	271	10	18	454	14	27	15	37	15
08:00 - 08:15	33	54	15	16	76	22	9	265	7	26	418	10	13	17	26	19
08:15 - 08:30	47	58	28	23	90	23	11	300	10	19	465	15	20	41	43	29
08:30 - 08:45	41	55	20	19	74	30	12	266	20	25	426	12	23	27	43	19
08:45 - 09:00	34	61	32	28	84	30	12	255	12	24	371	5	36	31	42	32
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}	47	58	28	23	90	30	12	300	20	26	465	15				
PHF	0.83	0.93	0.73	0.85	0.84	0.80	0.88	0.92	0.59	0.85	0.95	0.85				



Commercial Dr @ E. 10th Ave – Vancouver, BC

Project#:	4241-52	**Weather:**	Cloudy	**Analysis Period:**	8:00 - 9:00
Date:	Sep 14, 2018 (Fri)	**Road Cond:**	Dry	**Intersection Peak:**	8:00 - 9:00
Notes:	East Leg (E. 10th Ave) is closed				

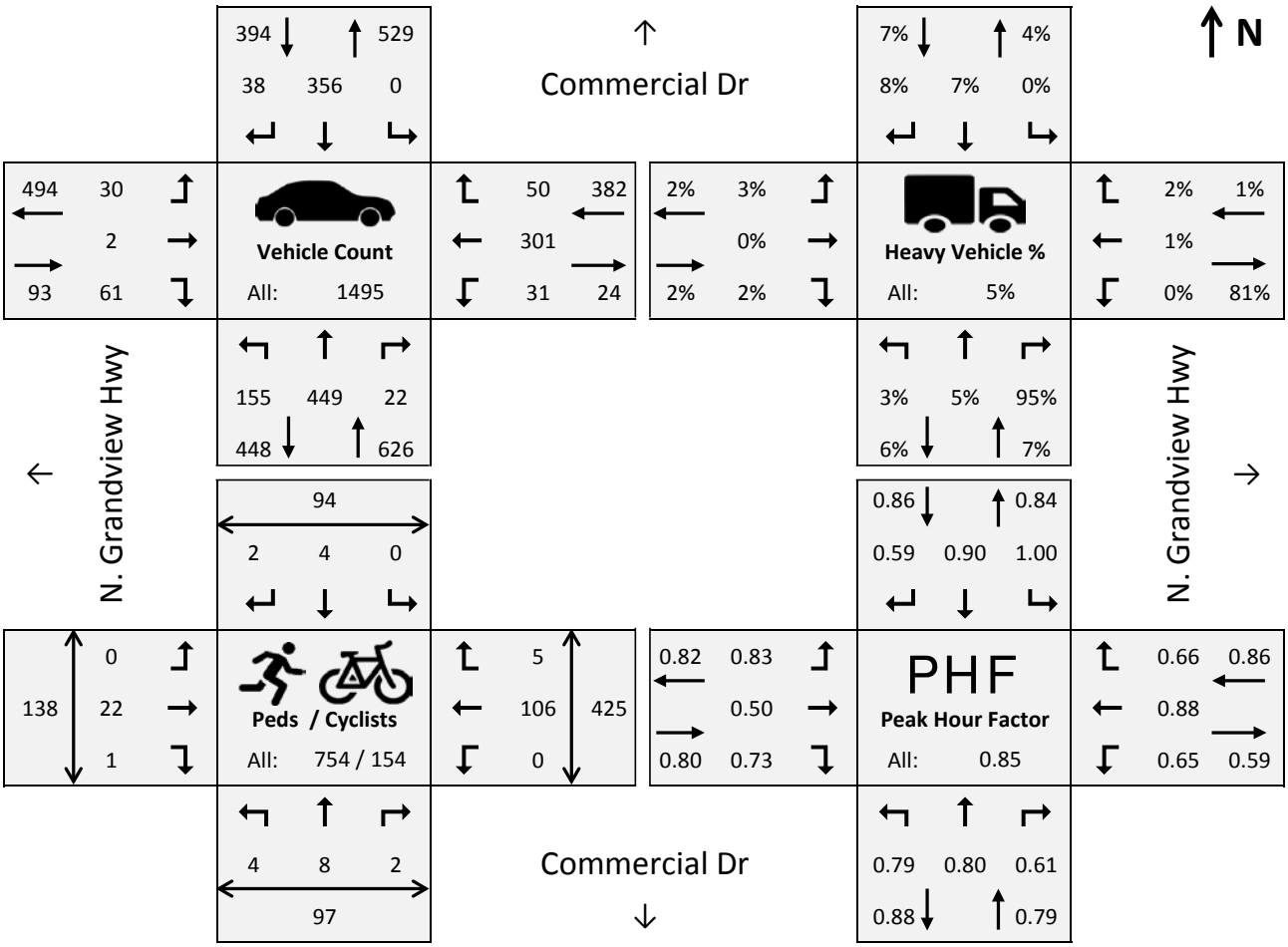
TIME	AUTOMOBILE COUNT												PEDESTRIANS			
INTERVAL	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	1	83	2	0	67	5	2	0	2	0	0	0	19	25	40	28
7:15 - 7:30	0	105	0	0	64	4	2	1	4	0	0	0	15	15	40	21
7:30 - 7:45	0	138	0	0	65	5	0	0	3	0	0	0	32	14	62	39
7:45 - 8:00	4	163	0	0	72	6	2	0	4	0	0	0	38	14	53	43
8:00 - 8:15	3	140	0	0	84	4	3	0	4	0	0	0	40	26	87	37
8:15 - 8:30	2	151	0	0	89	3	3	0	5	0	0	0	39	24	102	41
8:30 - 8:45	5	178	0	0	99	3	2	0	3	0	0	0	49	40	89	42
8:45 - 9:00	10	190	0	0	114	7	2	0	3	0	0	0	49	46	118	52
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Commercial Dr @ N. Grandview Hwy – Vancouver, BC

Project#:	4241-52	**Weather:**	Cloudy	**Analysis Period:**	8:00 - 9:00
Date:	Sep 14, 2018 (Fri)	**Road Cond:**	Dry	**Intersection Peak:**	8:00 - 9:00
Notes:					

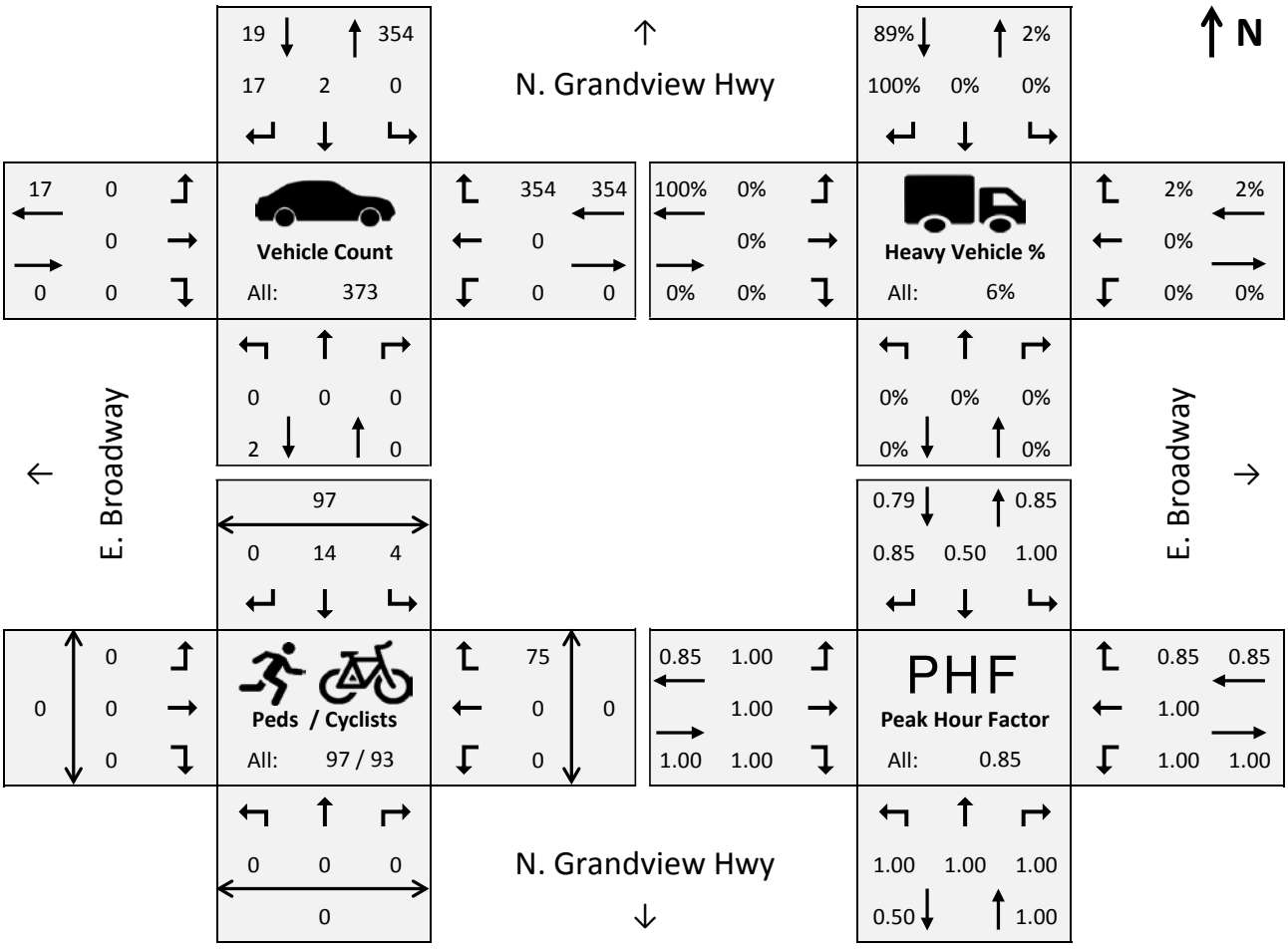
TIME	AUTOMOBILE COUNT												PEDESTRIANS			
INTERVAL	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	21	52	3	0	64	2	1	0	5	0	37	9	8	7	45	11
7:15 - 7:30	26	80	5	0	57	2	1	0	15	2	52	6	10	18	68	16
7:30 - 7:45	27	77	3	0	67	5	3	0	10	4	60	14	17	18	70	17
7:45 - 8:00	42	114	3	0	66	1	5	0	10	4	70	14	6	18	81	26
8:00 - 8:15	34	96	4	0	85	3	8	0	13	3	59	13	15	22	103	31
8:15 - 8:30	40	105	4	0	77	5	8	1	8	12	80	19	21	10	105	24
8:30 - 8:45	32	108	5	0	95	14	5	0	21	11	76	9	33	30	107	46
8:45 - 9:00	49	140	9	0	99	16	9	1	19	5	86	9	25	35	110	37
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N. Grandview Hwy @ E. Broadway – Vancouver, BC

Project#:	4241-52	**Weather:**	Cloudy	**Analysis Period:**	7:45 - 8:45
Date:	Sep 14, 2018 (Fri)	**Road Cond:**	Dry	**Intersection Peak:**	7:45 - 8:45
Notes:					

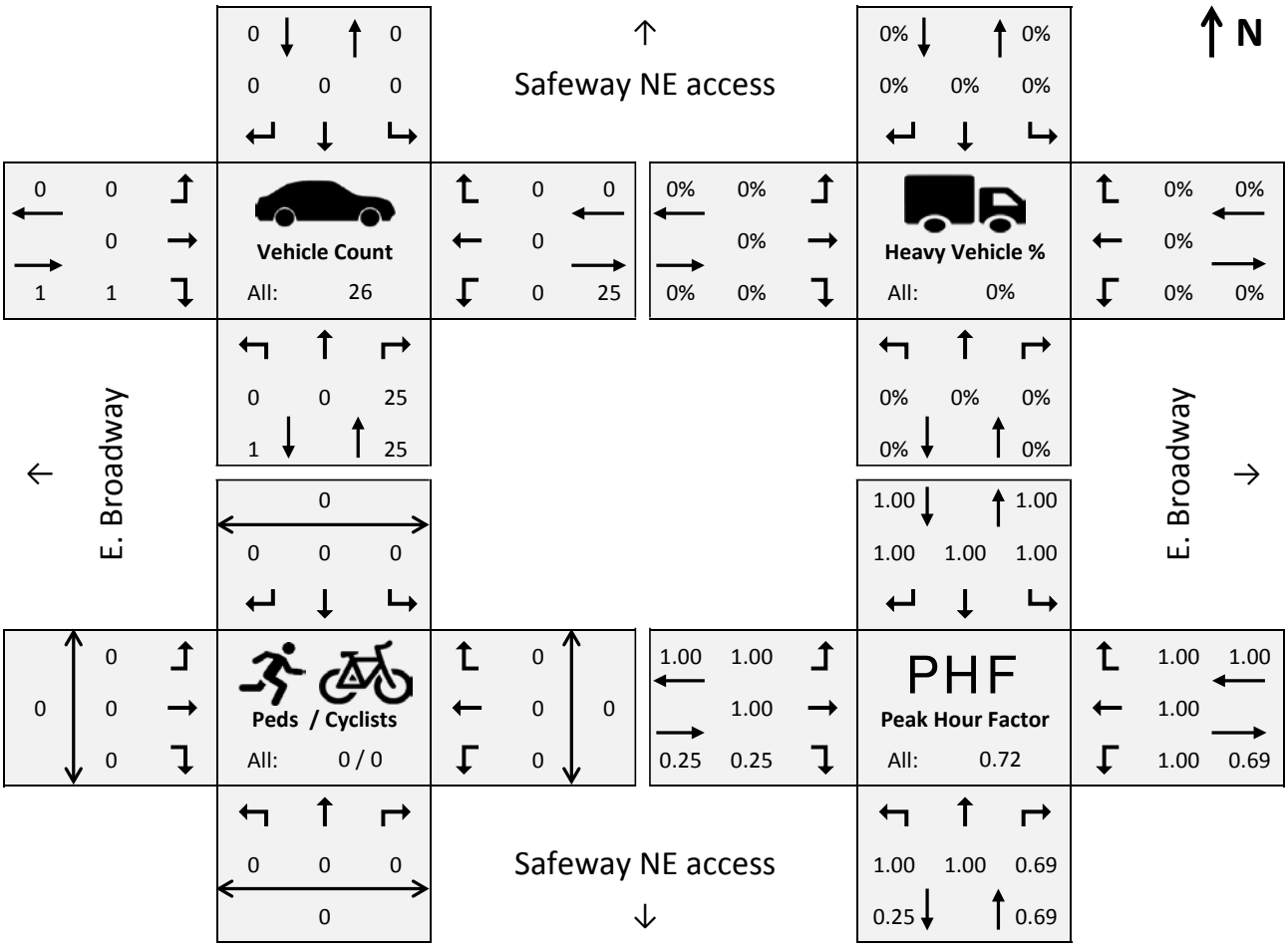
TIME	AUTOMOBILE COUNT												PEDESTRIANS			
INTERVAL	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	0	0	0	0	0	2	0	0	0	0	0	46	14	0	0	0
7:15 - 7:30	0	0	0	0	0	3	0	0	0	0	0	61	13	0	0	0
7:30 - 7:45	0	0	0	0	0	3	0	0	0	0	0	76	19	0	0	0
7:45 - 8:00	0	0	0	0	0	4	0	0	0	0	0	89	26	0	0	0
8:00 - 8:15	0	0	0	0	0	3	0	0	0	0	0	75	19	0	0	0
8:15 - 8:30	0	0	0	0	1	5	0	0	0	0	0	104	27	0	0	0
8:30 - 8:45	0	0	0	0	1	5	0	0	0	0	0	86	25	0	0	0
8:45 - 9:00	0	0	0	0	0	4	0	0	0	0	0	82	42	0	0	0
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Safeway NE access @ E. Broadway – Vancouver, BC

Project#:	4241-52	**Weather:**	Cloudy	**Analysis Period:**	7:30 - 8:30
Date:	Sep 14, 2018 (Fri)	**Road Cond:**	Dry	**Intersection Peak:**	7:30 - 8:30
Notes:					

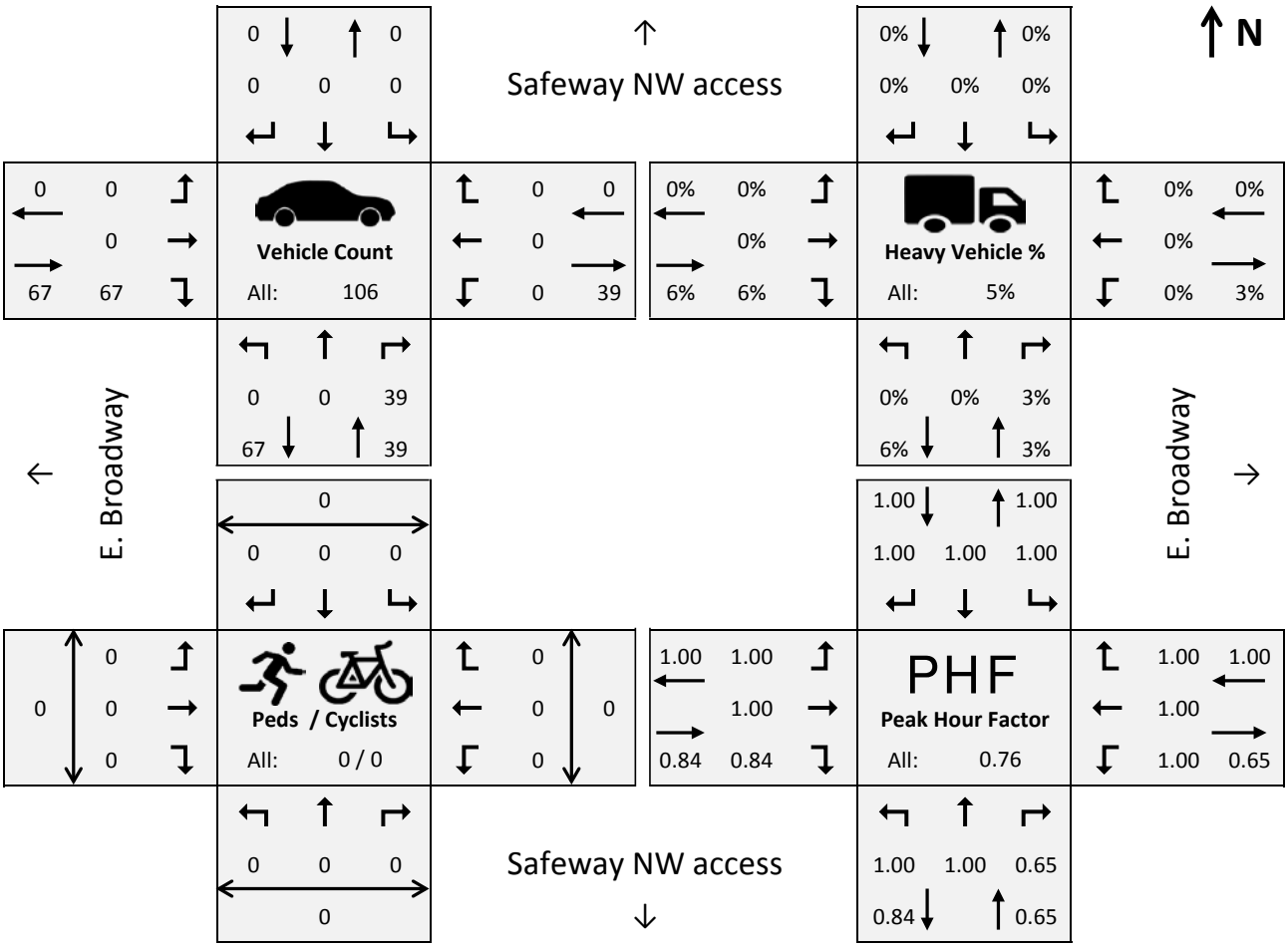
TIME	AUTOMOBILE COUNT												PEDESTRIANS			
INTERVAL	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 - 7:30	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 - 7:45	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 - 8:00	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 - 8:15	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 - 8:30	0	0	7	0	0	0	0	0	1	0	0	0	0	0	0	0
8:30 - 8:45	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 - 9:00	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0
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Safeway NW access @ E. Broadway – Vancouver, BC

Project#:	4241-52	**Weather:**	Cloudy	**Analysis Period:**	7:45 - 8:45
Date:	Sep 14, 2018 (Fri)	**Road Cond:**	Dry	**Intersection Peak:**	7:45 - 8:45
Notes:					

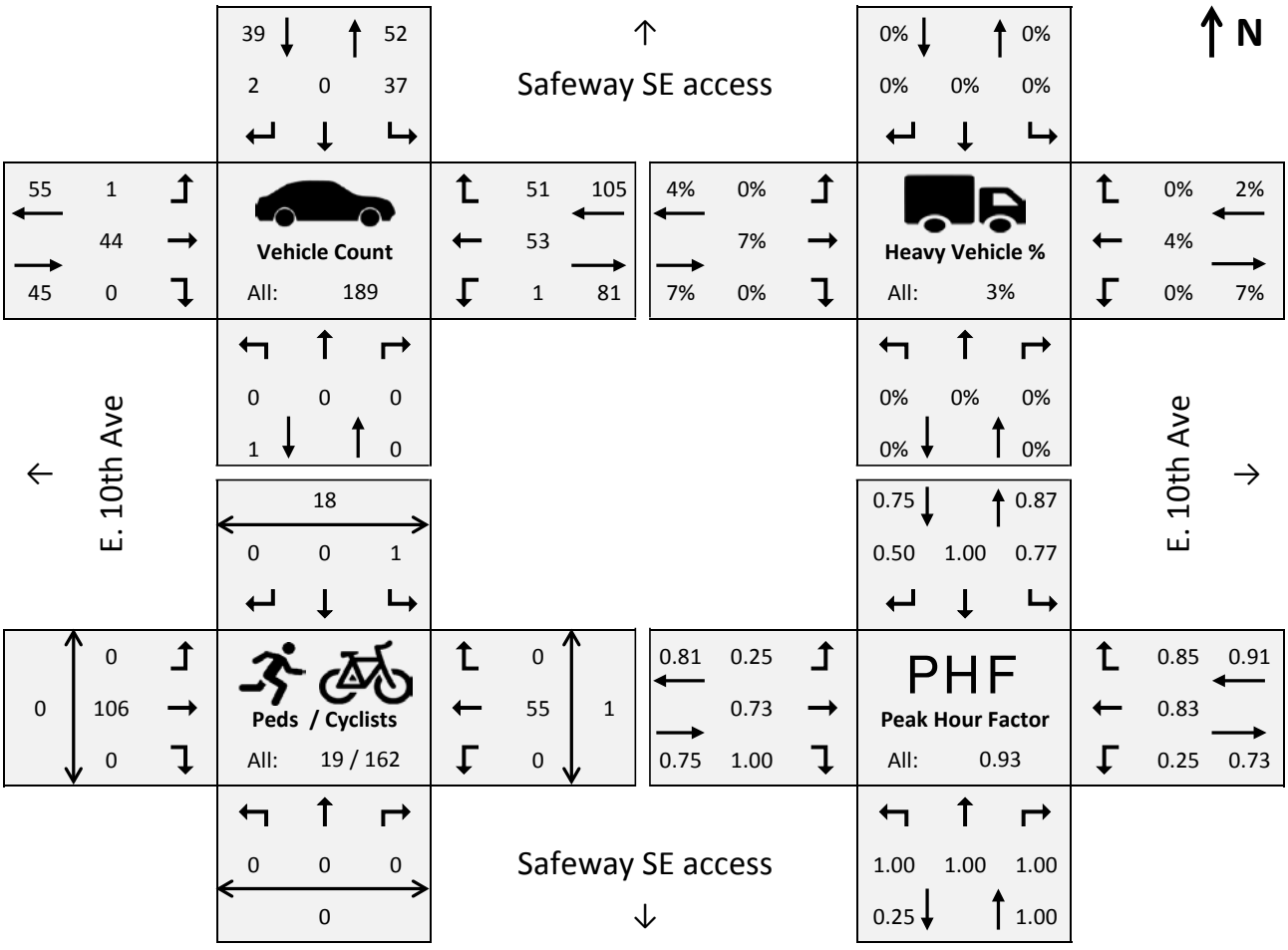
TIME	AUTOMOBILE COUNT											PEDESTRIANS			
INTERVAL	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	0	0	1	0	0	0	0	0	13	0	0	0	0	0	0	0
7:15 - 7:30	0	0	1	0	0	0	0	0	10	0	0	0	0	0	0	0
7:30 - 7:45	0	0	8	0	0	0	0	0	17	0	0	0	0	0	0	0
7:45 - 8:00	0	0	4	0	0	0	0	0	19	0	0	0	0	0	0	0
8:00 - 8:15	0	0	15	0	0	0	0	0	20	0	0	0	0	0	0	0
8:15 - 8:30	0	0	9	0	0	0	0	0	11	0	0	0	0	0	0	0
8:30 - 8:45	0	0	11	0	0	0	0	0	17	0	0	0	0	0	0	0
8:45 - 9:00	0	0	8	0	0	0	0	0	15	0	0	0	0	0	0	0
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Safeway SE access @ E. 10th Ave – Vancouver, BC

Project#:	4241-52	**Weather:**	Cloudy	**Analysis Period:**	8:00 - 9:00
Date:	Sep 14, 2018 (Fri)	**Road Cond:**	Dry	**Intersection Peak:**	8:00 - 9:00
Notes:					

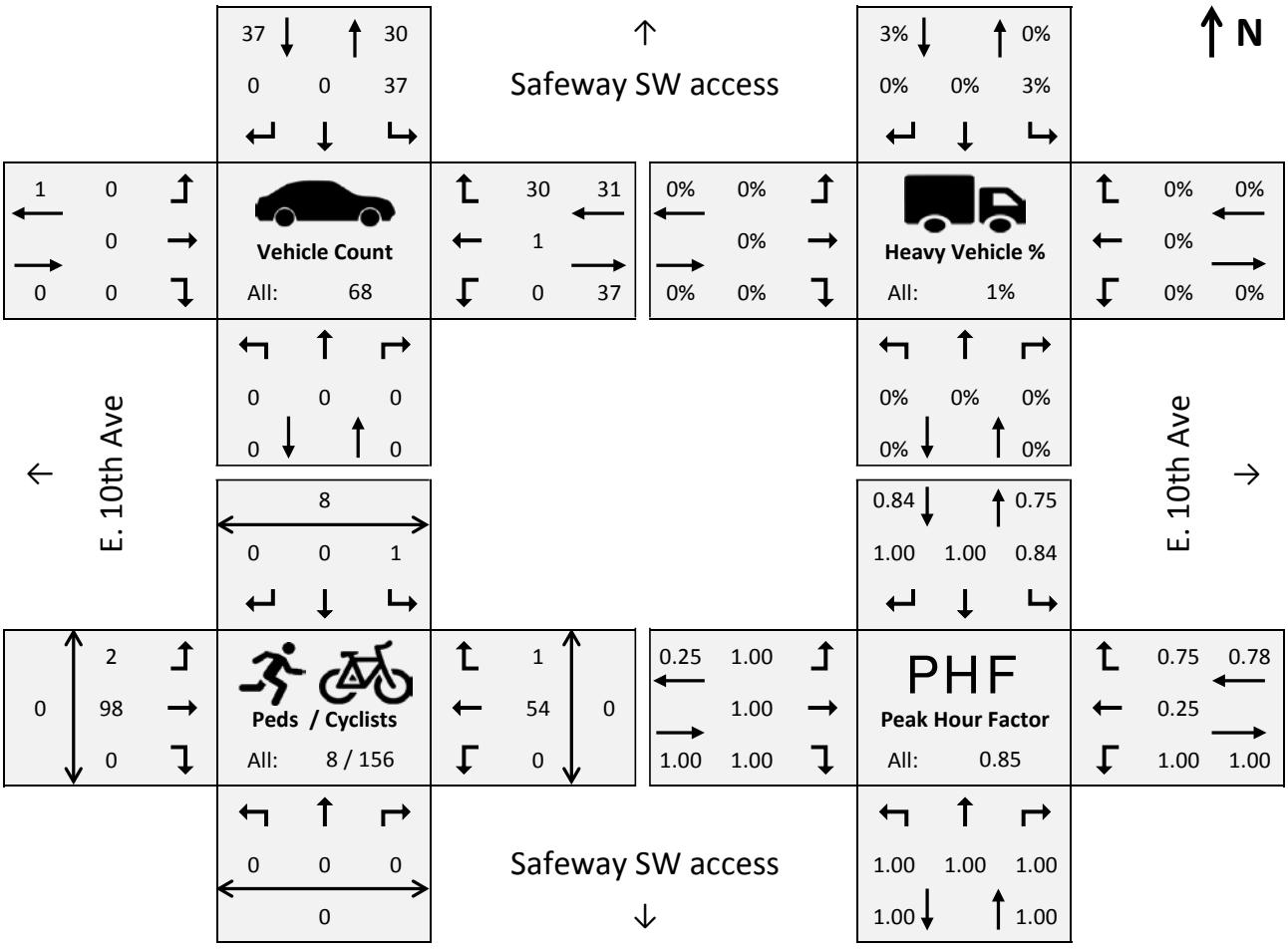
TIME	AUTOMOBILE COUNT											PEDESTRIANS			
INTERVAL	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	0	0	0	2	1	0	0	8	0	0	5	6	0	0	0	0
7:15 - 7:30	0	0	0	12	0	0	1	9	0	0	8	12	0	0	0	0
7:30 - 7:45	0	0	0	4	0	0	0	8	0	0	7	11	1	0	0	0
7:45 - 8:00	0	0	0	3	0	0	0	10	0	1	5	12	4	0	0	0
8:00 - 8:15	0	0	0	8	0	0	0	11	0	1	16	12	4	0	1	0
8:15 - 8:30	0	0	0	9	0	0	0	15	0	0	12	15	4	0	0	0
8:30 - 8:45	0	0	0	12	0	1	1	6	0	0	16	9	8	0	0	0
8:45 - 9:00	0	0	0	8	0	1	0	12	0	0	9	15	2	0	0	0
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Safeway SW access @ E. 10th Ave – Vancouver, BC

Project#:	4241-52	**Weather:**	Cloudy	**Analysis Period:**	7:45 - 8:45
Date:	Sep 14, 2018 (Fri)	**Road Cond:**	Dry	**Intersection Peak:**	7:45 - 8:45
Notes:	West leg (E. 10th Ave) is closed				

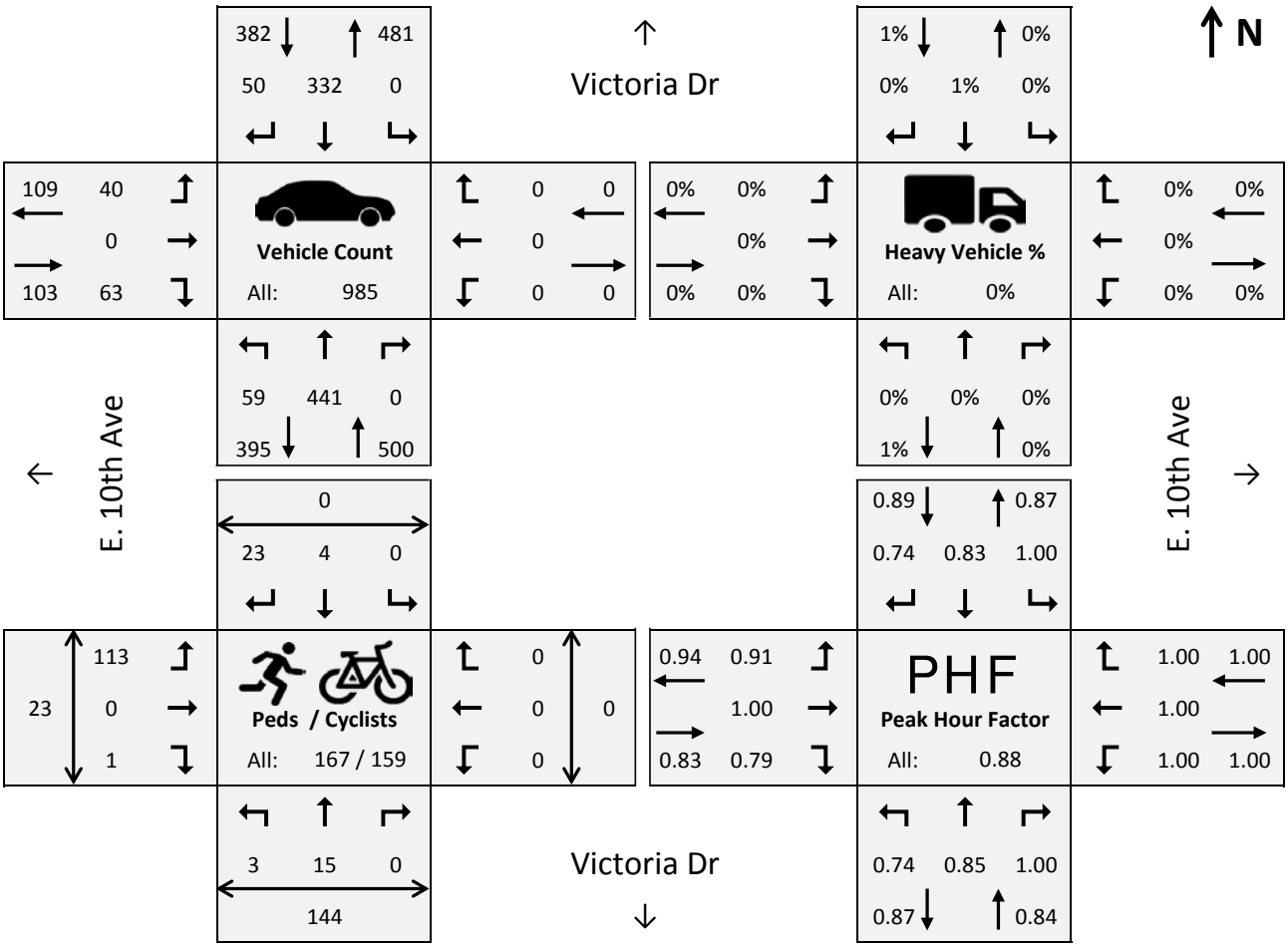
TIME	AUTOMOBILE COUNT												PEDESTRIANS			
INTERVAL	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	0	0	0	6	0	0	0	0	0	0	0	1	4	0	0	0
7:15 - 7:30	0	0	0	8	0	0	0	0	0	0	0	8	0	0	0	0
7:30 - 7:45	0	0	0	5	0	0	0	1	0	0	0	3	1	0	0	0
7:45 - 8:00	0	0	0	11	0	0	0	0	0	0	0	4	1	0	0	0
8:00 - 8:15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



Victoria Dr @ E. 10th Ave – Vancouver, BC

Project#:	4241-52	**Weather:**	Cloudy	**Analysis Period:**	8:00 - 9:00
Date:	Sep 14, 2018 (Fri)	**Road Cond:**	Dry	**Intersection Peak:**	8:00 - 9:00
Notes:					

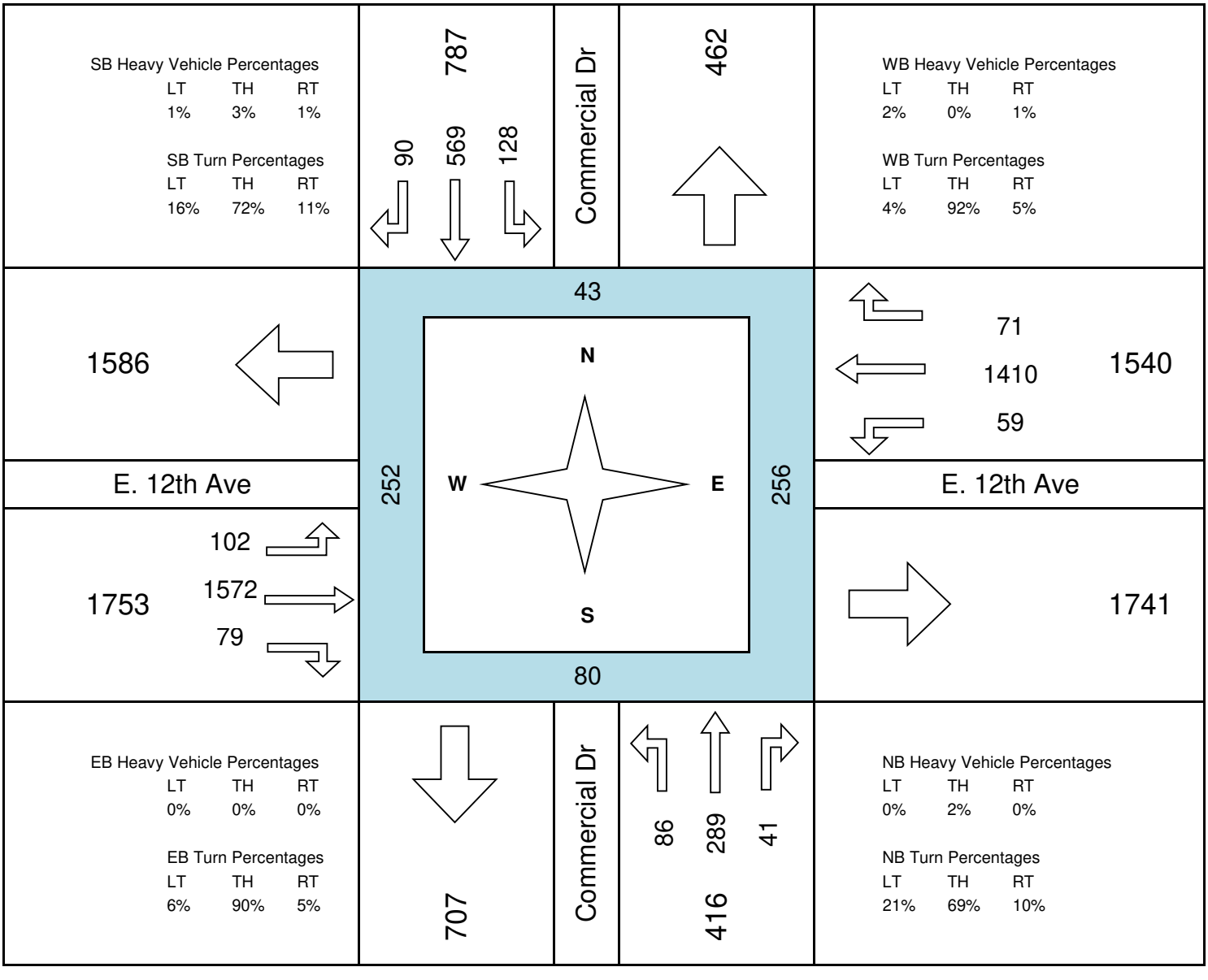
TIME	AUTOMOBILE COUNT												PEDESTRIANS			
INTERVAL	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	4	40	0	0	38	10	6	0	6	0	0	0	0	11	0	6
7:15 - 7:30	10	50	0	0	40	10	16	0	10	0	0	0	0	10	0	5
7:30 - 7:45	8	80	0	0	58	9	9	0	12	0	0	0	0	3	0	7
7:45 - 8:00	7	95	0	0	57	15	4	0	15	0	0	0	0	11	0	6
8:00 - 8:15	14	90	0	0	86	15	10	0	11	0	0	0	0	29	0	5
8:15 - 8:30	12	116	0	0	65	17	11	0	20	0	0	0	0	23	0	11
8:30 - 8:45	13	106	0	0	81	11	9	0	18	0	0	0	0	35	0	5
8:45 - 9:00	20	129	0	0	100	7	10	0	14	0	0	0	0	57	0	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Commercial Dr @ E. 12th Ave

Project #:	4181-26	Date:	May 3, 2016
Peak Hour:	16:45 — 17:45	Weather:	Sunny
Overall PHF:	0.99	Road Cond:	Dry
Notes:	0		

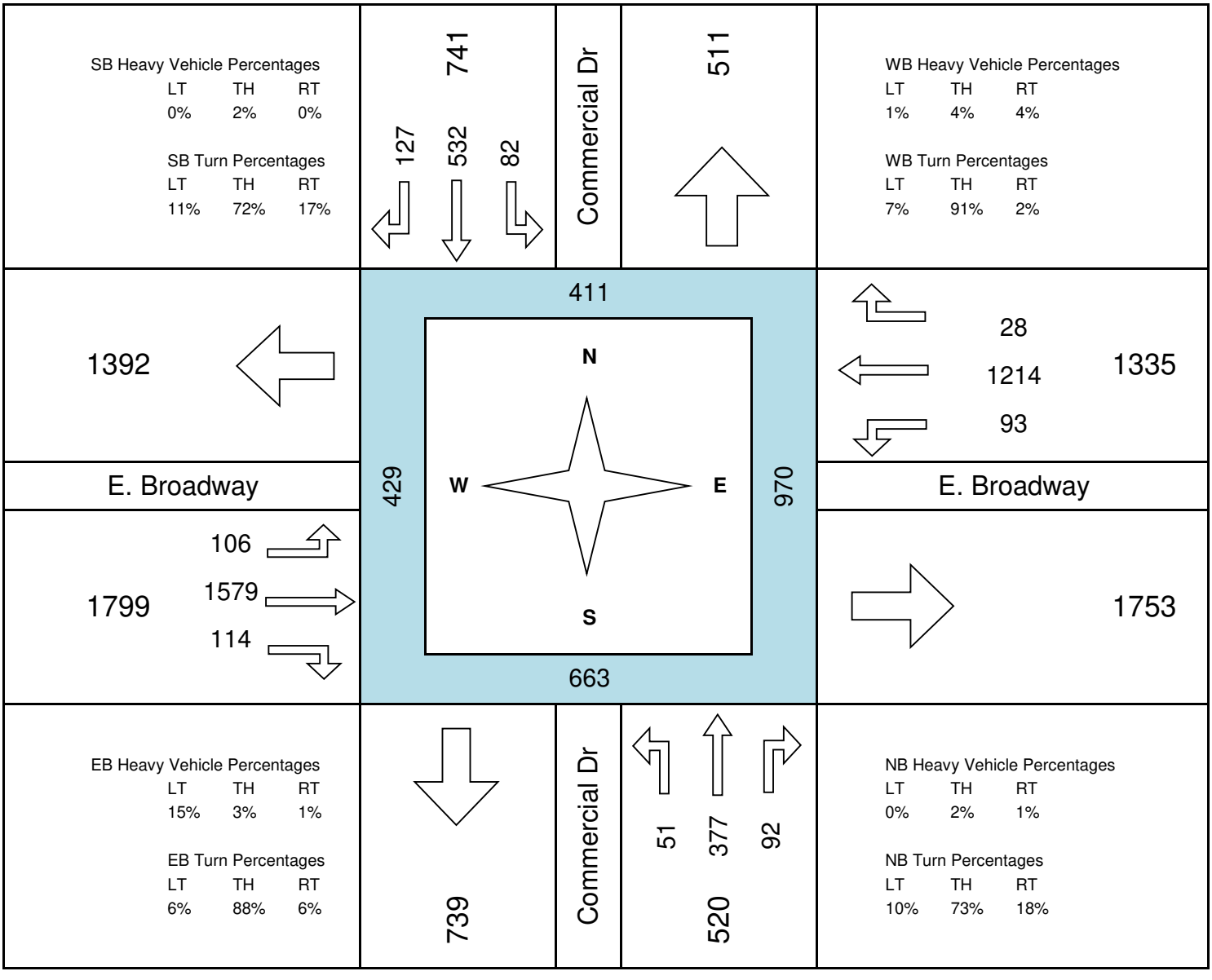
	Traffic Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
15:00 - 15:15	13	78	15	17	88	20	17	394	27	16	270	19	21	22	53	36
15:15 - 15:30	20	69	4	13	102	18	19	384	29	20	317	11	11	19	55	47
15:30 - 15:45	30	86	12	27	93	15	22	364	22	14	300	16	15	9	73	44
15:45 - 16:00	10	70	15	10	83	18	26	421	19	15	295	20	17	18	68	58
16:00 - 16:15	16	66	5	24	112	23	19	415	11	11	310	17	6	9	56	62
16:15 - 16:30	12	70	8	21	106	19	33	432	19	10	319	16	15	12	77	39
16:30 - 16:45	17	79	6	25	142	19	34	391	14	15	307	10	10	18	63	59
16:45 - 17:00	27	76	16	40	136	14	28	391	21	16	338	14	12	15	64	57
17:00 - 17:15	21	71	10	20	132	21	30	389	18	15	375	23	10	15	67	55
17:15 - 17:30	19	68	11	36	153	27	20	386	19	14	356	11	8	29	66	82
17:30 - 17:45	19	74	4	32	148	28	24	406	21	14	341	23	13	21	59	58
17:45 - 18:00	21	56	6	37	125	19	26	381	29	14	355	22	21	12	61	52
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}	27	76	16	40	153	28	30	406	21	16	375	23				
PHF	0.80	0.95	0.64	0.80	0.93	0.80	0.85	0.97	0.94	0.92	0.94	0.77				



Commercial Dr @ E. Broadway

Project #:	4181-26	Date:	May 3, 2016
Peak Hour:	17:00 — 18:00	Weather:	Sunny
Overall PHF:	0.94	Road Cond:	Dry
Notes:	0		

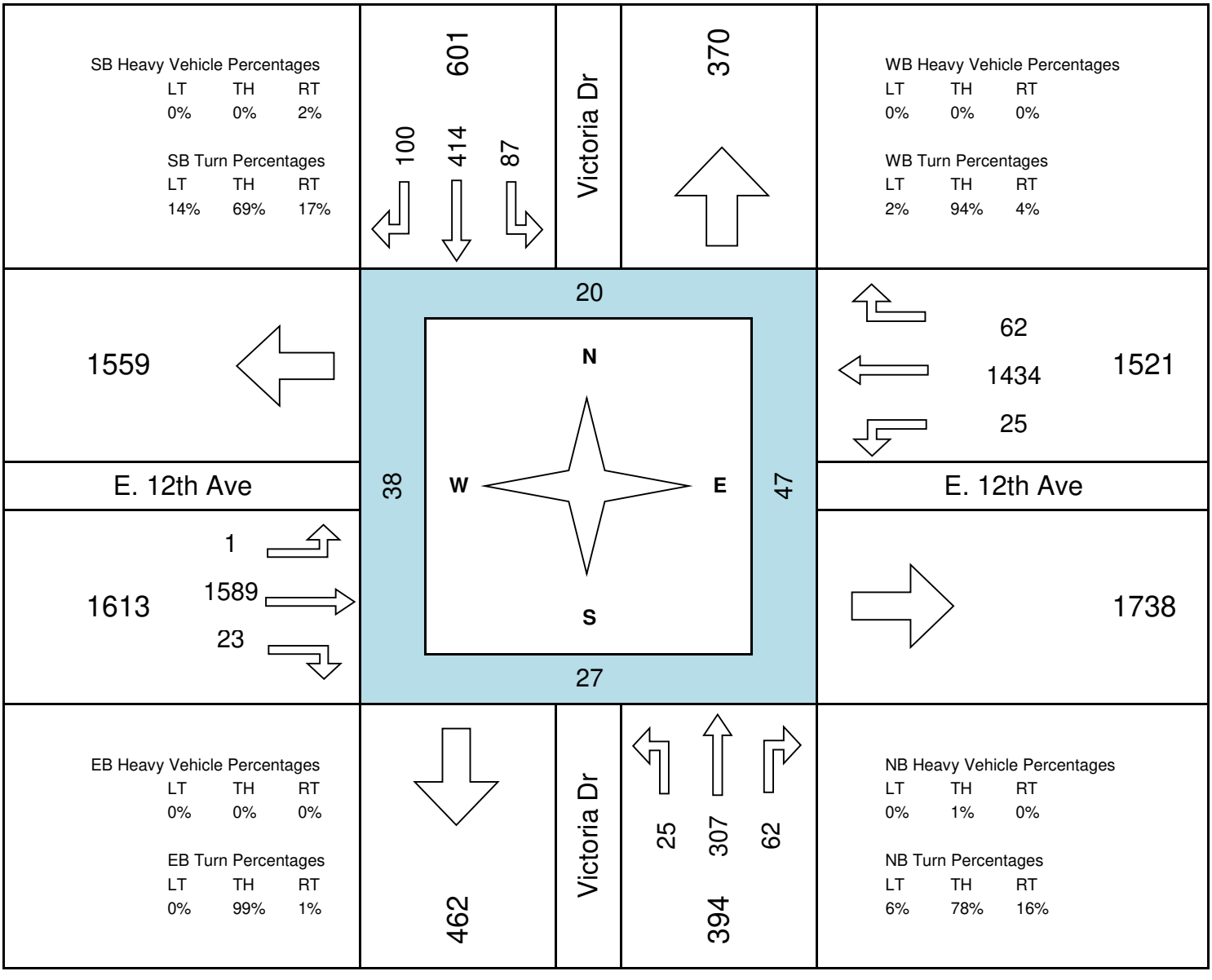
	Traffic Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
15:00 - 15:15	13	97	23	17	94	34	23	359	20	13	240	5	111	165	180	97
15:15 - 15:30	10	66	12	16	115	19	16	385	19	16	273	15	108	180	277	118
15:30 - 15:45	17	106	29	19	86	14	22	380	24	10	224	16	96	153	260	120
15:45 - 16:00	17	92	20	20	86	23	24	392	22	11	233	9	144	164	299	148
16:00 - 16:15	17	70	30	14	109	22	30	427	20	14	240	15	107	184	277	117
16:15 - 16:30	8	76	16	12	117	14	26	428	22	14	280	5	130	163	282	107
16:30 - 16:45	17	99	28	15	128	20	25	385	26	17	281	9	121	145	205	110
16:45 - 17:00	16	84	22	14	115	20	17	391	37	25	324	6	123	186	251	132
17:00 - 17:15	15	94	21	15	128	15	28	430	23	12	299	5	117	207	271	99
17:15 - 17:30	5	94	18	23	134	53	30	422	34	29	327	1	98	163	261	118
17:30 - 17:45	13	100	26	25	127	31	27	355	35	31	283	8	103	154	247	101
17:45 - 18:00	18	89	27	19	143	28	21	372	22	21	305	14	93	139	191	111
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}	18	100	27	25	143	53	30	430	35	31	327	14				
PHF	0.71	0.94	0.85	0.82	0.93	0.60	0.88	0.92	0.81	0.75	0.93	0.50				



Victoria Dr @ E. 12th Ave

Project #:	4181-26	Date:	May 3, 2016
Peak Hour:	16:45 — 17:45	Weather:	Sunny
Overall PHF:	0.96	Road Cond:	Dry
Notes:	0		

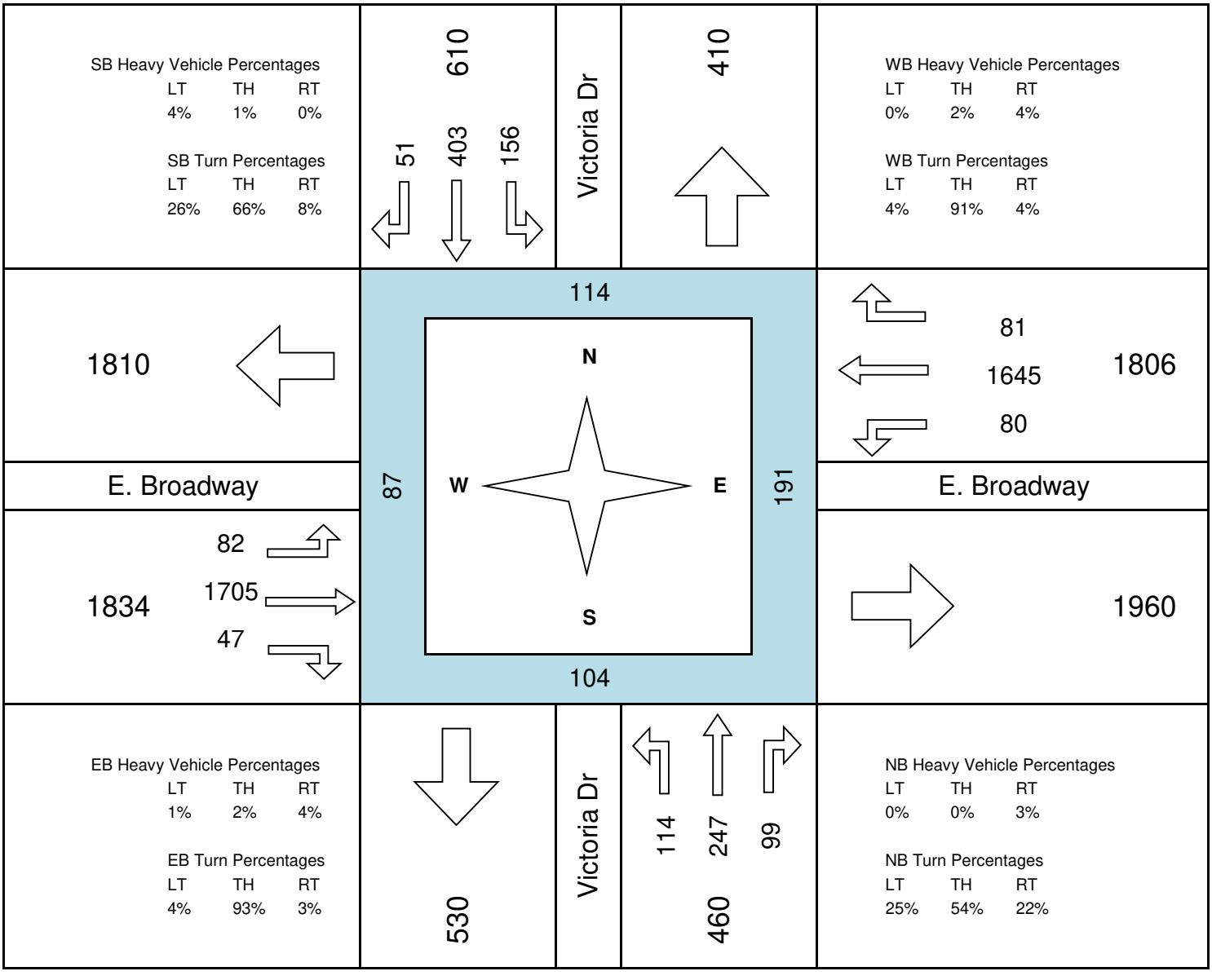
	Traffic Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
15:00 - 15:15	4	58	19	18	84	27	0	417	6	8	269	21	5	7	6	22
15:15 - 15:30	4	73	7	15	88	20	0	350	2	7	329	11	8	3	7	2
15:30 - 15:45	7	80	21	13	56	27	0	362	4	7	310	23	10	5	12	10
15:45 - 16:00	1	78	17	18	73	22	0	420	3	6	304	17	7	4	7	12
16:00 - 16:15	4	64	14	23	79	30	2	416	6	2	298	25	6	3	9	16
16:15 - 16:30	5	53	21	27	85	21	0	350	2	5	325	27	11	8	5	18
16:30 - 16:45	2	81	13	25	106	16	0	311	3	7	325	15	2	2	10	5
16:45 - 17:00	4	82	20	21	110	21	0	397	3	7	350	16	4	5	18	11
17:00 - 17:15	9	78	16	20	89	37	0	385	5	6	334	19	5	4	5	11
17:15 - 17:30	7	61	12	28	124	18	0	385	2	7	364	16	7	8	18	4
17:30 - 17:45	5	86	14	18	91	24	1	422	13	5	386	11	4	10	6	12
17:45 - 18:00	5	78	15	17	125	23	0	379	3	7	332	17	1	6	7	15
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}	9	86	20	28	124	37	1	422	13	7	386	19				
PHF	0.69	0.89	0.78	0.78	0.83	0.68	0.25	0.94	0.44	0.89	0.93	0.82				



Victoria Dr @ E. Broadway

Project #:	4181-26	Date:	May 3, 2016
Peak Hour:	17:00 — 18:00	Weather:	Sunny
Overall PHF:	0.97	Road Cond:	Dry
Notes:	0		

	Traffic Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
15:00 - 15:15	19	40	26	26	78	16	16	380	12	24	256	13	29	37	27	21
15:15 - 15:30	28	47	28	30	67	14	9	377	9	25	325	21	40	55	31	31
15:30 - 15:45	33	63	43	25	67	12	18	409	11	21	267	11	26	34	25	23
15:45 - 16:00	14	52	24	34	62	10	21	384	12	22	293	13	27	30	23	22
16:00 - 16:15	29	39	22	28	92	16	17	360	6	17	283	11	30	25	31	8
16:15 - 16:30	20	54	35	30	82	9	15	407	14	19	303	22	27	24	21	38
16:30 - 16:45	26	62	35	34	91	15	17	403	14	23	352	18	39	33	41	31
16:45 - 17:00	30	57	33	35	97	14	18	423	13	23	412	23	23	37	28	16
17:00 - 17:15	26	68	30	29	91	13	25	438	14	19	381	24	18	29	42	22
17:15 - 17:30	29	55	21	39	117	14	18	424	9	20	427	14	47	22	59	22
17:30 - 17:45	31	54	23	34	92	10	14	392	11	22	451	18	29	29	60	32
17:45 - 18:00	28	70	25	54	103	14	25	451	13	19	386	25	20	24	30	11
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}	31	70	30	54	117	14	25	451	14	22	451	25				
PHF	0.92	0.88	0.83	0.72	0.86	0.91	0.82	0.95	0.84	0.91	0.91	0.81				

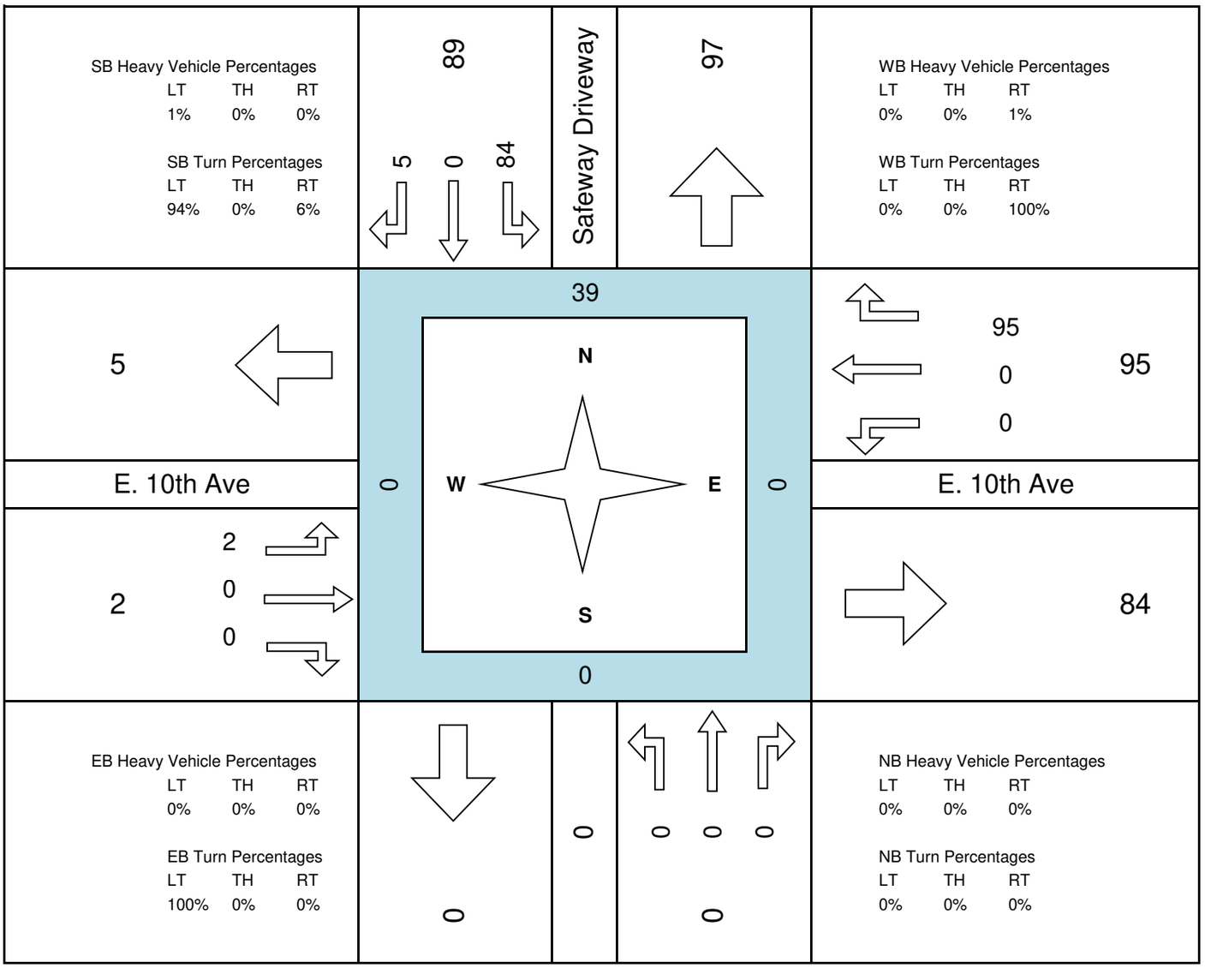


Safeway East driveway @ E. 10th Ave

Project #: 4241-52
Peak Hour: 17:00 — 18:00
Overall PHF: 0.95
Notes: 0

Date: Sep 27, 2016
Weather: Sunny
Road Cond: Dry

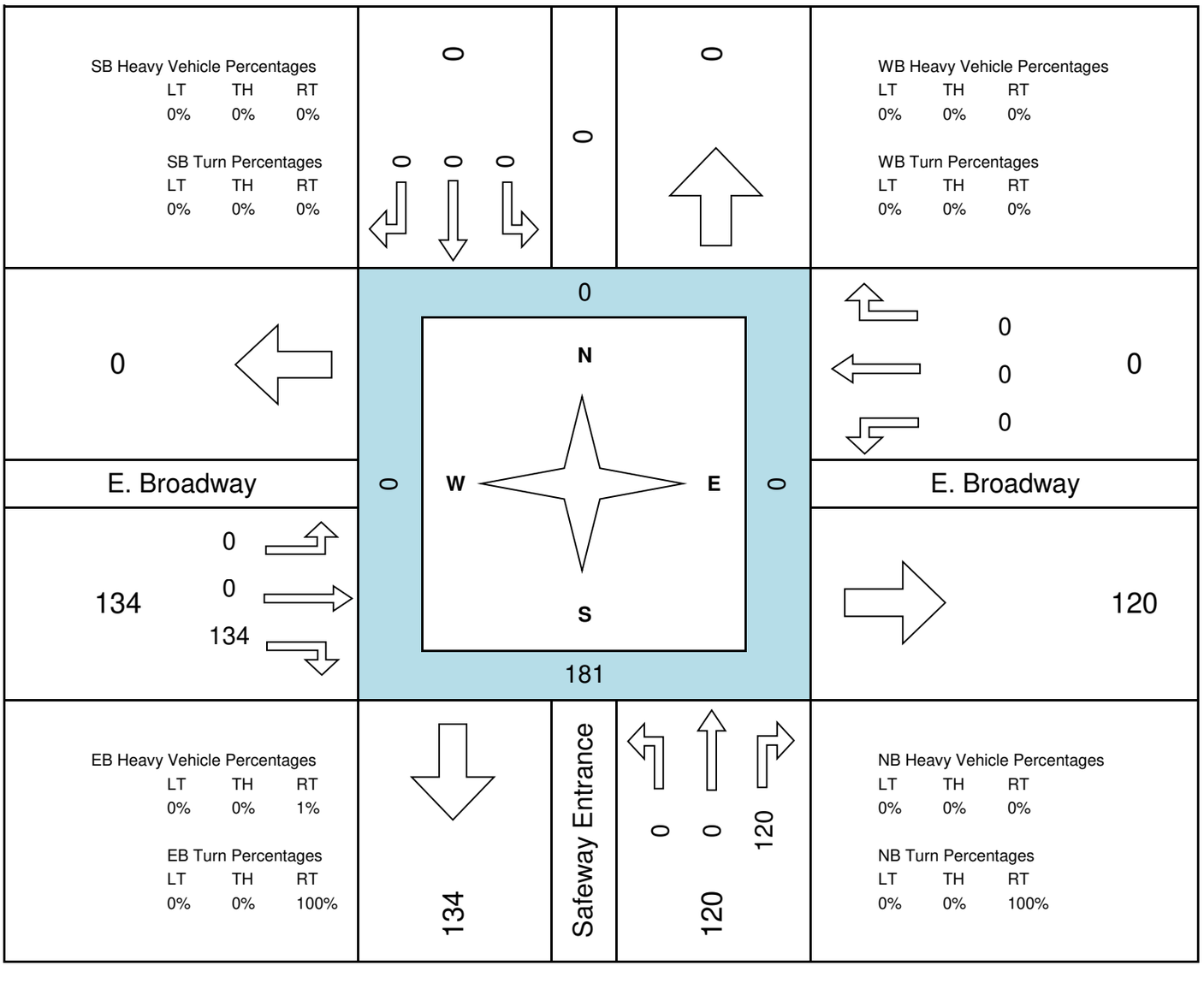
	All Vehicles Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
15:00 - 15:15	0	0	0	14	0	0	2	0	0	0	0	24	10	0	0	0
15:15 - 15:30	0	0	0	18	0	0	1	0	0	0	0	21	5	0	0	0
15:30 - 15:45	0	0	0	17	0	2	0	0	0	0	0	25	9	0	0	0
15:45 - 16:00	0	0	0	15	0	0	0	0	0	0	0	27	16	0	0	0
16:00 - 16:15	0	0	0	13	0	0	0	0	0	0	0	19	11	0	0	0
16:15 - 16:30	0	0	0	12	0	0	1	0	0	0	0	18	22	0	0	0
16:30 - 16:45	0	0	0	20	0	0	0	0	0	0	0	26	8	0	0	0
16:45 - 17:00	0	0	0	18	0	0	0	0	0	0	0	28	21	0	0	0
17:00 - 17:15	0	0	0	22	0	0	1	0	0	0	0	23	9	0	0	0
17:15 - 17:30	0	0	0	18	0	1	0	0	0	0	0	26	11	0	0	0
17:30 - 17:45	0	0	0	22	0	4	1	0	0	0	0	19	8	0	0	0
17:45 - 18:00	0	0	0	22	0	0	0	0	0	0	0	27	11	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}				22		4	1					27				
PHF				0.95		0.31	0.50					0.88				



Safeway Entrance @ E. Broadway

Project #:	4241-52	Date:	Sep 27, 2016
Peak Hour:	16:45 — 17:45	Weather:	Sunny
Overall PHF:	0.89	Road Cond:	Dry
Notes:	Bank 2: traffic from East Safeway Entrance		

	All Vehicles Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
15:00 - 15:15	0	0	24	0	0	0	0	0	41	0	0	0	0	21	0	0
15:15 - 15:30	0	0	38	0	0	0	0	0	25	0	0	0	0	44	0	0
15:30 - 15:45	0	0	25	0	0	0	0	0	41	0	0	0	0	47	0	0
15:45 - 16:00	0	0	32	0	0	0	0	0	21	0	0	0	0	37	0	0
16:00 - 16:15	0	0	24	0	0	0	0	0	31	0	0	0	0	31	0	0
16:15 - 16:30	0	0	30	0	0	0	0	0	34	0	0	0	0	43	0	0
16:30 - 16:45	0	0	19	0	0	0	0	0	36	0	0	0	0	41	0	0
16:45 - 17:00	0	0	33	0	0	0	0	0	23	0	0	0	0	50	0	0
17:00 - 17:15	0	0	32	0	0	0	0	0	33	0	0	0	0	38	0	0
17:15 - 17:30	0	0	30	0	0	0	0	0	32	0	0	0	0	48	0	0
17:30 - 17:45	0	0	25	0	0	0	0	0	46	0	0	0	0	45	0	0
17:45 - 18:00	0	0	27	0	0	0	0	0	28	0	0	0	0	43	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}			33						46							
PHF			0.91						0.73							

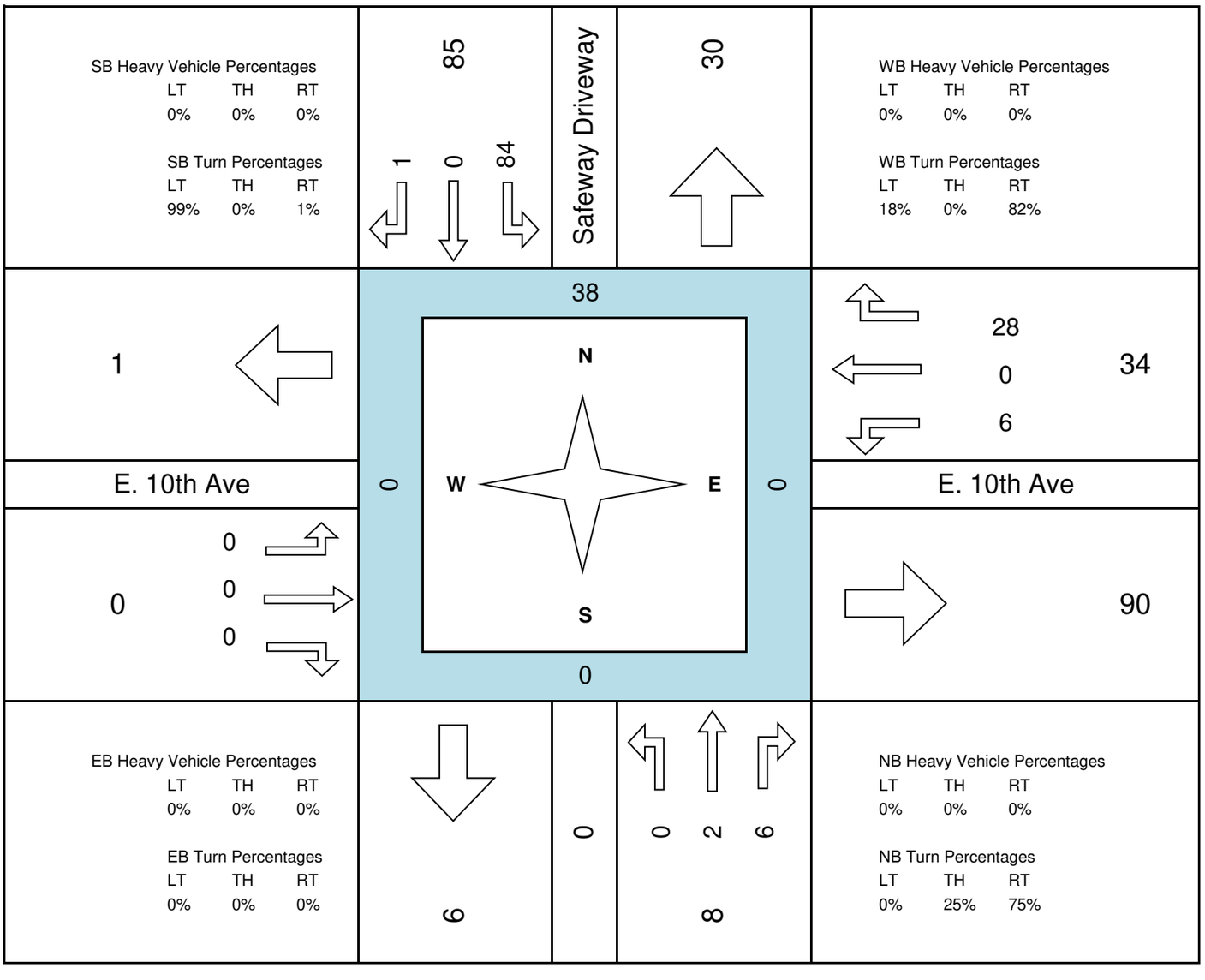


Safeway West driveway @ E. 10th Ave

Project #: 4241-52
Peak Hour: 17:00 — 18:00
Overall PHF: 0.84
Notes: 0

Date: Sep 27, 2016
Weather: Sunny
Road Cond: Dry

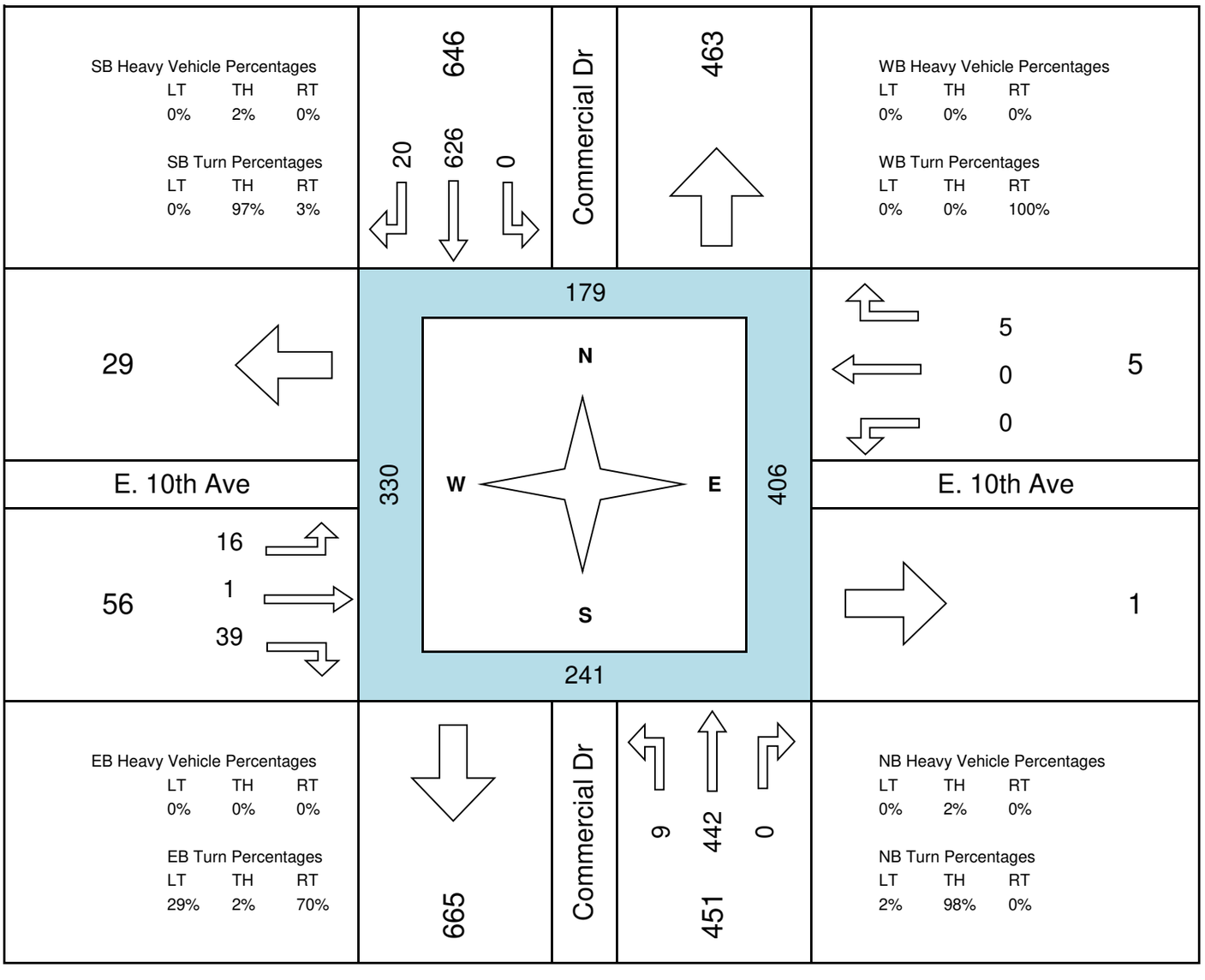
	All Vehicles Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
15:00 - 15:15	0	2	0	21	2	0	0	1	0	3	1	8	15	0	0	0
15:15 - 15:30	0	1	2	11	0	0	1	0	0	3	0	9	17	0	0	0
15:30 - 15:45	0	1	0	19	1	0	0	0	0	5	0	6	18	0	0	0
15:45 - 16:00	0	1	1	18	0	0	0	0	0	0	0	8	11	0	0	0
16:00 - 16:15	0	0	2	12	0	0	0	0	0	1	0	6	9	0	0	0
16:15 - 16:30	0	0	1	22	0	0	0	0	0	0	0	12	10	0	0	0
16:30 - 16:45	0	0	1	24	1	0	0	0	0	0	0	10	8	0	0	0
16:45 - 17:00	0	0	1	14	0	0	0	1	0	1	0	7	25	0	0	0
17:00 - 17:15	0	0	2	21	0	0	0	0	0	3	0	5	10	0	0	0
17:15 - 17:30	0	2	1	17	0	1	0	0	0	1	0	4	9	0	0	0
17:30 - 17:45	0	0	2	22	0	0	0	0	0	1	0	13	12	0	0	0
17:45 - 18:00	0	0	1	24	0	0	0	0	0	1	0	6	7	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}		2	2	24		1				3		13				
PHF		0.25	0.75	0.88		0.25				0.50		0.54				



Commercial Dr @ E. 10th Ave

Project #:	4241-52	Date:	Mar 23, 2017
Peak Hour:	16:45 — 17:45	Weather:	Cloudy
Overall PHF:	0.97	Road Cond:	Dry
Notes:	0		

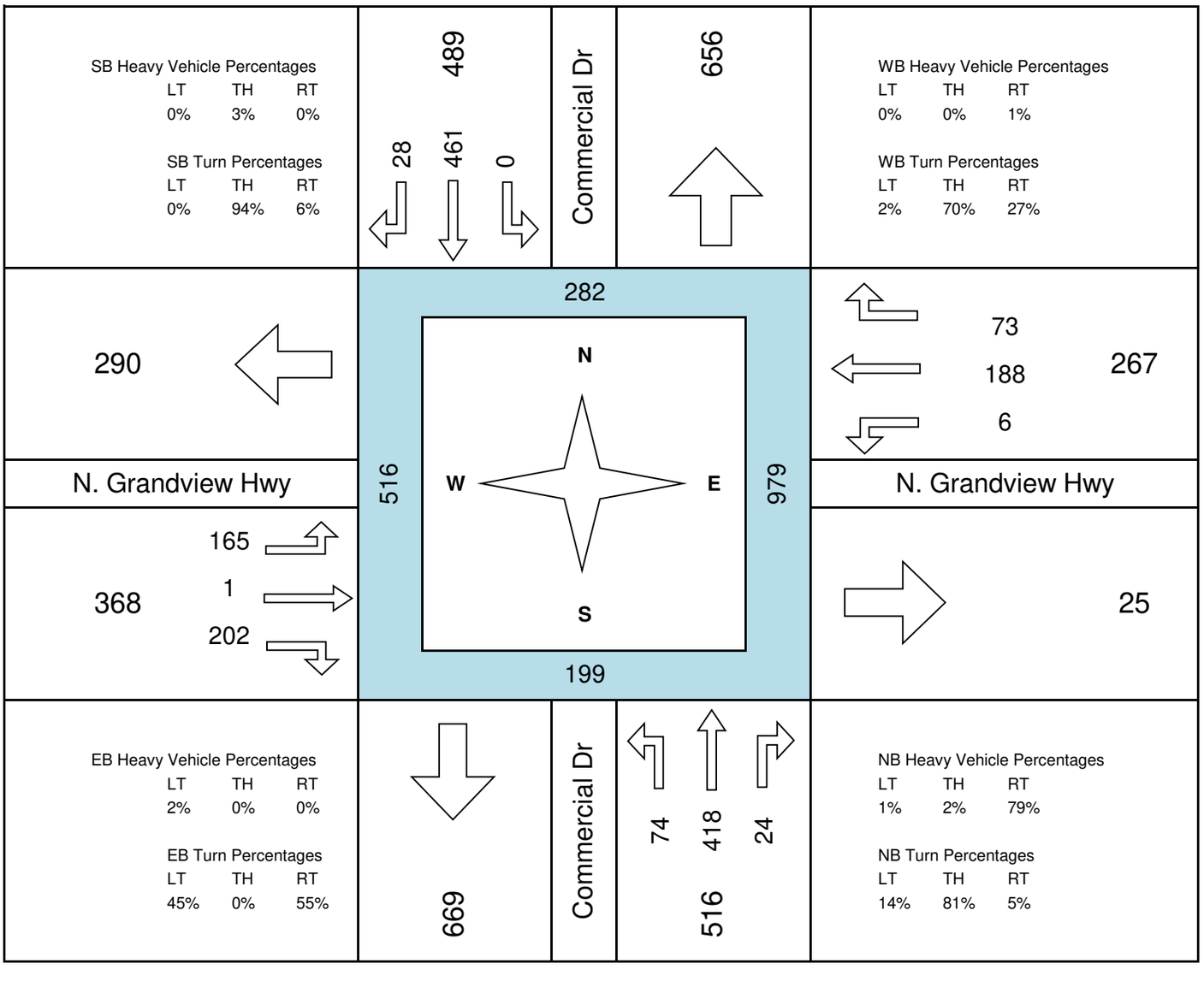
	All Vehicles Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
15:00 - 15:15	2	112	0	0	108	5	4	1	5	0	0	1	34	44	137	54
15:15 - 15:30	4	121	0	0	111	4	1	0	13	0	0	0	31	41	89	45
15:30 - 15:45	5	108	0	0	133	6	3	0	15	0	0	0	29	48	91	56
15:45 - 16:00	6	100	0	0	110	10	3	1	9	0	0	0	41	56	103	71
16:00 - 16:15	1	121	0	0	116	2	4	1	11	0	0	0	54	33	104	86
16:15 - 16:30	2	124	0	0	149	8	4	0	7	0	0	0	46	63	129	74
16:30 - 16:45	4	97	0	0	179	7	2	0	4	0	0	0	47	54	101	91
16:45 - 17:00	1	98	0	0	152	7	5	1	12	0	0	2	52	45	100	73
17:00 - 17:15	5	119	0	0	154	2	2	0	10	0	0	0	35	73	101	94
17:15 - 17:30	1	99	0	0	168	5	5	0	8	0	0	3	36	61	95	75
17:30 - 17:45	2	126	0	0	152	6	4	0	9	0	0	0	56	62	110	88
17:45 - 18:00	3	95	0	1	143	7	6	0	6	0	0	0	58	65	95	106
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}	5	126			168	7	5	1	12			3				
PHF	0.45	0.88			0.93	0.71	0.80	0.25	0.81			0.42				



Commercial Dr @ N. Grandview Hwy

Project #:	4241-52	Date:	Mar 23, 2017
Peak Hour:	16:45 — 17:45	Weather:	Cloudy
Overall PHF:	0.91	Road Cond:	Dry
Notes:	0		

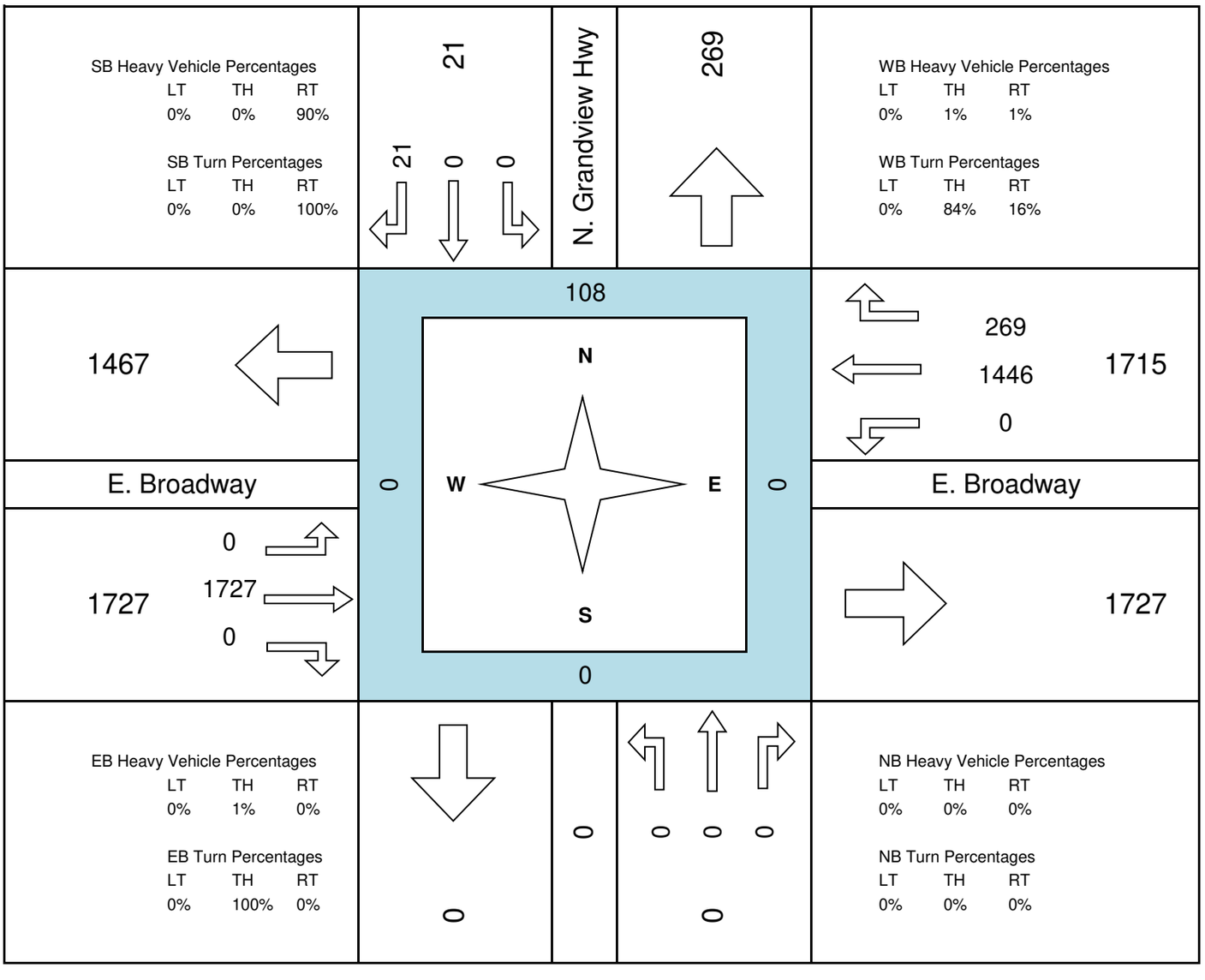
	All Vehicles Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
15:00 - 15:15	11	104	8	0	116	6	19	0	17	2	26	19	27	31	161	82
15:15 - 15:30	9	96	5	0	124	8	27	0	19	3	22	17	31	28	159	86
15:30 - 15:45	11	103	6	0	116	4	32	1	27	0	26	11	43	47	181	77
15:45 - 16:00	18	106	5	0	108	6	28	0	29	1	32	13	36	36	194	98
16:00 - 16:15	18	93	9	0	108	8	27	1	37	0	31	11	39	41	188	105
16:15 - 16:30	7	99	8	0	132	14	30	0	35	2	34	11	42	43	223	99
16:30 - 16:45	18	85	4	0	125	10	33	0	46	3	29	23	50	52	195	89
16:45 - 17:00	19	92	6	0	107	3	39	1	44	2	49	15	75	63	236	132
17:00 - 17:15	18	108	7	0	115	2	39	0	50	2	43	21	60	50	230	146
17:15 - 17:30	16	99	6	0	115	9	47	0	57	1	44	13	72	50	221	125
17:30 - 17:45	21	119	5	0	124	14	40	0	51	1	52	24	75	36	292	113
17:45 - 18:00	13	94	3	0	116	9	32	0	32	2	37	20	67	34	248	105
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}	21	119	7		124	14	47	1	57	2	52	24				
PHF	0.88	0.88	0.86		0.93	0.50	0.88	0.25	0.89	0.75	0.90	0.76				



N. Grandview Hwy @ E. Broadway

Project #:	4241-52	Date:	Mar 23, 2017
Peak Hour:	16:45 — 17:45	Weather:	Cloudy
Overall PHF:	0.95	Road Cond:	Dry
Notes:	0		

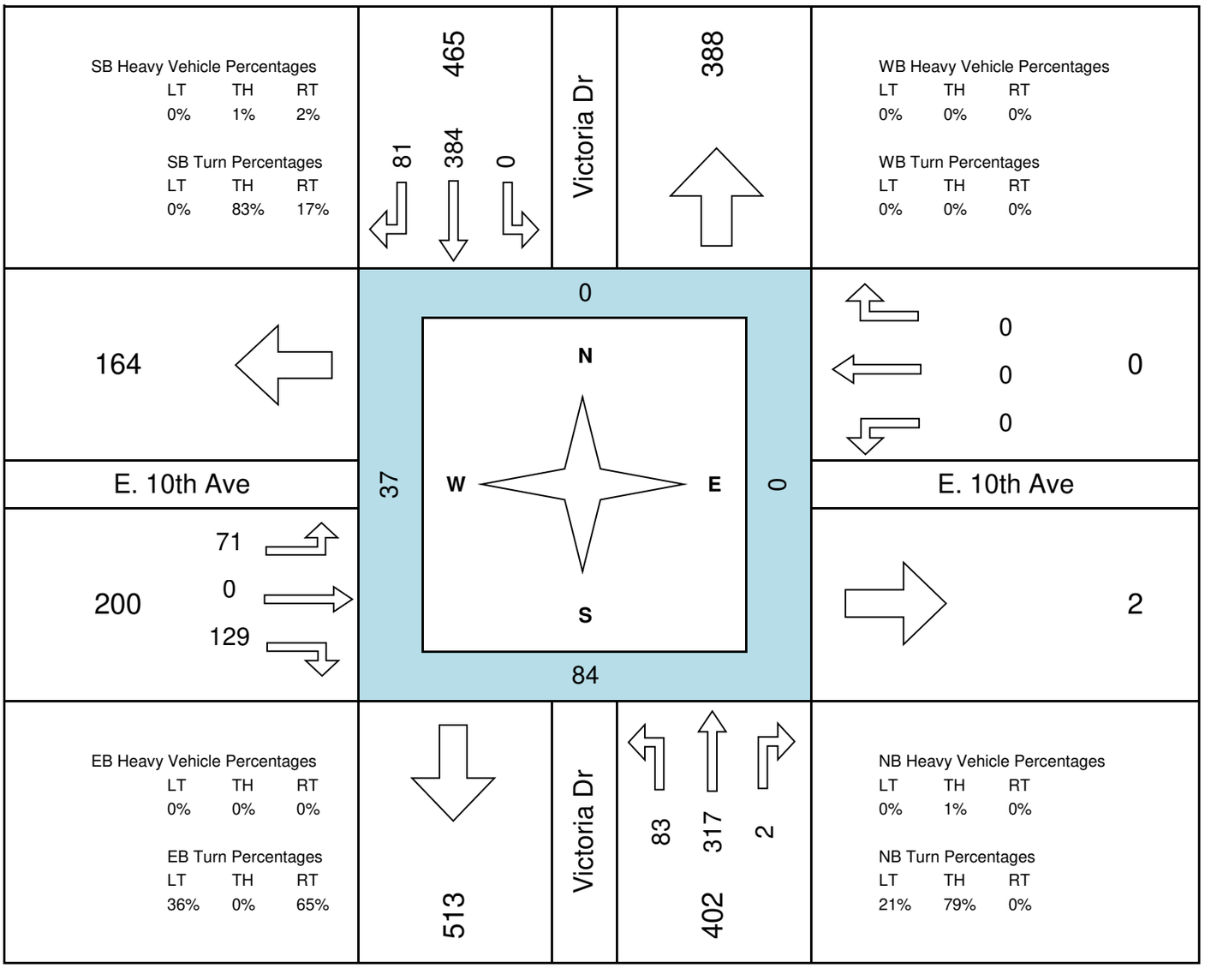
	All Vehicles Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
15:00 - 15:15	0	0	0	0	0	7	0	400	0	0	239	46	14	0	0	0
15:15 - 15:30	0	0	0	0	0	6	0	425	0	0	249	40	27	0	0	0
15:30 - 15:45	0	0	0	0	0	7	0	422	0	0	239	37	20	0	0	0
15:45 - 16:00	0	0	0	0	0	5	0	395	0	0	288	47	22	0	0	0
16:00 - 16:15	0	0	0	0	0	8	0	426	0	0	281	41	24	0	0	0
16:15 - 16:30	0	0	0	0	0	8	0	437	0	0	322	47	34	0	0	0
16:30 - 16:45	0	0	0	0	0	6	0	408	0	0	308	55	27	0	0	0
16:45 - 17:00	0	0	0	0	0	5	0	432	0	0	372	60	23	0	0	0
17:00 - 17:15	0	0	0	0	0	6	0	456	0	0	336	70	28	0	0	0
17:15 - 17:30	0	0	0	0	0	5	0	461	0	0	393	55	30	0	0	0
17:30 - 17:45	0	0	0	0	0	5	0	378	0	0	345	84	27	0	0	0
17:45 - 18:00	0	0	0	0	0	3	0	395	0	0	308	60	18	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}						6		461			393	84				
PHF						0.88		0.94			0.92	0.80				



Victoria Dr @ E. 10th Ave

Project #:	4241-52	Date:	Mar 23, 2017
Peak Hour:	16:45 — 17:45	Weather:	Cloudy
Overall PHF:	0.93	Road Cond:	Dry
Notes:	0		

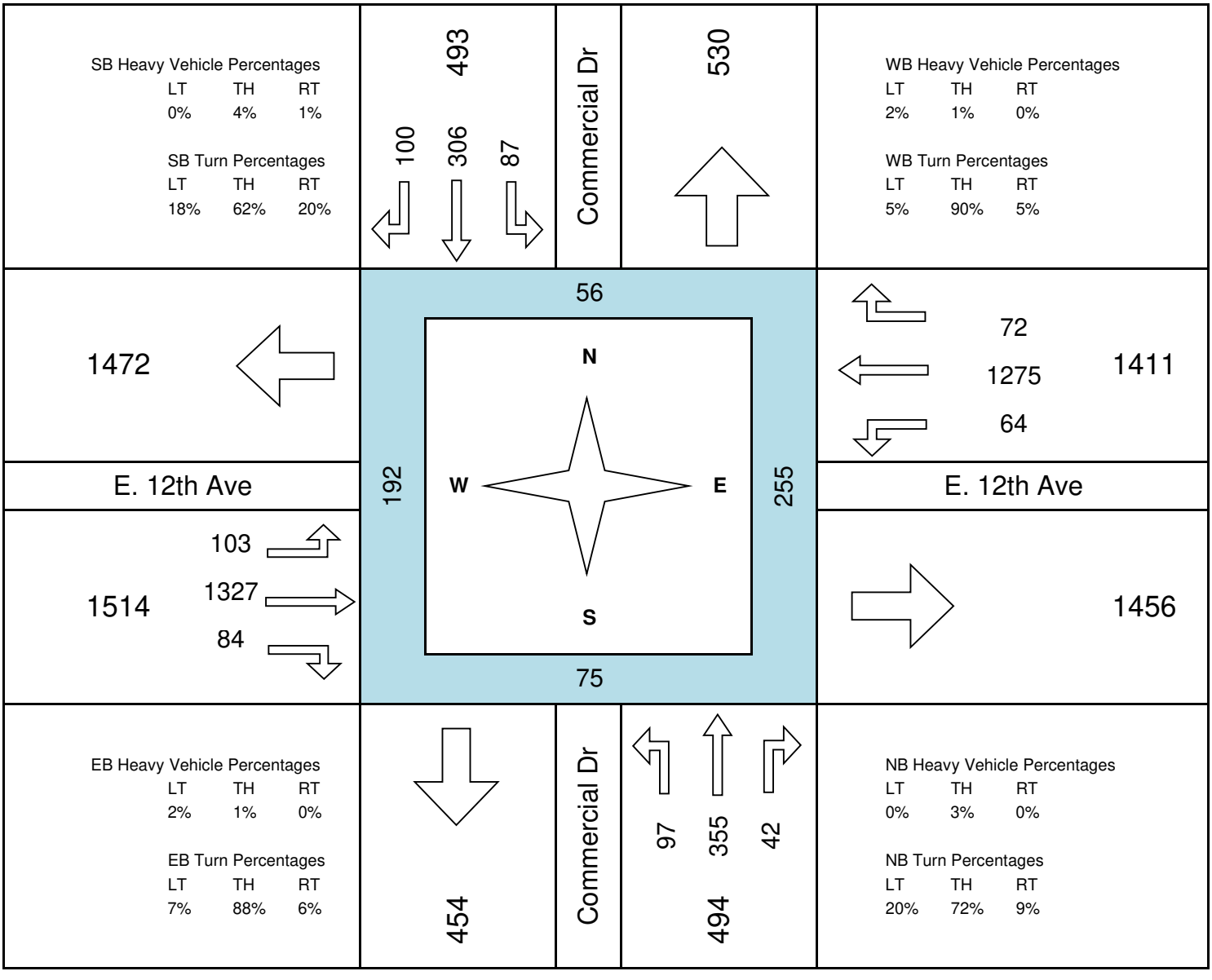
	All Vehicles Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
15:00 - 15:15	20	87	0	0	69	14	19	0	30	0	0	0	0	26	0	10
15:15 - 15:30	19	80	0	0	80	7	23	0	31	0	0	0	0	17	0	9
15:30 - 15:45	13	94	0	0	76	12	16	0	23	0	0	0	0	25	0	17
15:45 - 16:00	15	77	0	0	107	15	18	0	25	0	0	0	0	19	0	6
16:00 - 16:15	23	78	0	0	86	28	16	0	23	0	0	0	0	21	0	15
16:15 - 16:30	20	95	0	0	88	15	12	0	36	0	0	0	0	19	0	9
16:30 - 16:45	13	88	0	0	86	21	22	0	22	0	0	0	0	51	0	13
16:45 - 17:00	24	92	0	0	70	17	20	0	28	0	0	0	0	12	0	9
17:00 - 17:15	24	83	1	0	100	24	23	0	32	0	0	0	0	25	0	14
17:15 - 17:30	19	71	0	0	110	20	16	0	36	0	0	0	0	15	0	3
17:30 - 17:45	16	71	1	0	104	20	12	0	33	0	0	0	0	32	0	11
17:45 - 18:00	18	55	0	0	71	14	20	0	35	0	0	0	0	17	0	11
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}	24	92	1		110	24	23		36							
PHF	0.86	0.86	0.50		0.87	0.84	0.77		0.90							



Commercial Dr @ E. 12th Ave

Project #:	4181-26	Date:	May 14, 2016
Peak Hour:	12:45 — 13:45	Weather:	Sunny
Overall PHF:	0.96	Road Cond:	Dry
Notes:	0		

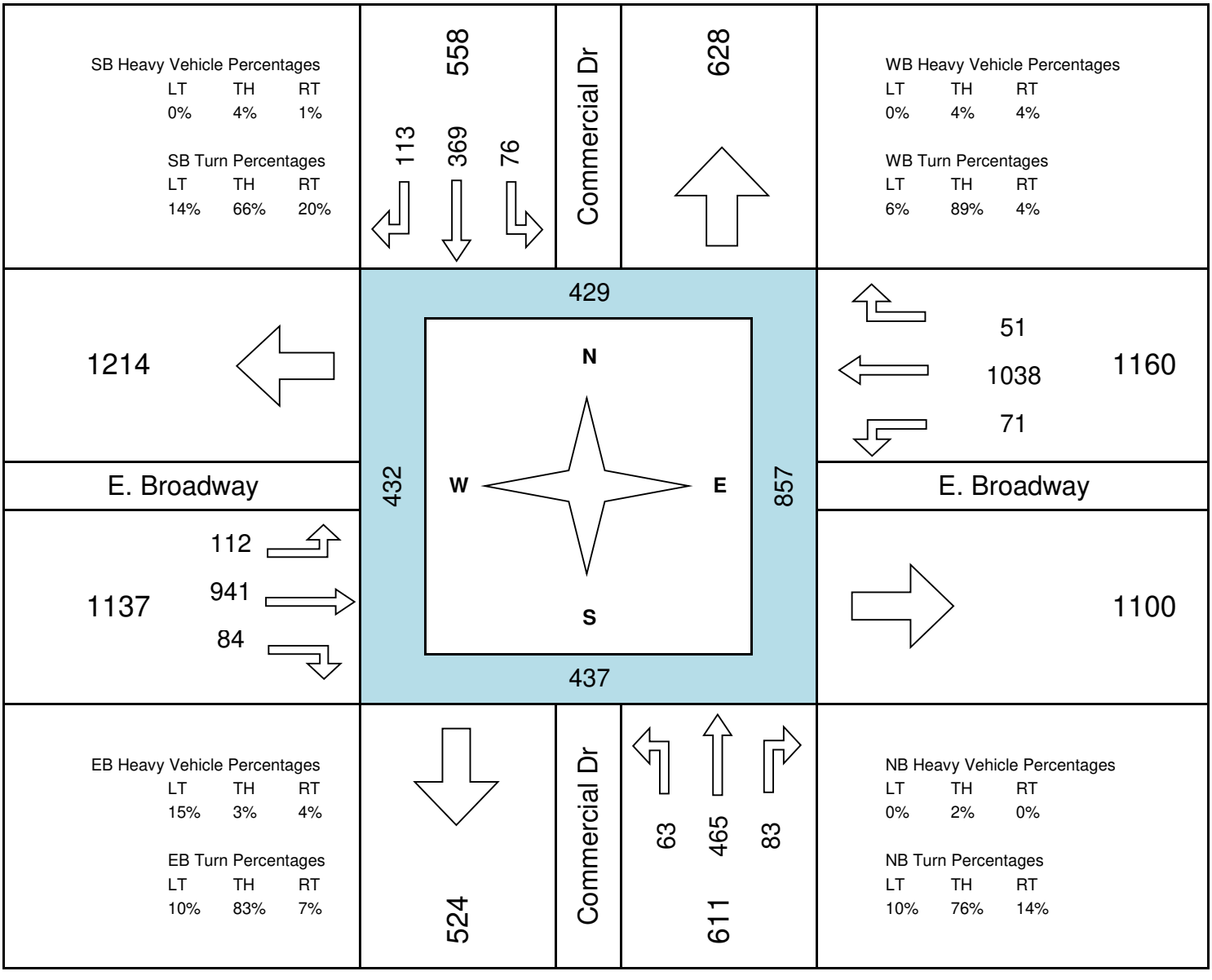
	Traffic Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
11:00 - 11:15	21	65	11	22	63	21	26	294	15	8	315	17	14	7	45	27
11:15 - 11:30	22	77	10	27	75	16	17	267	15	14	308	33	6	18	58	47
11:30 - 11:45	27	78	7	15	73	27	16	291	21	19	322	19	13	28	59	37
11:45 - 12:00	24	62	7	29	68	23	17	301	24	9	314	20	5	9	55	32
12:00 - 12:15	15	78	8	20	74	24	23	329	19	15	306	22	11	14	43	50
12:15 - 12:30	16	76	5	19	82	24	22	273	16	12	326	26	11	32	53	42
12:30 - 12:45	24	84	11	22	74	25	21	308	23	12	303	18	7	17	61	49
12:45 - 13:00	21	74	14	26	80	20	33	342	26	18	327	22	18	30	63	48
13:00 - 13:15	30	105	9	22	75	32	22	327	21	11	351	13	9	13	65	42
13:15 - 13:30	29	90	10	20	80	18	26	327	12	17	306	19	12	18	81	47
13:30 - 13:45	17	86	9	19	71	30	22	331	25	18	291	18	17	14	46	55
13:45 - 14:00	22	92	15	17	85	27	28	325	14	12	288	23	8	25	35	50
14:00 - 14:15	25	86	8	20	95	35	19	296	14	9	301	21	21	8	48	56
14:15 - 14:30	26	89	6	16	74	25	24	310	22	11	311	24	17	19	71	39
14:30 - 14:45	24	92	8	16	80	17	17	326	12	22	347	18	4	25	60	49
14:45 - 15:00	18	71	16	15	76	23	18	324	19	18	288	32	8	14	48	26
Peak V_{15min}	30	105	14	26	80	32	33	342	26	18	351	22				
PHF	0.81	0.85	0.75	0.84	0.96	0.78	0.78	0.97	0.81	0.89	0.91	0.82				



Commercial Dr @ E. Broadway

Project #:	4181-26	Date:	May 14, 2016
Peak Hour:	13:45 — 14:45	Weather:	Sunny
Overall PHF:	0.98	Road Cond:	Dry
Notes:	0		

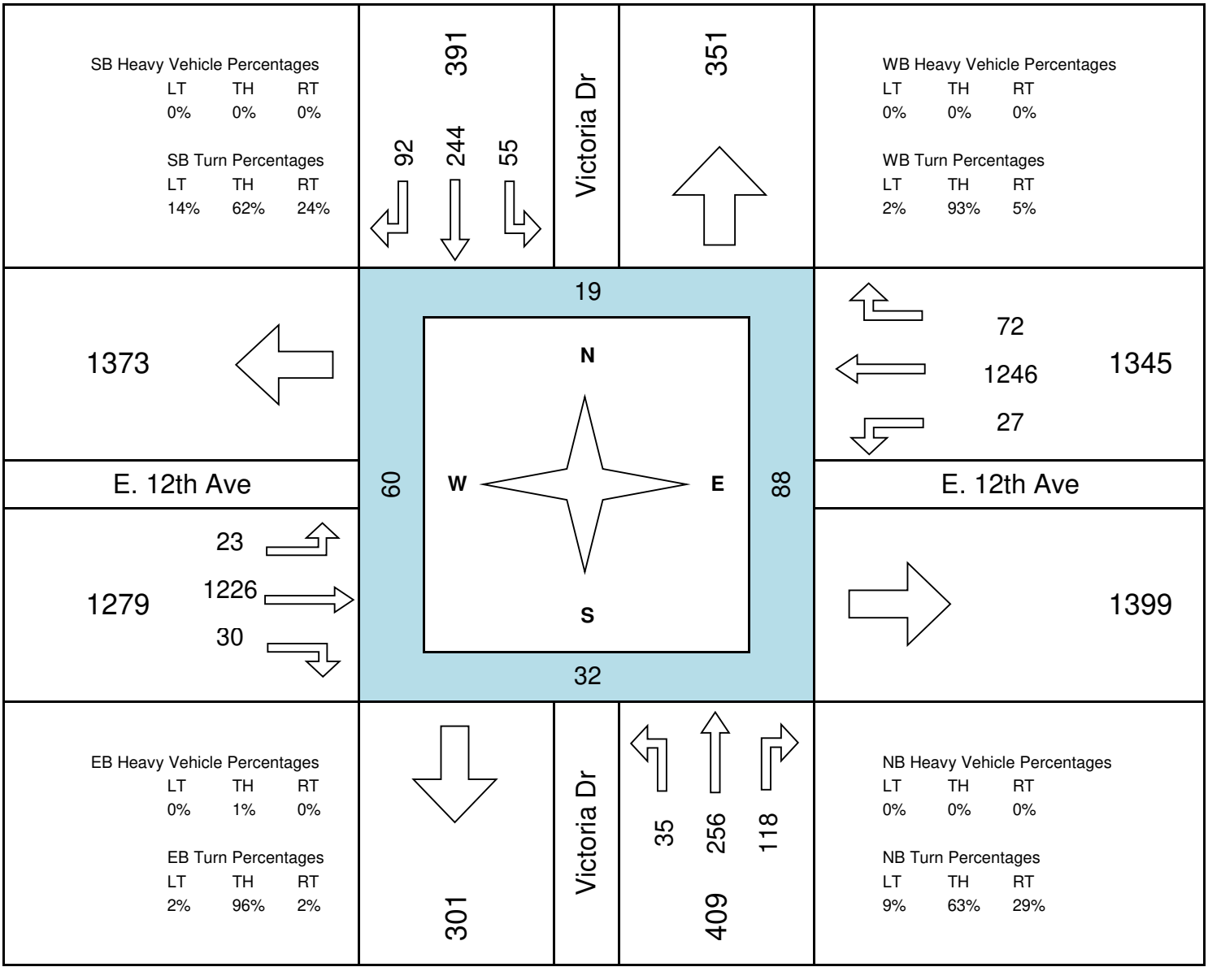
	Traffic Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
11:00 - 11:15	13	90	20	16	74	35	19	168	17	12	276	26	63	99	204	68
11:15 - 11:30	14	102	22	13	87	34	26	172	16	6	236	14	75	73	180	74
11:30 - 11:45	14	83	15	17	76	28	24	189	16	17	271	19	88	113	233	76
11:45 - 12:00	15	97	16	19	80	27	28	185	11	13	276	16	95	101	192	87
12:00 - 12:15	8	103	22	16	85	36	19	191	14	15	287	20	87	133	244	85
12:15 - 12:30	9	93	30	20	83	25	29	224	17	11	281	13	67	72	189	103
12:30 - 12:45	13	107	21	18	98	16	15	185	12	15	249	21	101	88	221	89
12:45 - 13:00	9	115	15	21	98	21	21	263	15	12	231	18	89	99	238	104
13:00 - 13:15	16	108	21	16	116	32	32	211	11	14	285	14	92	91	248	93
13:15 - 13:30	19	103	20	11	77	21	30	233	11	11	270	7	47	86	160	88
13:30 - 13:45	19	107	20	14	85	20	28	229	17	14	200	5	60	85	126	103
13:45 - 14:00	18	127	21	17	92	24	22	235	28	18	276	8	112	118	198	131
14:00 - 14:15	15	104	23	25	91	37	32	226	20	24	264	15	100	111	221	98
14:15 - 14:30	12	127	22	16	95	26	32	237	19	19	264	5	122	99	214	111
14:30 - 14:45	18	107	17	18	91	26	26	243	17	10	234	23	95	109	224	92
14:45 - 15:00	9	100	12	18	104	23	27	240	18	11	229	14	93	99	231	86
Peak V_{15min}	18	127	23	25	95	37	32	243	28	24	276	23				
PHF	0.88	0.92	0.90	0.76	0.97	0.76	0.88	0.97	0.75	0.74	0.94	0.55				



Victoria Dr @ E. 12th Ave

Project #:	4181-26	Date:	May 14, 2016
Peak Hour:	14:00 — 15:00	Weather:	Sunny
Overall PHF:	0.97	Road Cond:	Dry
Notes:	0		

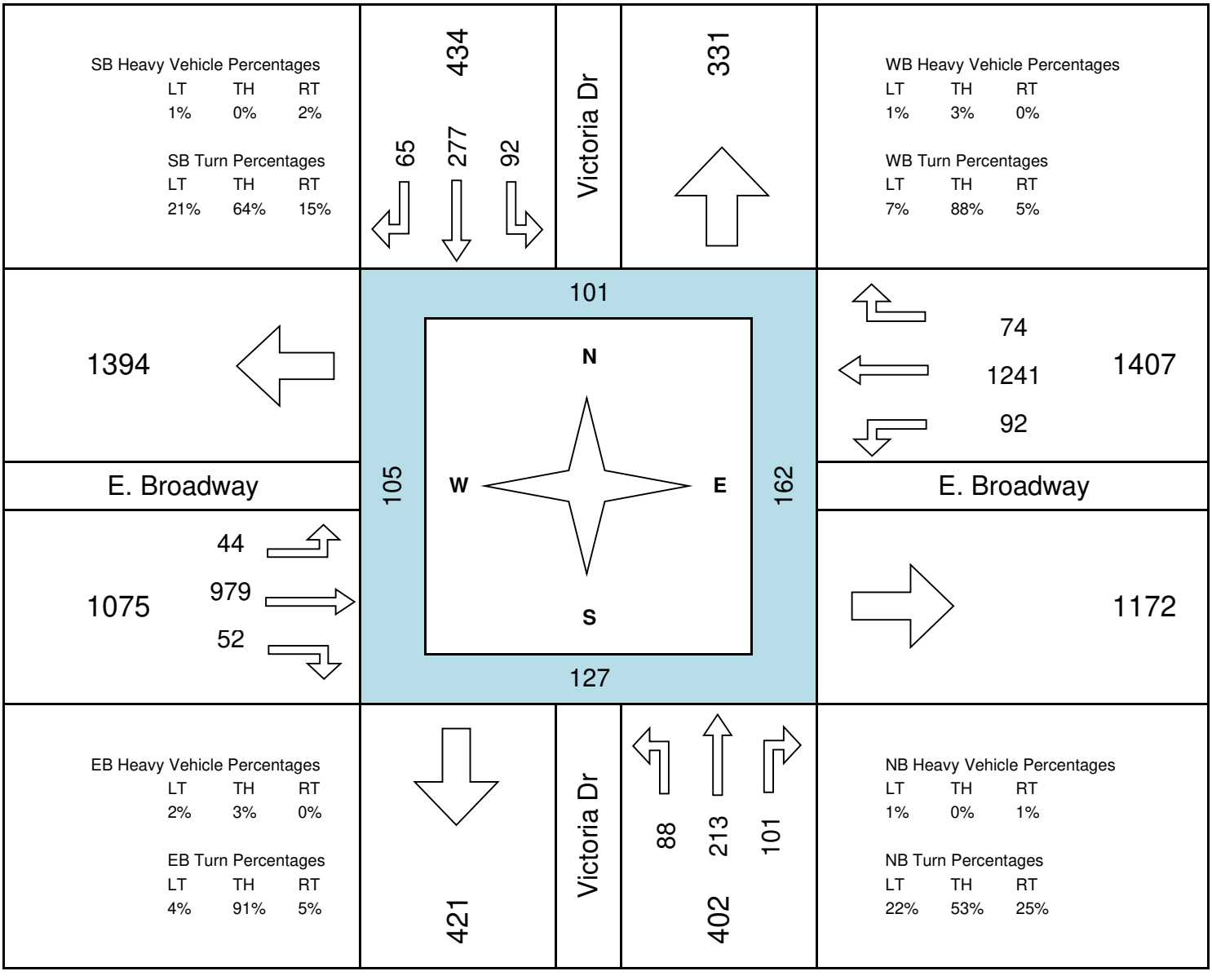
	Traffic Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
11:00 - 11:15	16	54	22	12	69	21	3	272	21	12	297	24	16	9	49	16
11:15 - 11:30	13	57	14	15	55	27	7	246	13	9	327	22	14	7	34	15
11:30 - 11:45	9	58	22	13	62	16	5	275	14	6	324	17	22	15	46	29
11:45 - 12:00	11	56	25	13	76	18	6	254	21	11	332	14	6	25	27	41
12:00 - 12:15	8	62	19	14	72	13	5	257	17	4	329	18	11	7	31	14
12:15 - 12:30	9	68	25	15	61	16	8	288	15	8	340	12	14	13	33	13
12:30 - 12:45	6	76	21	17	47	22	4	273	14	6	313	23	14	12	26	30
12:45 - 13:00	10	68	25	13	57	24	8	313	15	10	322	10	10	13	22	20
13:00 - 13:15	7	69	21	14	60	20	7	289	9	9	336	17	12	5	20	14
13:15 - 13:30	7	61	23	10	64	21	15	265	6	8	313	14	6	2	9	17
13:30 - 13:45	10	62	22	12	63	21	11	306	8	9	285	21	11	6	13	12
13:45 - 14:00	11	63	21	15	60	13	11	293	5	7	295	16	0	2	15	23
14:00 - 14:15	7	66	34	14	51	22	4	296	10	11	293	19	1	14	21	21
14:15 - 14:30	11	62	35	17	59	25	9	286	10	5	327	17	1	7	25	12
14:30 - 14:45	10	74	23	12	70	23	5	318	3	4	321	15	6	5	18	15
14:45 - 15:00	7	54	26	12	64	22	5	326	7	7	305	21	11	6	24	12
Peak V_{15min}																
PHF																



Victoria Dr @ E. Broadway

Project #:	4181-26	Date:	May 14, 2016
Peak Hour:	13:30 — 14:30	Weather:	Sunny
Overall PHF:	0.98	Road Cond:	Dry
Notes:	0		

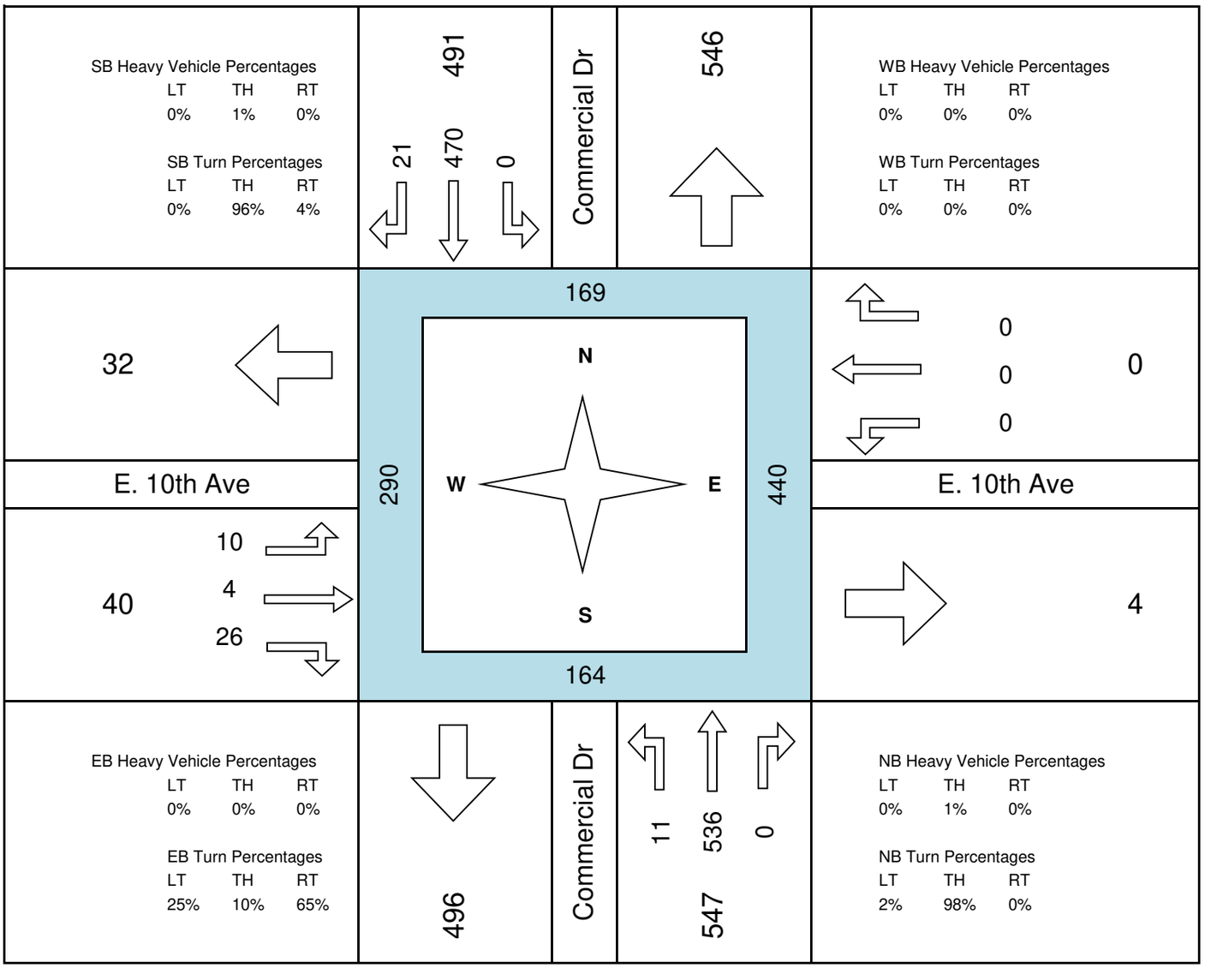
	Traffic Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
11:00 - 11:15	25	55	16	23	54	15	4	171	16	26	300	18	29	30	28	40
11:15 - 11:30	21	45	22	21	51	17	5	174	8	25	280	19	36	60	60	41
11:30 - 11:45	29	30	20	19	63	21	7	194	13	30	301	18	27	47	53	37
11:45 - 12:00	14	51	23	19	63	14	9	201	13	26	331	20	39	33	47	46
12:00 - 12:15	29	61	29	15	69	18	6	199	14	20	310	21	12	63	42	23
12:15 - 12:30	21	73	16	22	67	22	11	257	18	17	291	9	26	35	36	42
12:30 - 12:45	21	70	23	21	57	7	11	212	21	20	315	16	39	66	45	57
12:45 - 13:00	21	55	22	18	56	10	11	273	16	15	326	21	35	51	53	35
13:00 - 13:15	14	57	15	17	58	15	19	243	8	26	334	15	29	55	47	34
13:15 - 13:30	15	59	23	22	65	12	7	245	8	20	291	22	28	32	35	38
13:30 - 13:45	16	50	23	20	82	13	17	258	10	26	276	24	16	24	25	26
13:45 - 14:00	22	71	21	25	51	15	8	244	17	20	337	19	25	33	42	22
14:00 - 14:15	22	43	25	23	84	23	5	234	11	24	313	17	26	40	48	28
14:15 - 14:30	28	49	32	24	60	14	14	243	14	22	315	14	34	30	47	29
14:30 - 14:45	29	48	16	17	71	19	20	232	15	26	274	12	19	36	33	19
14:45 - 15:00	19	48	27	25	62	18	13	256	15	16	277	17	35	33	33	15
Peak V_{15min}	28	71	32	25	84	23	17	258	17	26	337	24				
PHF	0.79	0.75	0.79	0.92	0.82	0.71	0.65	0.95	0.76	0.88	0.92	0.77				



Commercial Dr @ E. 10th Ave

Project #:	4241-52	Date:	Mar 25, 2017
Peak Hour:	12:15 — 13:15	Weather:	Sunny
Overall PHF:	0.94	Road Cond:	Dry
Notes:	0		

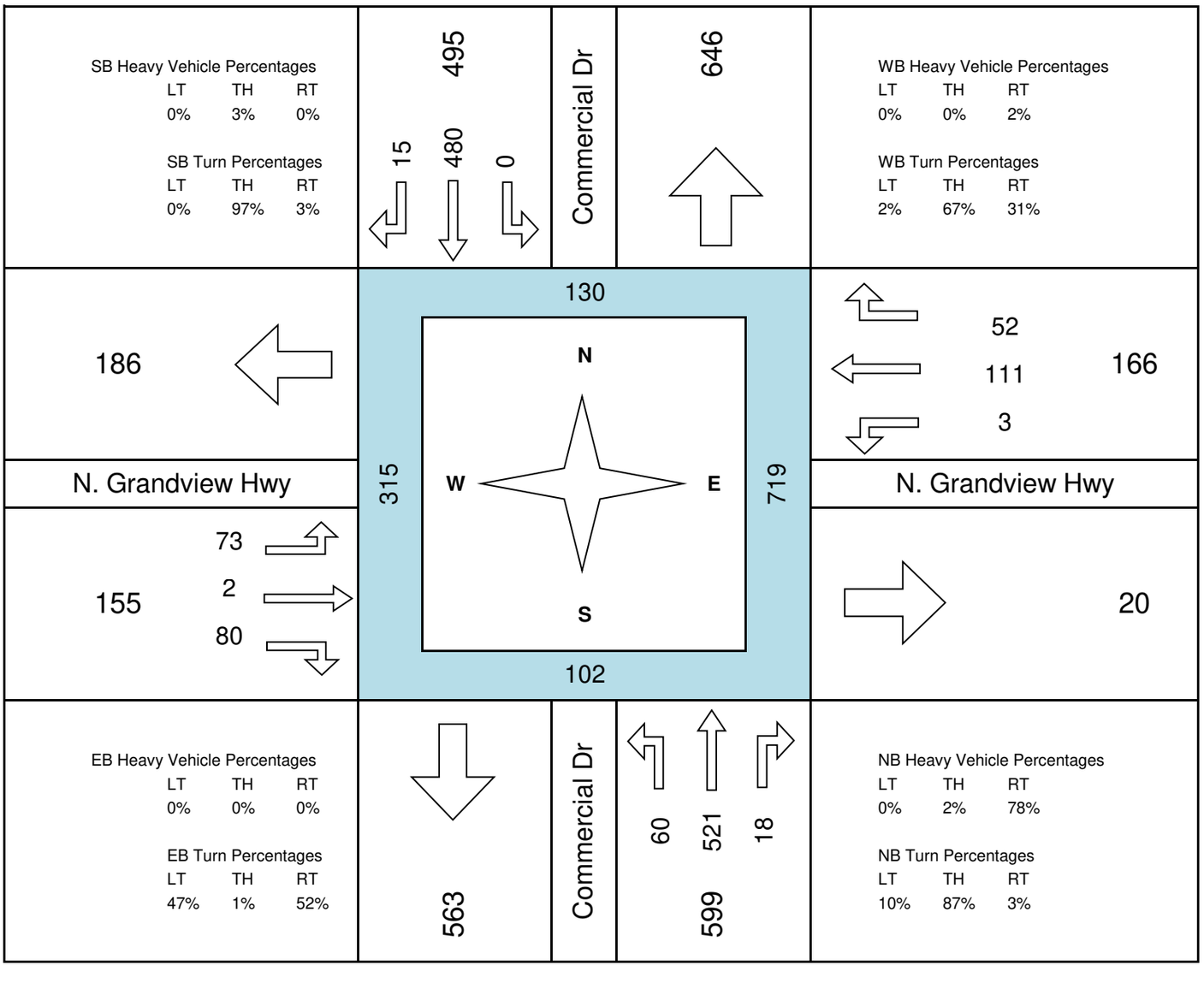
	All Vehicles Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
11:00 - 11:15	5	129	0	0	87	8	6	0	7	0	0	0	37	27	79	54
11:15 - 11:30	1	107	0	0	98	6	2	0	5	0	0	0	28	28	78	81
11:30 - 11:45	3	126	0	0	91	3	2	0	6	0	0	0	31	26	66	61
11:45 - 12:00	2	129	0	0	96	2	2	1	5	0	0	0	57	66	100	84
12:00 - 12:15	0	126	0	0	90	5	3	0	6	0	0	0	43	44	91	66
12:15 - 12:30	1	137	0	0	134	3	3	0	8	0	0	0	42	32	106	76
12:30 - 12:45	4	117	0	0	119	10	0	2	8	0	0	0	32	37	99	54
12:45 - 13:00	4	142	0	0	109	4	2	2	6	0	0	0	41	51	102	86
13:00 - 13:15	2	140	0	0	108	4	5	0	4	0	0	0	54	44	133	74
13:15 - 13:30	0	102	0	0	119	2	4	0	4	0	0	0	48	43	118	69
13:30 - 13:45	2	108	0	0	120	3	2	0	5	0	0	0	43	47	103	91
13:45 - 14:00	4	139	0	0	107	5	2	0	3	0	0	0	64	42	112	50
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}	4	142			134	10	5	2	8							
PHF	0.69	0.94			0.88	0.53	0.50	0.50	0.81							



Commercial Dr @ N. Grandview Hwy

Project #:	4241-52	Date:	Mar 25, 2017
Peak Hour:	13:00 — 14:00	Weather:	Sunny
Overall PHF:	0.91	Road Cond:	Dry
Notes:	0		

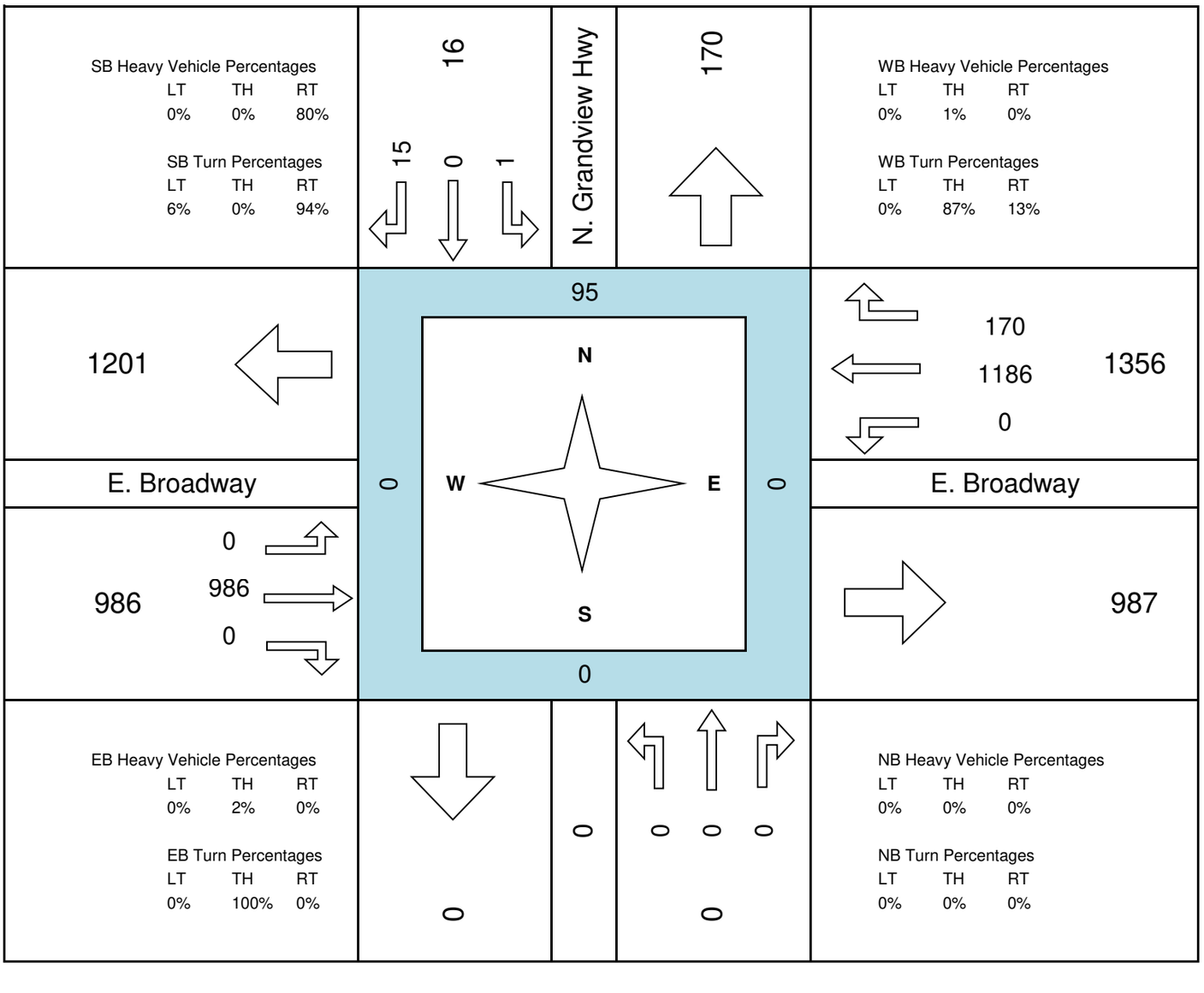
	All Vehicles Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
11:00 - 11:15	19	108	5	0	93	3	12	0	12	1	24	4	30	24	113	67
11:15 - 11:30	13	94	5	0	91	6	14	0	14	0	19	6	18	14	120	60
11:30 - 11:45	16	100	5	0	103	8	14	1	6	0	28	15	30	20	141	66
11:45 - 12:00	15	113	3	0	95	3	12	0	15	0	25	8	28	28	141	82
12:00 - 12:15	21	108	4	0	107	2	15	0	6	1	29	20	34	19	191	91
12:15 - 12:30	20	118	3	1	131	8	8	0	11	0	36	14	25	26	149	69
12:30 - 12:45	26	115	4	1	120	4	10	0	12	0	18	5	36	30	184	94
12:45 - 13:00	15	115	4	0	131	5	13	0	10	1	37	9	31	15	129	91
13:00 - 13:15	17	135	2	0	115	4	20	0	24	1	15	11	32	29	177	79
13:15 - 13:30	8	119	8	0	128	4	21	0	16	1	27	12	41	19	169	71
13:30 - 13:45	14	122	4	0	117	3	15	1	20	0	29	14	35	24	179	73
13:45 - 14:00	21	145	4	0	120	4	17	1	20	1	40	15	22	30	194	92
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}	21	145	8		128	4	21	1	24	1	40	15				
PHF	0.71	0.90	0.56		0.94	0.94	0.87	0.50	0.83	0.75	0.69	0.87				



N. Grandview Hwy @ E. Broadway

Project #:	4241-52	Date:	Mar 25, 2017
Peak Hour:	12:45 — 13:45	Weather:	Sunny
Overall PHF:	0.94	Road Cond:	Dry
Notes:	0		

	All Vehicles Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
11:00 - 11:15	0	0	0	0	0	3	0	207	0	0	277	31	10	0	0	0
11:15 - 11:30	0	0	0	0	0	4	0	228	0	0	247	27	28	0	0	0
11:30 - 11:45	0	0	0	0	0	4	0	221	0	0	272	40	17	0	0	0
11:45 - 12:00	0	0	0	0	0	6	0	198	0	0	278	38	26	0	0	0
12:00 - 12:15	0	0	0	0	1	3	0	237	0	0	266	50	22	0	0	0
12:15 - 12:30	0	0	0	0	0	4	0	241	0	0	274	43	19	0	0	0
12:30 - 12:45	0	0	0	0	0	4	0	230	0	0	291	30	17	0	0	0
12:45 - 13:00	0	0	0	1	0	4	0	248	0	0	324	50	23	0	0	0
13:00 - 13:15	0	0	0	0	0	2	0	222	0	0	262	29	23	0	0	0
13:15 - 13:30	0	0	0	0	0	6	0	258	0	0	303	41	26	0	0	0
13:30 - 13:45	0	0	0	0	0	3	0	258	0	0	297	50	23	0	0	0
13:45 - 14:00	0	0	0	0	0	4	0	278	0	0	284	53	20	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}				1		6		258			324	50				
PHF				0.25		0.63		0.96			0.92	0.85				

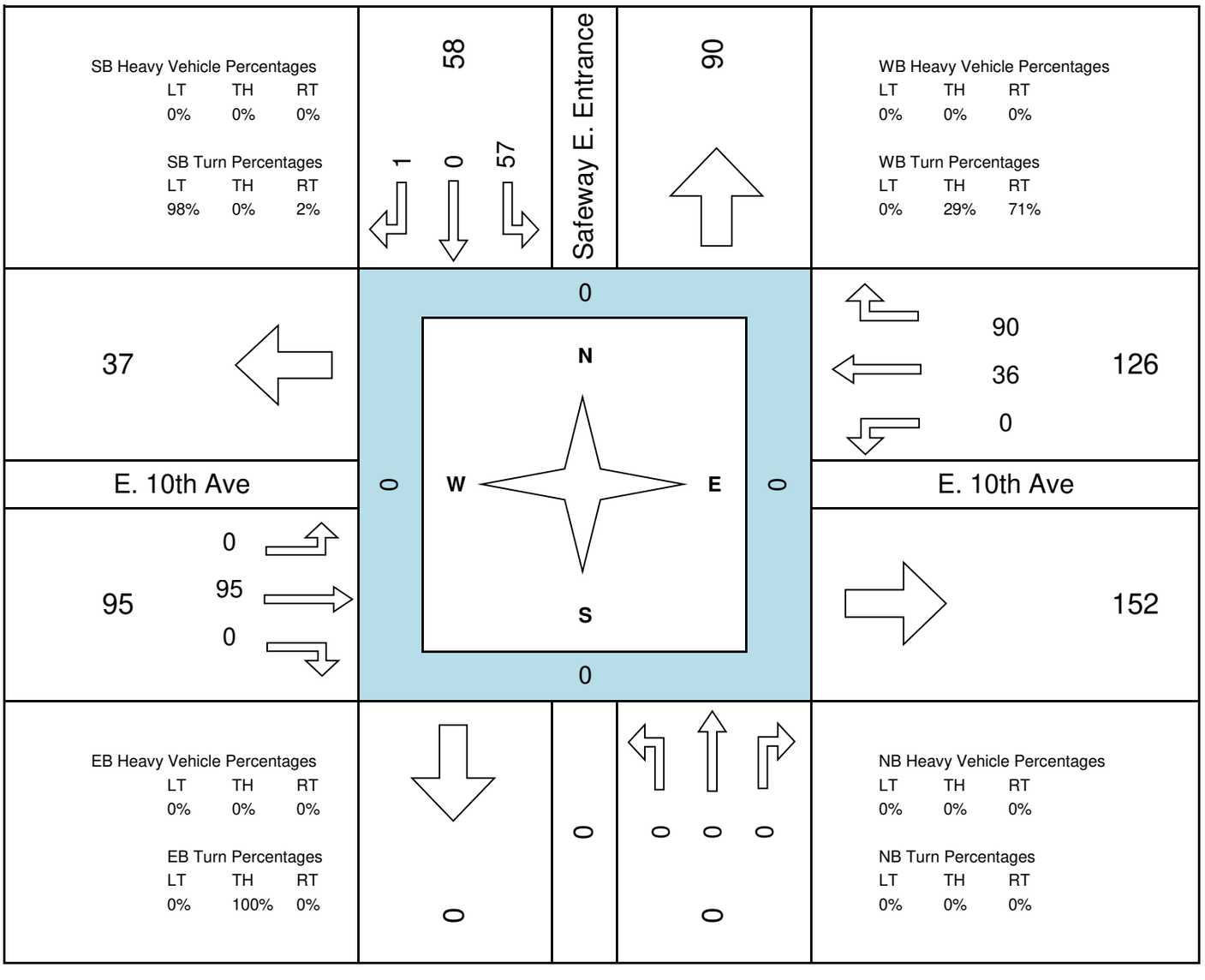


Safeway East Entrance @ E. 10th Ave

Project #: 4241-52
Peak Hour: 11:45 — 12:45
Overall PHF: 0.88
Notes: 0

Date: Mar 25, 2017
Weather: Sunny
Road Cond: Dry

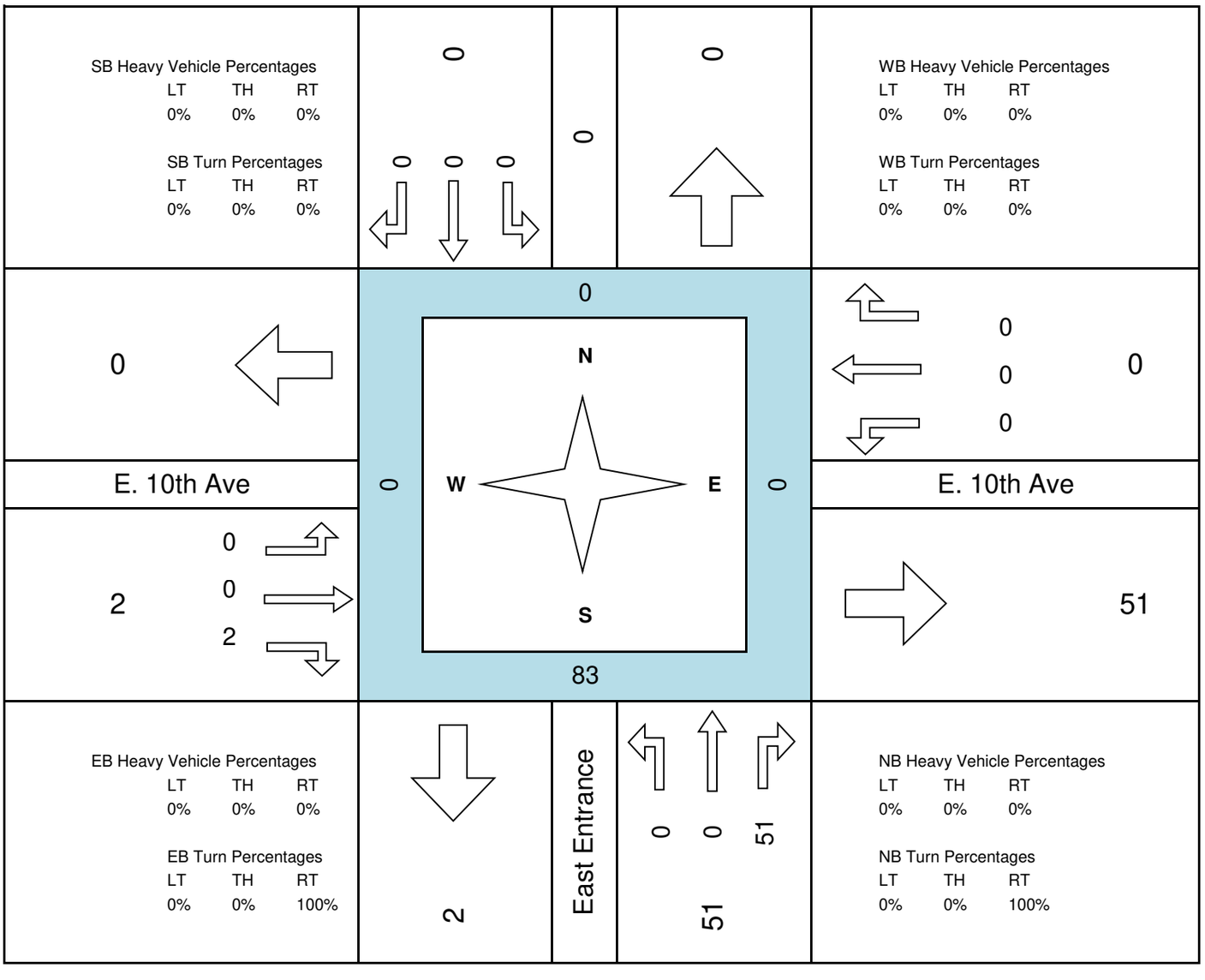
	All Vehicles Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
11:00 - 11:15	0	0	0	16	0	0	0	19	0	0	9	26	0	0	0	0
11:15 - 11:30	0	0	0	9	0	0	0	24	0	0	6	22	0	0	0	0
11:30 - 11:45	0	0	0	13	0	0	0	26	0	0	11	19	0	0	0	0
11:45 - 12:00	0	0	0	13	0	1	0	17	0	0	11	25	0	0	0	0
12:00 - 12:15	0	0	0	13	0	0	0	29	0	0	9	28	0	0	0	0
12:15 - 12:30	0	0	0	16	0	0	0	21	0	0	9	17	0	0	0	0
12:30 - 12:45	0	0	0	15	0	0	0	28	0	0	7	20	0	0	0	0
12:45 - 13:00	0	0	0	10	0	0	0	24	0	0	11	10	0	0	0	0
13:00 - 13:15	0	0	0	18	0	0	1	29	0	0	7	29	0	0	0	0
13:15 - 13:30	0	0	0	19	0	0	0	19	0	0	10	17	0	0	0	0
13:30 - 13:45	0	0	0	13	0	0	0	21	0	0	14	18	0	0	0	0
13:45 - 14:00	0	0	0	12	0	1	0	18	0	0	11	11	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}				16		1		29			11	28				
PHF				0.89		0.25		0.82			0.82	0.80				



Safeway East Entrance @ E. Broadway

Project #:	4241-52	Date:	Mar 25, 2017
Peak Hour:	12:15 — 13:15	Weather:	Sunny
Overall PHF:	0.88	Road Cond:	Dry
Notes:	0		

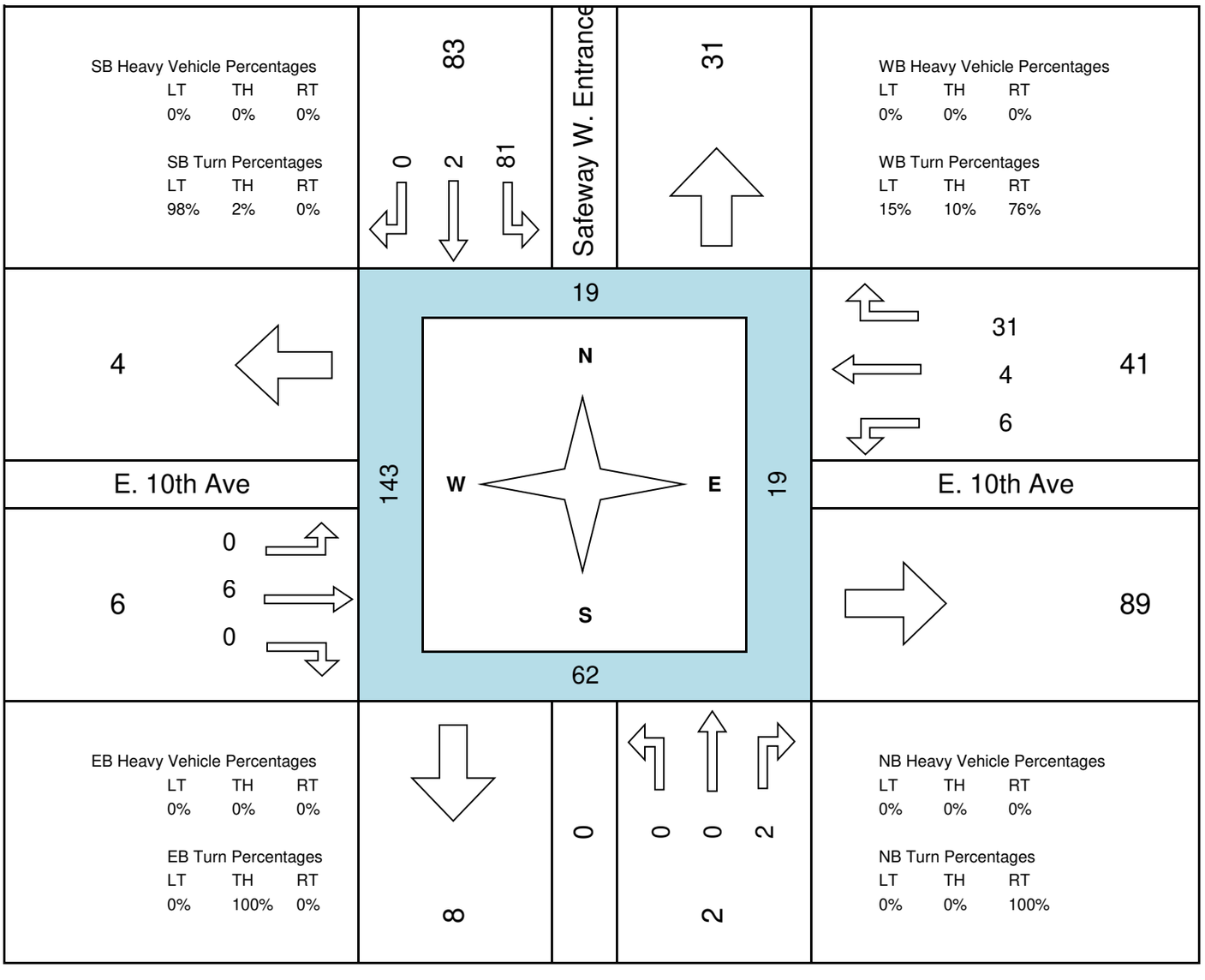
	All Vehicles Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
11:00 - 11:15	0	0	10	0	0	0	0	0	0	0	0	0	0	14	0	0
11:15 - 11:30	0	0	3	0	0	0	0	0	0	0	0	0	0	24	0	0
11:30 - 11:45	0	0	7	0	0	0	0	0	0	0	0	0	0	27	0	0
11:45 - 12:00	0	0	10	0	0	0	0	0	0	0	0	0	0	27	0	0
12:00 - 12:15	0	0	11	0	0	0	0	0	0	0	0	0	0	35	0	0
12:15 - 12:30	0	0	12	0	0	0	0	0	0	0	0	0	0	26	0	0
12:30 - 12:45	0	0	15	0	0	0	0	0	0	0	0	0	0	14	0	0
12:45 - 13:00	0	0	11	0	0	0	0	0	0	0	0	0	0	21	0	0
13:00 - 13:15	0	0	13	0	0	0	0	0	2	0	0	0	0	22	0	0
13:15 - 13:30	0	0	7	0	0	0	0	0	1	0	0	0	0	30	0	0
13:30 - 13:45	0	0	13	0	0	0	0	0	1	0	0	0	0	22	0	0
13:45 - 14:00	0	0	7	0	0	0	0	0	0	0	0	0	0	24	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}			15						2							
PHF			0.85						0.25							



Safeway West Entrance @ E. 10th Ave

Project #:	4241-52	Date:	Mar 25, 2017
Peak Hour:	11:45 — 12:45	Weather:	Sunny
Overall PHF:	0.85	Road Cond:	Dry
Notes:	0		

	All Vehicles Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
11:00 - 11:15	0	1	3	16	1	0	0	1	0	2	0	7	22	10	9	17
11:15 - 11:30	0	0	1	18	0	0	0	2	0	2	1	6	9	19	7	27
11:30 - 11:45	0	0	1	18	1	0	0	1	0	0	0	7	3	21	3	34
11:45 - 12:00	0	0	1	16	0	0	0	1	0	4	2	10	3	15	3	46
12:00 - 12:15	0	0	1	25	0	0	0	2	0	0	2	9	6	15	10	29
12:15 - 12:30	0	0	0	18	1	0	0	3	0	2	0	6	1	15	4	37
12:30 - 12:45	0	0	0	22	1	0	0	0	0	0	0	6	9	17	2	31
12:45 - 13:00	0	0	0	21	0	0	0	2	0	1	0	9	2	7	15	14
13:00 - 13:15	0	0	1	21	0	0	0	0	0	0	0	7	5	14	6	21
13:15 - 13:30	0	0	1	21	0	0	1	2	0	1	0	9	8	11	2	40
13:30 - 13:45	0	0	0	21	0	0	0	0	0	0	0	12	5	8	15	31
13:45 - 14:00	0	0	1	15	0	0	0	2	0	0	0	11	4	11	8	38
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}			1	25	1			3		4	2	10				
PHF			0.50	0.81	0.50			0.50		0.38	0.50	0.78				

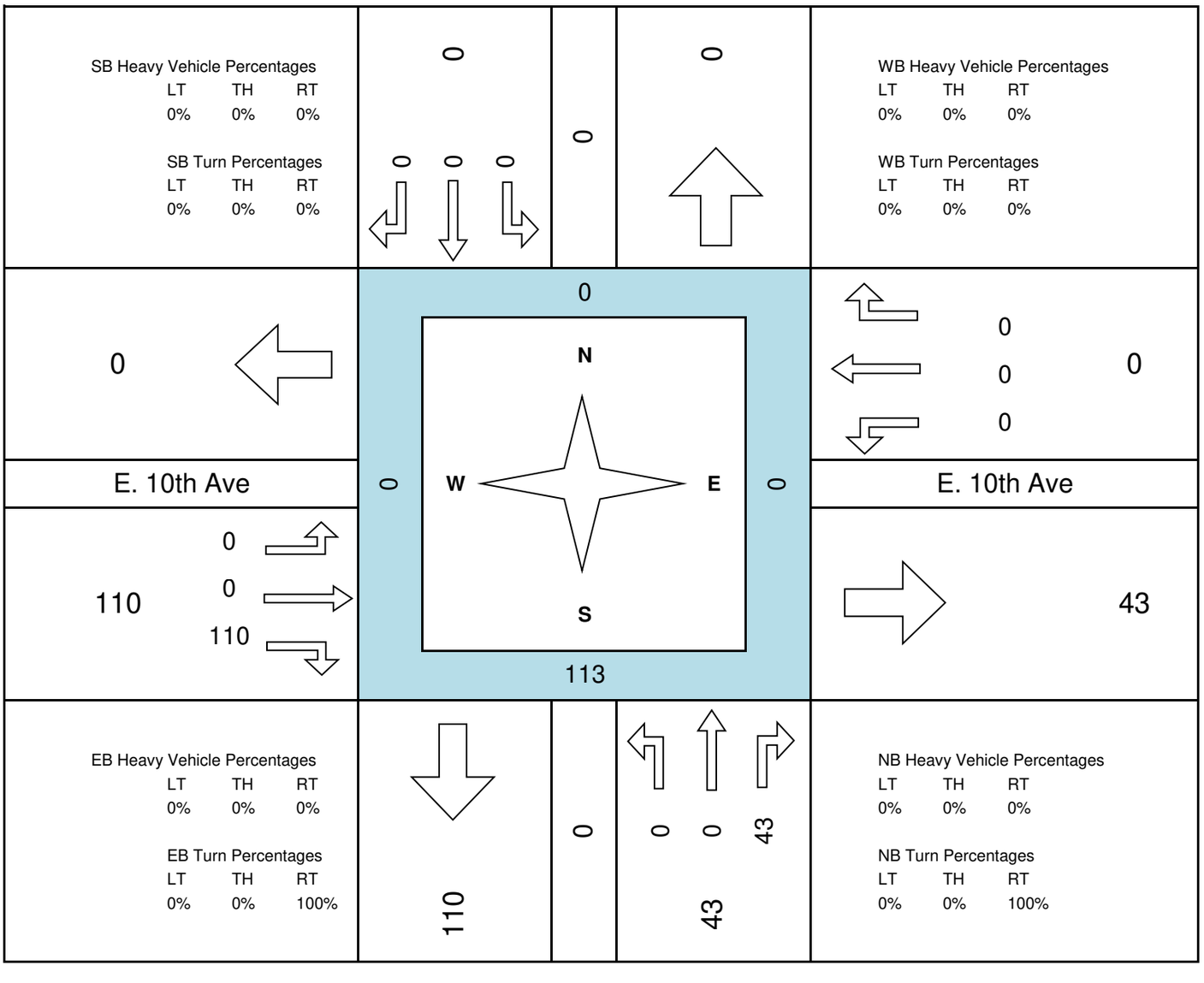


Safeway West Entrance @ E. Broadway

Project #: 4241-52
Peak Hour: 11:30 — 12:30
Overall PHF: 0.87
Notes: 0

Date: Mar 25, 2017
Weather: Sunny
Road Cond: Dry

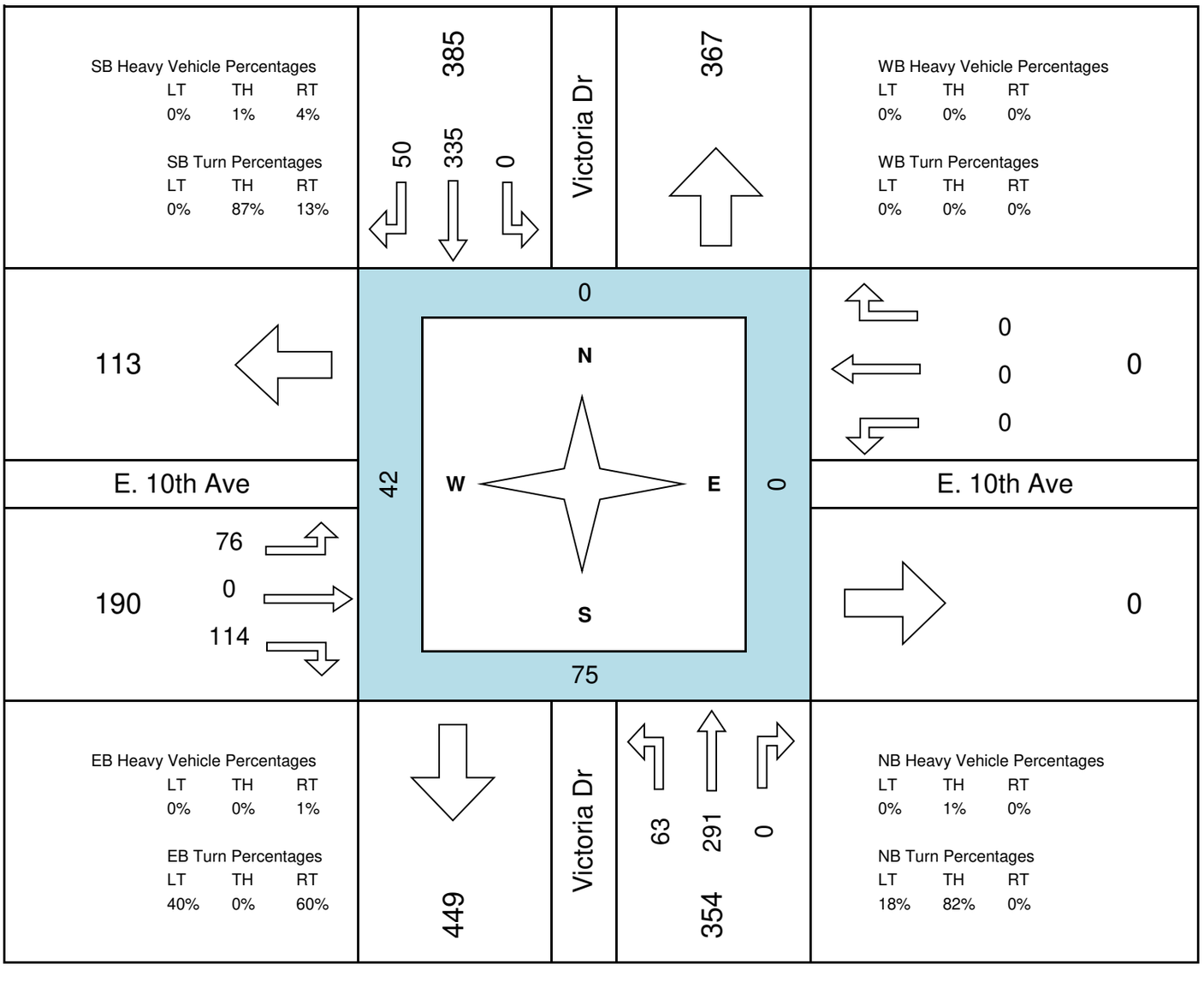
	All Vehicles Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
11:00 - 11:15	0	0	8	0	0	0	0	0	22	0	0	0	0	13	0	0
11:15 - 11:30	0	0	8	0	0	0	0	0	23	0	0	0	0	20	0	0
11:30 - 11:45	0	0	14	0	0	0	0	0	30	0	0	0	0	20	0	0
11:45 - 12:00	0	0	13	0	0	0	0	0	28	0	0	0	0	28	0	0
12:00 - 12:15	0	0	7	0	0	0	0	0	25	0	0	0	0	35	0	0
12:15 - 12:30	0	0	9	0	0	0	0	0	27	0	0	0	0	30	0	0
12:30 - 12:45	0	0	7	0	0	0	0	0	28	0	0	0	0	13	0	0
12:45 - 13:00	0	0	11	0	0	0	0	0	32	0	0	0	0	20	0	0
13:00 - 13:15	0	0	6	0	0	0	0	0	20	0	0	0	0	24	0	0
13:15 - 13:30	0	0	6	0	0	0	0	0	17	0	0	0	0	24	0	0
13:30 - 13:45	0	0	9	0	0	0	0	0	12	0	0	0	0	25	0	0
13:45 - 14:00	0	0	8	0	0	0	0	0	19	0	0	0	0	23	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}			14						30							
PHF			0.77						0.92							



Victoria Dr @ E. 10th Ave

Project #:	4241-52	Date:	Mar 25, 2017
Peak Hour:	12:15 — 13:15	Weather:	Sunny
Overall PHF:	0.92	Road Cond:	Dry
Notes:	0		

	All Vehicles Movements												Pedestrians			
Time Intervals	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
11:00 - 11:15	14	69	0	0	90	21	16	0	19	0	0	0	0	12	0	8
11:15 - 11:30	20	63	0	0	73	10	9	0	27	0	0	0	0	19	0	11
11:30 - 11:45	14	71	0	0	82	15	17	0	25	0	0	0	0	16	0	7
11:45 - 12:00	19	61	0	0	72	21	19	0	22	0	0	0	0	18	0	6
12:00 - 12:15	14	77	0	0	79	12	21	0	28	0	0	0	0	19	0	5
12:15 - 12:30	21	73	0	0	74	11	13	0	31	0	0	0	0	22	0	8
12:30 - 12:45	10	77	0	0	84	14	19	0	26	0	0	0	0	24	0	8
12:45 - 13:00	11	67	0	0	88	10	15	0	32	0	0	0	0	9	0	13
13:00 - 13:15	21	74	0	0	89	15	29	0	25	0	0	0	0	20	0	13
13:15 - 13:30	12	78	0	0	67	21	17	0	23	0	0	0	0	14	0	11
13:30 - 13:45	11	77	1	0	88	12	10	0	25	0	0	0	0	27	0	10
13:45 - 14:00	3	39	0	0	35	6	5	0	11	0	0	0	0	3	0	3
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V_{15min}	21	77			89	15	29		32							
PHF	0.75	0.94			0.94	0.83	0.66		0.89							



APPENDIX C

SimTraffic Reports

1: Commercial Drive & North Grandview Highway Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.4	0.0	0.7	0.2	0.1	0.1
Total Del/Veh (s)	28.8	8.0	48.5	39.0	35.5	26.5	11.9	17.7	10.9	8.5	19.7

2: Commercial Drive & E Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.6	0.2	0.2	21.8	13.0	21.5	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	22.2	17.7	14.7	44.0	51.4	60.2	30.3	21.2	12.4	53.7	23.0	17.0

2: Commercial Drive & E Broadway Performance by movement

Movement	All
Denied Del/Veh (s)	5.3
Total Del/Veh (s)	32.5

3: Road A & E Broadway Performance by movement

Movement	EBT	EBR	WBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.1	2.1	19.9	3.2	11.4

4: Road B & E Broadway Performance by movement

Movement	EBT	EBR	WBT	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.4	0.2	19.9	0.1	3.1	11.4

5: E Broadway & North Grandview Highway Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	1.0	1.6	0.0	0.0	0.6
Total Del/Veh (s)	3.1	8.0	7.3	1.0	14.0	6.0

6: Victoria Drive & E Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	1.5	0.0	0.0	18.6	15.9	11.7	0.1	0.3	0.0	3.4	0.6	0.5
Total Del/Veh (s)	78.6	10.7	14.0	57.9	36.1	34.2	62.3	22.9	20.5	53.9	42.8	40.6

6: Victoria Drive & E Broadway Performance by movement

Movement	All
Denied Del/Veh (s)	7.2
Total Del/Veh (s)	29.4

7: Commercial Drive & 10th Avenue Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.1	0.0	0.1
Total Del/Veh (s)	23.4	9.4	11.7	9.4	7.0	8.5	8.7

8: 10th Avenue & Road A Performance by movement

Movement	WBT	WBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.0	0.1	3.8	0.2	1.2

9: 10th Avenue & Road B Performance by movement

Movement	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	0.7	0.7	0.5	3.1	1.3	1.2

10: Victoria Drive & 10th Avenue Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.1
Total Del/Veh (s)	29.0	0.3	24.7	15.6	15.1	3.6	2.9	11.9

11: Commercial Drive & 12th Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	4.1	2.5	2.2	0.0	1.2	0.0	2.8	0.3	0.3	0.0	0.0	0.0
Total Del/Veh (s)	117.4	29.1	20.2	277.0	68.2	65.1	35.5	26.6	26.7	24.4	13.2	18.4

11: Commercial Drive & 12th Avenue Performance by movement

Movement	All
Denied Del/Veh (s)	1.4
Total Del/Veh (s)	46.4

12: 12th Avenue & Victoria Drive Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	18.1	21.3	0.0	0.0	0.0	0.0	0.0	0.0	7.1
Total Del/Veh (s)	41.8	23.7	20.9	36.8	32.6	32.8	24.6	16.5	59.4	20.2	14.3	28.4

Total Network Performance

Denied Del/Veh (s)	9.4
Total Del/Veh (s)	72.4

Intersection: 1: Commercial Drive & North Grandview Highway

Movement	EB	EB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	T	TR
Maximum Queue (m)	14.0	12.0	87.9	30.6	59.3	58.9	36.4	33.6
Average Queue (m)	5.5	5.6	53.8	22.4	29.8	36.2	21.6	18.1
95th Queue (m)	14.5	13.2	106.9	37.6	60.9	59.9	39.1	35.3
Link Distance (m)	78.1	78.1	232.7		66.9	66.9	106.4	106.4
Upstream Blk Time (%)						1		
Queuing Penalty (veh)						2		
Storage Bay Dist (m)				27.0				
Storage Blk Time (%)				5	3			
Queuing Penalty (veh)				14	6			

Intersection: 2: Commercial Drive & E Broadway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	B30
Directions Served	L	T	T	TR	L	T	T	R	LT	T	R	T
Maximum Queue (m)	62.5	86.7	68.6	44.2	60.7	114.4	115.1	15.4	57.1	58.1	32.4	8.2
Average Queue (m)	24.4	59.0	40.3	24.0	32.1	109.5	110.5	7.2	43.5	42.9	17.8	1.7
95th Queue (m)	53.9	88.3	73.9	41.3	76.7	114.1	115.3	17.5	64.9	62.7	37.2	8.6
Link Distance (m)		144.3	144.3	144.3		106.2	106.2		44.7	44.7		32.7
Upstream Blk Time (%)						36	39		12	8		
Queuing Penalty (veh)						289	310		48	30		
Storage Bay Dist (m)	47.0				45.0			10.0			30.0	
Storage Blk Time (%)	0	15			0	60	61	3		15	1	
Queuing Penalty (veh)	1	9			0	33	32	19		13	3	

Intersection: 2: Commercial Drive & E Broadway

Movement	B30	SB	SB	SB	B21	B21
Directions Served	T	LT	T	TR	T	T
Maximum Queue (m)	8.9	63.4	46.6	27.6	11.9	7.9
Average Queue (m)	1.3	34.4	24.3	17.4	3.1	1.1
95th Queue (m)	8.8	63.6	47.4	29.5	18.8	9.5
Link Distance (m)	32.7	49.0	49.0	49.0	66.9	66.9
Upstream Blk Time (%)		8	1			
Queuing Penalty (veh)		13	1			
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Road A & E Broadway

Movement	WB	WB	WB	NB
Directions Served	T	T	T	R
Maximum Queue (m)	41.6	45.1	40.7	14.0
Average Queue (m)	34.1	38.2	33.0	5.8
95th Queue (m)	48.0	53.0	44.7	15.5
Link Distance (m)	31.1	31.1	31.1	88.1
Upstream Blk Time (%)	34	52	50	
Queuing Penalty (veh)	180	277	271	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Road B & E Broadway

Movement	EB	WB	WB	WB	NB
Directions Served	T	T	T	T	R
Maximum Queue (m)	3.1	46.0	48.1	47.3	12.8
Average Queue (m)	0.4	35.6	38.2	33.9	7.0
95th Queue (m)	3.7	65.0	65.6	64.6	14.8
Link Distance (m)	31.1	43.3	43.3	43.3	39.4
Upstream Blk Time (%)		15	24	17	
Queuing Penalty (veh)		87	140	101	
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: E Broadway & North Grandview Highway

Movement	EB	EB	EB	WB	WB	WB	SB
Directions Served	T	T	T	T	T	TR	R
Maximum Queue (m)	44.0	36.8	26.1	36.6	46.5	40.0	16.4
Average Queue (m)	20.7	14.3	9.8	25.5	26.9	30.8	7.0
95th Queue (m)	46.2	37.5	29.4	55.0	56.2	50.8	18.6
Link Distance (m)	43.3	43.3	43.3	35.6	35.6	35.6	232.7
Upstream Blk Time (%)	1	0		9	10	12	
Queuing Penalty (veh)	3	1		61	67	76	
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 6: Victoria Drive & E Broadway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	T	R	L
Maximum Queue (m)	29.0	43.6	46.2	43.4	50.8	100.6	100.6	88.6	35.7	69.9	15.9	42.3
Average Queue (m)	17.6	35.2	35.1	30.3	30.8	86.9	74.4	67.8	27.5	53.1	12.8	23.1
95th Queue (m)	32.7	46.9	51.9	47.5	59.9	110.4	113.1	108.1	43.0	103.4	18.6	46.2
Link Distance (m)		35.6	35.6	35.6		91.2	91.2	91.2		88.2		
Upstream Blk Time (%)	1	15	12	6		20	25	29		8		
Queuing Penalty (veh)	0	69	53	27		0	0	0		41		
Storage Bay Dist (m)	25.0				35.0				28.0		8.0	40.0
Storage Blk Time (%)	12	20			0	47			22	44	10	0
Queuing Penalty (veh)	46	10			0	48			78	106	38	1

Intersection: 6: Victoria Drive & E Broadway

Movement	SB
Directions Served	TR
Maximum Queue (m)	117.2
Average Queue (m)	71.6
95th Queue (m)	133.6
Link Distance (m)	187.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	33
Queuing Penalty (veh)	31

Intersection: 7: Commercial Drive & 10th Avenue

Movement	EB	NB	NB	SB	SB	B30
Directions Served	LTR	LT	TR	LT	TR	T
Maximum Queue (m)	11.2	59.3	52.1	35.2	37.0	2.2
Average Queue (m)	4.6	31.2	25.4	19.3	21.6	0.6
95th Queue (m)	12.5	65.9	56.0	34.8	39.9	3.6
Link Distance (m)	143.8	188.7	188.7	32.7	32.7	44.7
Upstream Blk Time (%)				0	2	
Queuing Penalty (veh)				1	3	
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 8: 10th Avenue & Road A

Movement	SB
Directions Served	LTR
Maximum Queue (m)	11.1
Average Queue (m)	6.4
95th Queue (m)	14.0
Link Distance (m)	88.1
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: 10th Avenue & Road B

Movement	SB
Directions Served	LR
Maximum Queue (m)	11.3
Average Queue (m)	7.0
95th Queue (m)	13.9
Link Distance (m)	38.7
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Victoria Drive & 10th Avenue

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	34.8	60.1	28.3
Average Queue (m)	18.1	36.8	10.2
95th Queue (m)	33.6	75.3	27.0
Link Distance (m)	103.2	190.2	88.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Commercial Drive & 12th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	TR	L	T	TR
Maximum Queue (m)	40.9	143.3	133.6	34.8	201.3	201.8	34.8	73.4	64.8	21.4	24.1	28.7
Average Queue (m)	24.6	100.8	88.3	30.1	162.4	164.5	26.5	53.9	38.5	11.5	13.9	20.5
95th Queue (m)	48.0	159.5	144.2	40.1	301.8	305.0	44.7	77.8	68.8	23.8	26.8	34.7
Link Distance (m)		152.5	152.5		261.4	261.4		152.9	152.9		188.7	188.7
Upstream Blk Time (%)		6	5		4	5						
Queuing Penalty (veh)		0	0		34	39						
Storage Bay Dist (m)	25.0			27.0			27.0			30.0		
Storage Blk Time (%)	22	42		71	29		8	35		1	1	
Queuing Penalty (veh)	157	27		532	18		23	39		1	0	

Intersection: 12: 12th Avenue & Victoria Drive

Movement	EB	EB	WB	WB	NB	NB	B20	SB	SB
Directions Served	LT	TR	LT	TR	LT	TR	T	LT	TR
Maximum Queue (m)	121.3	120.2	111.2	111.0	36.1	36.7	49.4	44.4	43.6
Average Queue (m)	75.6	77.5	93.0	88.3	28.8	31.1	20.8	28.6	27.1
95th Queue (m)	138.6	137.8	165.4	165.0	41.8	39.6	59.1	45.8	44.2
Link Distance (m)	261.4	261.4	162.7	162.7	21.2	21.2	51.7	190.2	
Upstream Blk Time (%)			20	21	29	31	1		
Queuing Penalty (veh)			0	0	0	0	0		
Storage Bay Dist (m)									80.0
Storage Blk Time (%)									
Queuing Penalty (veh)									

Network Summary

Network wide Queuing Penalty: 3511

1: Commercial Drive & North Grandview Highway Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.1
Total Del/Veh (s)	33.4	14.5	16.9	18.1	17.9	37.6	9.4	11.9	12.7	4.6	14.5

2: Commercial Drive & E Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	4.6	4.7	3.7	0.0	0.3	0.0	14.1	0.3	4.1	0.0	0.0	0.0
Total Del/Veh (s)	43.6	47.6	51.1	31.7	26.9	31.2	88.8	36.8	14.8	38.6	25.2	22.1

2: Commercial Drive & E Broadway Performance by movement

Movement	All
Denied Del/Veh (s)	2.2
Total Del/Veh (s)	36.8

3: Road A & E Broadway Performance by movement

Movement	EBT	EBR	WBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.2	3.5	6.5	10.7	5.8

4: Road B & E Broadway Performance by movement

Movement	EBT	EBR	WBT	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.0	0.5	3.6	0.5	13.5	3.4

5: E Broadway & North Grandview Highway Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.1	0.0
Total Del/Veh (s)	8.8	2.5	2.2	0.6	2.6	5.7

6: Victoria Drive & E Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	16.7	15.9	14.3	0.0	0.0	0.9	19.0	15.4	14.3
Total Del/Veh (s)	94.2	10.3	11.9	134.0	20.4	17.5	58.3	29.7	27.7	85.5	78.2	67.0

6: Victoria Drive & E Broadway Performance by movement

Movement	All
Denied Del/Veh (s)	8.7
Total Del/Veh (s)	29.8

7: Commercial Drive & 10th Avenue Performance by movement

Movement	EBL	EBT	EBR	WBT	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.1		0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	22.1	20.9	7.2		24.8	9.4	7.6	5.9	8.5

8: 10th Avenue & Road A Performance by movement

Movement	EBT	WBL	WBR	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.0		0.0
Total Del/Veh (s)	2.1	1.2	0.0	1.9	4.0	0.2		2.0

9: 10th Avenue & Road B Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	2.6	0.6	1.1	0.6	3.7	1.6	1.4

10: Victoria Drive & 10th Avenue Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	28.7	20.8	14.0	8.3	4.9	3.3	9.6

11: Commercial Drive & 12th Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	306.2	309.5	319.9	0.0	0.0	0.0	3.6	0.2	0.1	0.9	0.0	0.0
Total Del/Veh (s)	503.5	79.2	63.4	114.3	61.4	58.4	21.3	24.0	21.6	23.2	22.7	32.8

11: Commercial Drive & 12th Avenue Performance by movement

Movement	All
Denied Del/Veh (s)	132.9
Total Del/Veh (s)	66.5

12: 12th Avenue & Victoria Drive Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)		0.0	0.0	0.4	0.4	0.5	0.0	0.0	0.0	1.2	0.8	2.9
Total Del/Veh (s)		16.2	14.5	35.4	27.4	16.7	43.3	26.1	22.1	74.2	43.9	40.4

12: 12th Avenue & Victoria Drive Performance by movement

Movement	All
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	27.8

Total Network Performance

Denied Del/Veh (s)	67.9
Total Del/Veh (s)	78.9

Intersection: 1: Commercial Drive & North Grandview Highway

Movement	EB	EB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	T	TR
Maximum Queue (m)	12.0	3.0	36.6	23.6	29.0	42.3	53.1	46.6
Average Queue (m)	2.3	0.8	22.2	10.8	12.7	19.5	34.8	26.8
95th Queue (m)	10.1	2.8	46.9	24.0	31.3	43.1	54.5	47.1
Link Distance (m)	78.1	78.1	232.7		66.9	66.9	106.4	106.4
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)				22.0				
Storage Blk Time (%)				1	2			
Queuing Penalty (veh)				3	1			

Intersection: 2: Commercial Drive & E Broadway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	B30
Directions Served	L	T	T	TR	L	T	T	R	LT	T	R	T
Maximum Queue (m)	62.9	137.2	125.9	134.8	60.8	104.4	103.1	8.8	55.5	54.1	32.4	7.4
Average Queue (m)	43.2	122.0	109.8	102.1	30.5	78.7	81.5	1.9	38.1	34.3	15.9	1.5
95th Queue (m)	80.9	171.1	164.9	175.3	67.3	128.1	129.9	7.6	58.2	57.7	32.9	7.7
Link Distance (m)		144.3	144.3	144.3		99.8	99.8		44.7	44.7		32.7
Upstream Blk Time (%)		18	15	21		9	12		10	5		
Queuing Penalty (veh)		0	0	0		69	89		23	12		
Storage Bay Dist (m)	47.0				45.0			10.0			30.0	
Storage Blk Time (%)	0	48				27	42	0		12	0	
Queuing Penalty (veh)	0	52				28	9	1		11	1	

Intersection: 2: Commercial Drive & E Broadway

Movement	SB	SB	SB	B21
Directions Served	LT	T	TR	T
Maximum Queue (m)	55.8	46.0	30.2	5.7
Average Queue (m)	41.1	31.2	15.5	0.8
95th Queue (m)	66.5	58.6	31.2	6.8
Link Distance (m)	49.0	49.0	49.0	66.9
Upstream Blk Time (%)	8	1		
Queuing Penalty (veh)	21	2		
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Road A & E Broadway

Movement	EB	EB	EB	WB	WB	WB	NB
Directions Served	T	T	TR	T	T	T	R
Maximum Queue (m)	20.6	20.5	24.7	26.9	32.0	31.0	15.5
Average Queue (m)	9.6	9.8	9.7	13.9	22.0	18.9	9.5
95th Queue (m)	43.2	44.1	39.5	40.7	44.8	40.4	17.4
Link Distance (m)	99.8	99.8	99.8	31.1	31.1	31.1	88.1
Upstream Blk Time (%)				5	9	9	
Queuing Penalty (veh)				23	42	43	
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: Road B & E Broadway

Movement	EB	EB	EB	WB	WB	WB	NB
Directions Served	T	T	TR	T	T	T	R
Maximum Queue (m)	18.4	30.9	18.9	21.0	17.7	14.4	24.1
Average Queue (m)	8.9	10.6	9.0	9.3	9.0	7.1	12.1
95th Queue (m)	32.5	36.4	30.9	38.3	37.9	29.8	22.0
Link Distance (m)	31.1	31.1	31.1	43.3	43.3	43.3	39.4
Upstream Blk Time (%)	9	2	1	1	1	0	
Queuing Penalty (veh)	57	11	6	4	4	0	
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: E Broadway & North Grandview Highway

Movement	EB	EB	EB	WB	WB	WB	SB
Directions Served	T	T	T	T	T	TR	R
Maximum Queue (m)	45.1	51.0	51.5	19.6	16.2	17.0	5.7
Average Queue (m)	30.3	34.0	33.5	7.4	2.8	5.3	2.3
95th Queue (m)	59.3	63.3	60.8	29.1	17.0	21.7	6.8
Link Distance (m)	43.3	43.3	43.3	35.6	35.6	35.6	232.7
Upstream Blk Time (%)	13	6	4	1	0	0	
Queuing Penalty (veh)	81	36	24	3	1	1	
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 6: Victoria Drive & E Broadway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	T	R	L
Maximum Queue (m)	27.3	45.1	44.1	42.2	50.8	96.0	74.8	76.6	17.4	70.8	16.0	42.4
Average Queue (m)	21.1	35.4	33.8	35.2	29.5	84.1	61.1	51.7	9.1	42.9	13.1	39.8
95th Queue (m)	33.7	53.5	51.7	47.6	61.1	110.4	100.1	99.8	18.0	71.1	20.7	49.5
Link Distance (m)		35.6	35.6	35.6		91.2	91.2	91.2		88.2		
Upstream Blk Time (%)		26	15	15		21	12	11				
Queuing Penalty (veh)		162	94	91		0	0	0				
Storage Bay Dist (m)	25.0				35.0				28.0		8.0	40.0
Storage Blk Time (%)	31	21			24	23				42	19	6
Queuing Penalty (veh)	178	15			124	21				51	45	29

Intersection: 6: Victoria Drive & E Broadway

Movement	SB
Directions Served	TR
Maximum Queue (m)	170.3
Average Queue (m)	147.7
95th Queue (m)	243.5
Link Distance (m)	187.8
Upstream Blk Time (%)	31
Queuing Penalty (veh)	0
Storage Bay Dist (m)	
Storage Blk Time (%)	50
Queuing Penalty (veh)	88

Intersection: 7: Commercial Drive & 10th Avenue

Movement	EB	NB	NB	SB	SB	B30	B30
Directions Served	LTR	LT	TR	LT	TR	T	T
Maximum Queue (m)	15.3	31.2	26.8	40.5	47.8	8.4	9.2
Average Queue (m)	8.5	18.5	16.4	26.5	34.3	3.8	1.8
95th Queue (m)	15.8	35.9	32.5	55.5	56.3	14.3	9.3
Link Distance (m)	143.8	188.7	188.7	32.7	32.7	44.7	44.7
Upstream Blk Time (%)				4	8		
Queuing Penalty (veh)				16	30		
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 8: 10th Avenue & Road A

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (m)	9.0	11.1
Average Queue (m)	3.0	8.9
95th Queue (m)	10.0	12.8
Link Distance (m)	33.9	88.1
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: 10th Avenue & Road B

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	3.0	16.8
Average Queue (m)	0.4	9.7
95th Queue (m)	3.6	17.2
Link Distance (m)	34.6	38.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Victoria Drive & 10th Avenue

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	49.4	48.4	35.6
Average Queue (m)	25.2	26.7	14.0
95th Queue (m)	44.5	54.3	39.0
Link Distance (m)	103.2	190.2	88.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Commercial Drive & 12th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	TR	L	T	TR
Maximum Queue (m)	40.9	161.4	162.8	34.8	237.8	238.2	34.6	49.9	43.0	37.8	66.4	61.5
Average Queue (m)	38.7	158.3	158.2	22.0	178.8	176.6	15.0	28.2	22.4	20.4	38.2	45.0
95th Queue (m)	43.0	162.6	162.8	40.8	274.4	269.1	34.5	50.4	47.9	36.6	67.5	66.8
Link Distance (m)		152.5	152.5		261.4	261.4		152.9	152.9		188.7	188.7
Upstream Blk Time (%)		95	71			0						
Queuing Penalty (veh)		0	0			0						
Storage Bay Dist (m)	25.0			27.0			27.0			30.0		
Storage Blk Time (%)	99	11		11	51		0	7		1	15	
Queuing Penalty (veh)	789	11		75	31		0	6		2	19	

Intersection: 12: 12th Avenue & Victoria Drive

Movement	EB	EB	WB	WB	NB	NB	B20	SB	SB
Directions Served	LT	TR	LT	TR	LT	TR	T	LT	TR
Maximum Queue (m)	70.1	74.5	137.4	125.0	35.9	31.9	29.2	91.8	62.8
Average Queue (m)	52.6	58.4	106.5	90.5	27.5	23.7	8.1	59.8	51.2
95th Queue (m)	72.3	78.0	169.4	144.8	38.7	35.1	26.1	107.1	80.6
Link Distance (m)	261.4	261.4	162.7	162.7	21.2	21.2	51.7	190.2	
Upstream Blk Time (%)			2		29	28			
Queuing Penalty (veh)			0		0	0			
Storage Bay Dist (m)									80.0
Storage Blk Time (%)								8	2
Queuing Penalty (veh)								26	7

Network Summary

Network wide Queuing Penalty: 2568

1: Commercial Drive & North Grandview Highway Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.0	0.0	0.7	0.1	0.0	0.3	0.1	0.2
Total Del/Veh (s)	19.9	19.4	3.9	8.2	7.0	27.1	11.3	14.4	11.9	5.9	11.8

2: Commercial Drive & E Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.0	0.2	0.3	0.0	0.8	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	24.1	19.1	13.0	33.6	41.8	38.6	26.2	15.9	8.6	42.0	16.3	16.2

2: Commercial Drive & E Broadway Performance by movement

Movement	All
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	26.1

3: Road A & E Broadway Performance by movement

Movement	EBT	EBR	WBT	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.1	2.0	9.4	0.2	4.7	5.7

4: Road B & E Broadway Performance by movement

Movement	EBT	WBT	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.1	0.0	0.0	0.0
Total Del/Veh (s)	0.3	7.5	0.3	3.5	4.0

5: E Broadway & North Grandview Highway Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.4	4.3	2.9	0.8	13.1	3.4

6: Victoria Drive & E Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	2.3	0.3	0.3	0.0	0.0	0.0	3.5	0.5	0.4
Total Del/Veh (s)	66.1	14.7	15.7	41.4	18.9	11.0	43.6	16.5	13.3	24.8	25.0	24.2

6: Victoria Drive & E Broadway Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	19.8

7: Commercial Drive & 10th Avenue Performance by movement

Movement	EBL	EBR	WBT	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.1	1.6	0.0
Total Del/Veh (s)	21.8	10.7	0.1	27.3	9.8	8.7	9.7	9.3

8: 10th Avenue & Road A Performance by movement

Movement	EBT	WBT	WBR	SBL	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.1	0.5	0.1	4.2	2.0

9: 10th Avenue & Road B Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)		0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)		0.6	0.9	0.4	4.0	1.4	1.3

10: Victoria Drive & 10th Avenue Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.2	0.0	0.1	0.1	0.1
Total Del/Veh (s)	19.9	1.0	15.2	7.5	4.8	3.0	2.0	6.0

11: Commercial Drive & 12th Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	161.4	157.5	134.1	0.0	1.7	0.0	3.2	0.2	0.2	0.0	0.0	0.0
Total Del/Veh (s)	268.3	87.4	68.6	130.6	64.6	58.1	20.1	16.5	13.2	17.9	12.9	19.2

11: Commercial Drive & 12th Avenue Performance by movement

Movement	All
Denied Del/Veh (s)	65.0
Total Del/Veh (s)	64.8

12: 12th Avenue & Victoria Drive Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.6	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	77.7	26.5	20.4	39.5	21.2	11.7	22.9	27.4	23.4	48.5	22.9	23.8

12: 12th Avenue & Victoria Drive Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	25.0

Total Network Performance

Denied Del/Veh (s)	32.2
Total Del/Veh (s)	68.8

Intersection: 1: Commercial Drive & North Grandview Highway

Movement	EB	EB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	T	TR
Maximum Queue (m)	5.8	3.3	20.3	16.2	40.1	48.1	46.2	41.6
Average Queue (m)	1.7	1.0	9.6	7.2	23.3	27.2	33.9	29.4
95th Queue (m)	5.8	3.3	21.8	18.5	43.2	47.9	49.7	48.6
Link Distance (m)	78.1	78.1	232.7		66.9	66.9	106.4	106.4
Upstream Blk Time (%)						0		
Queuing Penalty (veh)						0		
Storage Bay Dist (m)				22.0				
Storage Blk Time (%)				2	6			
Queuing Penalty (veh)				6	4			

Intersection: 2: Commercial Drive & E Broadway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	TR	L	T	T	R	LT	T	R	LT
Maximum Queue (m)	48.2	76.2	66.5	43.8	49.0	105.4	106.1	12.4	43.2	43.1	26.0	62.4
Average Queue (m)	20.0	55.0	44.2	22.4	23.6	81.4	79.8	5.8	26.1	24.4	10.1	44.4
95th Queue (m)	43.0	81.1	72.6	36.8	63.1	121.3	121.2	14.4	40.9	43.6	24.7	66.6
Link Distance (m)		144.3	144.3	144.3		99.8	99.8		44.7	44.7		49.0
Upstream Blk Time (%)						16	17		0	0		8
Queuing Penalty (veh)						100	109		1	1		20
Storage Bay Dist (m)	47.0				45.0			10.0			30.0	
Storage Blk Time (%)		13				44	61	1		4	0	
Queuing Penalty (veh)		13				27	21	8		3	0	

Intersection: 2: Commercial Drive & E Broadway

Movement	SB	SB	B21
Directions Served	T	TR	T
Maximum Queue (m)	45.3	23.5	11.9
Average Queue (m)	29.2	13.5	1.7
95th Queue (m)	49.5	26.1	11.0
Link Distance (m)	49.0	49.0	66.9
Upstream Blk Time (%)	1		
Queuing Penalty (veh)	2		
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Road A & E Broadway

Movement	WB	WB	WB	NB
Directions Served	T	T	T	R
Maximum Queue (m)	19.3	20.4	20.3	13.2
Average Queue (m)	13.0	13.4	13.5	8.7
95th Queue (m)	41.5	39.2	38.8	15.4
Link Distance (m)	31.1	31.1	31.1	88.1
Upstream Blk Time (%)	13	20	14	
Queuing Penalty (veh)	54	83	57	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Road B & E Broadway

Movement	WB	WB	WB	NB
Directions Served	T	T	T	R
Maximum Queue (m)	16.3	16.2	16.4	11.0
Average Queue (m)	14.8	12.2	9.0	5.9
95th Queue (m)	49.8	42.9	37.9	13.7
Link Distance (m)	43.3	43.3	43.3	39.4
Upstream Blk Time (%)	6	10	2	
Queuing Penalty (veh)	23	42	9	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: E Broadway & North Grandview Highway

Movement	EB	EB	EB	WB	WB	WB	SB
Directions Served	T	T	T	T	T	TR	R
Maximum Queue (m)	26.7	31.0	20.3	12.5	15.6	34.3	5.8
Average Queue (m)	13.3	11.8	7.9	7.2	6.4	11.1	1.6
95th Queue (m)	29.7	29.2	20.5	28.6	29.6	37.2	5.6
Link Distance (m)	43.3	43.3	43.3	35.6	35.6	35.6	232.7
Upstream Blk Time (%)				3	5	2	
Queuing Penalty (veh)				15	22	10	
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 6: Victoria Drive & E Broadway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	T	R	L
Maximum Queue (m)	27.2	41.1	40.1	41.8	50.6	82.7	69.5	50.1	35.6	60.6	16.0	28.5
Average Queue (m)	16.6	34.1	35.0	35.5	25.4	54.1	38.2	31.6	22.4	38.3	13.3	14.9
95th Queue (m)	29.7	44.3	44.7	42.5	53.3	89.8	77.3	56.4	40.9	65.9	19.5	28.1
Link Distance (m)		35.6	35.6	35.6		91.2	91.2	91.2		88.2		
Upstream Blk Time (%)		10	12	11		5	1					
Queuing Penalty (veh)		37	44	39		0	0					
Storage Bay Dist (m)	25.0				35.0				28.0		8.0	40.0
Storage Blk Time (%)	2	21			0	22			7	40	8	
Queuing Penalty (veh)	7	11			0	21			24	62	24	

Intersection: 6: Victoria Drive & E Broadway

Movement	SB
Directions Served	TR
Maximum Queue (m)	79.3
Average Queue (m)	40.0
95th Queue (m)	77.1
Link Distance (m)	187.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	10
Queuing Penalty (veh)	9

Intersection: 7: Commercial Drive & 10th Avenue

Movement	EB	NB	NB	SB	SB
Directions Served	LTR	LT	TR	LT	TR
Maximum Queue (m)	15.5	36.0	37.1	33.0	36.7
Average Queue (m)	6.5	20.0	20.7	19.8	24.2
95th Queue (m)	15.8	39.9	40.8	35.2	38.0
Link Distance (m)	143.8	188.7	188.7	32.7	32.7
Upstream Blk Time (%)				1	2
Queuing Penalty (veh)				2	5
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 8: 10th Avenue & Road A

Movement	SB
Directions Served	LTR
Maximum Queue (m)	14.0
Average Queue (m)	9.4
95th Queue (m)	16.0
Link Distance (m)	88.1
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: 10th Avenue & Road B

Movement	SB
Directions Served	LR
Maximum Queue (m)	15.5
Average Queue (m)	8.6
95th Queue (m)	16.7
Link Distance (m)	38.7
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Victoria Drive & 10th Avenue

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	34.7	31.2	21.7
Average Queue (m)	18.9	14.2	4.7
95th Queue (m)	33.0	31.5	18.0
Link Distance (m)	103.2	190.2	88.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Commercial Drive & 12th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	TR	L	T	TR
Maximum Queue (m)	40.9	161.3	160.9	34.8	187.8	181.0	32.0	49.2	28.2	21.8	32.8	47.9
Average Queue (m)	39.8	154.3	152.0	24.9	133.1	134.3	14.9	28.9	21.1	14.0	18.3	30.2
95th Queue (m)	43.3	179.7	183.6	43.4	238.5	247.5	30.1	46.6	32.8	25.7	36.1	50.8
Link Distance (m)		152.5	152.5		261.4	261.4		152.9	152.9		188.7	188.7
Upstream Blk Time (%)		82	77			0						
Queuing Penalty (veh)		0	0			0						
Storage Bay Dist (m)	25.0			27.0			27.0			30.0		
Storage Blk Time (%)	84	43		25	49		0	10		0	1	
Queuing Penalty (veh)	556	43		155	29		0	10		0	1	

Intersection: 12: 12th Avenue & Victoria Drive

Movement	EB	EB	WB	WB	NB	NB	B20	SB	SB
Directions Served	LT	TR	LT	TR	LT	TR	T	LT	TR
Maximum Queue (m)	100.3	101.9	104.2	95.0	35.7	36.1	40.2	48.9	44.4
Average Queue (m)	64.9	66.7	74.2	60.8	26.3	27.3	11.3	28.6	27.0
95th Queue (m)	123.4	122.9	115.5	104.5	37.2	37.7	40.2	52.3	45.7
Link Distance (m)	261.4	261.4	162.7	162.7	21.2	21.2	51.7	190.2	
Upstream Blk Time (%)					25	24	1		
Queuing Penalty (veh)					0	0	0		
Storage Bay Dist (m)									80.0
Storage Blk Time (%)									
Queuing Penalty (veh)									

Network Summary

Network wide Queuing Penalty: 1707

1: Commercial Drive & North Grandview Highway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.1		0.1	0.0	0.1	0.0	1.3	0.1	1.9	0.2	0.2	0.3
Total Del/Veh (s)	36.8		6.9	30.7	34.7	31.4	36.9	13.1	15.4	11.1	10.1	20.3

2: Commercial Drive & E Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.4	0.2	0.3	3.8	2.2	0.0	1.7	1.2	2.1	0.0	0.0	0.0
Total Del/Veh (s)	25.4	22.4	17.3	37.3	39.4	42.1	54.3	30.9	16.7	59.9	25.4	23.3

2: Commercial Drive & E Broadway Performance by movement

Movement	All
Denied Del/Veh (s)	1.2
Total Del/Veh (s)	31.9

4: Road B & E Broadway Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	75.1	0.0	57.2	4.8
Total Del/Veh (s)	19.7	18.6	25.6	28.7	61.9	1.0	20.2	25.9

5: E Broadway & North Grandview Highway Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	1.0	0.2	0.4	0.0	0.0	0.5
Total Del/Veh (s)	7.0	4.1	4.0	1.1	87.4	5.5

6: Victoria Drive & E Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	14.2	4.7	0.2	4.1	2.4	2.7	0.0	0.0	3.3	3.5	0.7	0.6
Total Del/Veh (s)	208.3	24.1	24.2	44.7	22.3	21.3	76.6	23.1	21.4	36.8	32.6	27.1

6: Victoria Drive & E Broadway Performance by movement

Movement	All
Denied Del/Veh (s)	2.8
Total Del/Veh (s)	29.1

7: Commercial Drive & 10th Avenue Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0	0.1
Total Del/Veh (s)	12.7	7.8	31.5	0.4	22.2	16.9	11.3	9.4	23.2	6.6	8.2	10.4

9: 10th Avenue & Road B Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.3	0.8	0.6	0.5	4.5	0.5	2.9	1.8

10: Victoria Drive & 10th Avenue Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.4	0.0	0.0	0.2
Total Del/Veh (s)	47.6	21.4	22.6	15.7	4.4	3.0	12.8

11: Commercial Drive & 12th Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	126.1	114.8	106.9	0.1	0.2	0.0	3.0	0.4	0.3	0.0	0.0	0.0
Total Del/Veh (s)	322.5	61.2	43.5	95.0	34.5	30.1	38.3	31.6	35.1	25.8	14.7	22.9

11: Commercial Drive & 12th Avenue Performance by movement

Movement	All
Denied Del/Veh (s)	40.3
Total Del/Veh (s)	48.6

12: 12th Avenue & Victoria Drive Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Total Del/Veh (s)	45.1	22.8	25.5	21.7	19.3	35.2	26.4	22.3	62.1	22.0	15.3	23.6

Total Network Performance

Denied Del/Veh (s)	22.3
Total Del/Veh (s)	73.1

Intersection: 1: Commercial Drive & North Grandview Highway

Movement	EB	EB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	T	TR
Maximum Queue (m)	9.9	10.1	80.5	34.8	56.8	56.2	39.8	34.8
Average Queue (m)	4.5	4.2	51.8	25.5	30.8	33.7	22.9	20.2
95th Queue (m)	12.5	10.3	85.2	43.0	61.7	60.0	41.5	35.6
Link Distance (m)	78.1	78.1	232.4		66.9	66.9	106.4	106.4
Upstream Blk Time (%)					0	0		
Queuing Penalty (veh)					0	1		
Storage Bay Dist (m)				27.0				
Storage Blk Time (%)				14	4			
Queuing Penalty (veh)				40	8			

Intersection: 2: Commercial Drive & E Broadway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	B30
Directions Served	L	T	T	TR	L	T	T	R	LT	T	R	T
Maximum Queue (m)	41.8	96.3	72.7	51.9	60.8	110.6	110.2	12.9	63.0	60.2	32.5	44.6
Average Queue (m)	18.0	66.3	48.2	30.8	38.8	102.3	102.8	9.9	56.9	47.4	22.3	19.7
95th Queue (m)	45.2	100.8	79.7	52.4	78.4	124.0	126.5	15.4	70.0	69.5	39.2	48.2
Link Distance (m)		144.3	144.3	144.3		104.8	104.8		44.9	44.9		32.7
Upstream Blk Time (%)						18	16		49	15		8
Queuing Penalty (veh)						143	132		220	68		34
Storage Bay Dist (m)	47.0				45.0			10.0			30.0	
Storage Blk Time (%)		20				48	55	4		23	1	
Queuing Penalty (veh)		12				48	41	27		33	3	

Intersection: 2: Commercial Drive & E Broadway

Movement	B30	SB	SB	SB
Directions Served	T	LT	T	TR
Maximum Queue (m)	29.4	57.3	43.8	31.8
Average Queue (m)	12.4	35.4	24.2	18.0
95th Queue (m)	37.4	58.4	45.6	34.0
Link Distance (m)	32.7	48.8	48.8	48.8
Upstream Blk Time (%)	2	4	0	0
Queuing Penalty (veh)	8	8	0	0
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Road B & E Broadway

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB
Directions Served	T	T	TR	L	T	T	T	L	R
Maximum Queue (m)	70.1	67.0	69.9	34.8	98.9	95.0	83.0	30.9	21.9
Average Queue (m)	44.7	45.2	43.3	19.9	64.5	62.8	50.2	22.3	14.4
95th Queue (m)	74.6	70.8	70.7	40.0	116.2	111.0	92.4	33.1	27.1
Link Distance (m)	120.8	120.8	120.8		59.9	59.9	59.9	34.0	34.0
Upstream Blk Time (%)					20	23	17	3	
Queuing Penalty (veh)					122	144	106	1	
Storage Bay Dist (m)				20.0					
Storage Blk Time (%)				4	38				
Queuing Penalty (veh)				20	51				

Intersection: 5: E Broadway & North Grandview Highway

Movement	EB	EB	EB	WB	WB	WB	SB
Directions Served	T	T	T	T	T	TR	R
Maximum Queue (m)	29.8	31.8	29.8	51.0	39.0	42.2	20.7
Average Queue (m)	15.7	15.2	10.9	12.4	13.8	19.4	8.8
95th Queue (m)	52.9	56.1	44.9	47.4	45.6	46.7	31.2
Link Distance (m)	59.9	59.9	59.9	35.6	35.6	35.6	232.4
Upstream Blk Time (%)	1	1	0	2	2	3	
Queuing Penalty (veh)	3	2	0	15	14	19	
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 6: Victoria Drive & E Broadway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	T	R	L
Maximum Queue (m)	27.5	74.7	74.4	72.4	50.8	98.0	85.4	95.0	35.7	85.4	15.9	42.4
Average Queue (m)	22.8	63.3	63.8	58.7	22.6	83.1	62.0	62.9	29.9	57.6	13.4	25.8
95th Queue (m)	34.2	83.5	81.3	76.0	53.7	107.8	96.0	108.6	42.0	99.5	20.8	49.3
Link Distance (m)		35.6	35.6	35.6		91.2	91.2	91.2		88.1		
Upstream Blk Time (%)		48	33	33		9	4	8		10		
Queuing Penalty (veh)		228	157	153		0	0	0		63		
Storage Bay Dist (m)	25.0				35.0				28.0		8.0	40.0
Storage Blk Time (%)	43	33			1	37			42	35	14	1
Queuing Penalty (veh)	157	18			5	28			155	97	56	6

Intersection: 6: Victoria Drive & E Broadway

Movement	SB
Directions Served	TR
Maximum Queue (m)	94.6
Average Queue (m)	60.3
95th Queue (m)	98.3
Link Distance (m)	187.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	25
Queuing Penalty (veh)	22

Intersection: 7: Commercial Drive & 10th Avenue

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (m)	7.3	27.2	65.0	52.1	32.0	35.2
Average Queue (m)	4.1	14.9	30.9	24.0	19.2	19.6
95th Queue (m)	11.1	29.4	67.9	52.1	31.2	37.0
Link Distance (m)	143.8	125.6	188.7	188.7	32.7	32.7
Upstream Blk Time (%)					1	1
Queuing Penalty (veh)					2	3
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: 10th Avenue & Road B

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	1.9	13.5
Average Queue (m)	0.5	10.7
95th Queue (m)	4.0	16.4
Link Distance (m)	125.6	42.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Victoria Drive & 10th Avenue

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	31.3	88.9	38.5
Average Queue (m)	16.5	33.7	16.4
95th Queue (m)	29.0	86.5	38.6
Link Distance (m)	124.8	190.4	88.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Commercial Drive & 12th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	TR	L	T	TR
Maximum Queue (m)	40.9	161.6	160.8	34.0	147.9	152.2	34.8	104.1	87.4	22.8	36.2	42.4
Average Queue (m)	39.4	149.2	145.8	19.4	101.3	104.1	24.6	58.5	49.7	10.9	19.0	26.7
95th Queue (m)	45.5	190.1	191.1	38.7	186.4	184.9	40.9	102.4	87.2	23.7	34.8	44.0
Link Distance (m)		152.5	152.5		261.4	261.4		152.9	152.9		188.7	188.7
Upstream Blk Time (%)		72	49		0	1						
Queuing Penalty (veh)		0	0		4	4						
Storage Bay Dist (m)	25.0			27.0			27.0			30.0		
Storage Blk Time (%)	85	19		14	40		8	36			2	
Queuing Penalty (veh)	609	22		102	25		24	41			1	

Intersection: 12: 12th Avenue & Victoria Drive

Movement	EB	EB	WB	WB	NB	NB	B20	SB	SB
Directions Served	LT	TR	LT	TR	LT	TR	T	LT	TR
Maximum Queue (m)	105.9	108.1	118.1	114.8	36.9	36.8	46.2	53.7	45.8
Average Queue (m)	59.1	62.5	79.4	73.6	29.0	30.0	22.9	37.7	31.5
95th Queue (m)	121.9	124.4	122.6	121.6	39.9	41.3	56.6	59.9	50.8
Link Distance (m)	261.4	261.4	162.7	162.7	21.2	21.2	51.7	190.4	
Upstream Blk Time (%)			2	2	30	33	5		
Queuing Penalty (veh)			0	0	0	0	0		
Storage Bay Dist (m)									80.0
Storage Blk Time (%)									
Queuing Penalty (veh)									

Network Summary

Network wide Queuing Penalty: 3306

1: Commercial Drive & North Grandview Highway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.1		0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.3	1.3	0.2
Total Del/Veh (s)	24.4		11.2	12.6	19.3	16.2	47.3	14.8	21.0	14.2	26.4	16.7

2: Commercial Drive & E Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	4.0	2.0	2.2	0.0	0.3	0.0	0.2	0.8	0.3	1.4	1.3	0.3
Total Del/Veh (s)	38.9	47.8	68.3	35.8	31.7	29.9	80.9	37.2	16.5	68.2	40.1	25.6

2: Commercial Drive & E Broadway Performance by movement

Movement	All
Denied Del/Veh (s)	1.2
Total Del/Veh (s)	40.8

4: Road B & E Broadway Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	3.2	3.3	0.3
Total Del/Veh (s)	13.5	13.4	17.6	10.9	24.5	8.7	13.1

5: E Broadway & North Grandview Highway Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.1	0.0
Total Del/Veh (s)	6.4	2.3	2.4	1.0	5.8	4.4

6: Victoria Drive & E Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	2.5	0.4	0.7	0.6	0.0	0.1	13.7	11.3	11.7
Total Del/Veh (s)	122.9	16.8	16.5	64.2	15.1	14.7	39.0	29.7	25.1	92.7	77.6	68.9

6: Victoria Drive & E Broadway Performance by movement

Movement	All
Denied Del/Veh (s)	1.9
Total Del/Veh (s)	29.2

7: Commercial Drive & 10th Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1		0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	24.1		13.9	13.2	0.4	7.2	30.0	10.8	10.1	8.8	5.9	6.1

7: Commercial Drive & 10th Avenue Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	8.2

9: 10th Avenue & Road B Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.0	0.4	0.6	0.3	3.8	0.3	2.4	0.9

10: Victoria Drive & 10th Avenue Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	13.2	9.8	8.9	5.1	3.1	1.8	4.7

11: Commercial Drive & 12th Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	282.3	289.4	290.7	0.0	0.0	0.0	3.5	0.2	0.3	0.6	0.0	0.1
Total Del/Veh (s)	312.1	84.8	73.4	158.3	43.7	42.5	35.5	21.7	25.6	26.0	22.4	26.6

11: Commercial Drive & 12th Avenue Performance by movement

Movement	All
Denied Del/Veh (s)	132.1
Total Del/Veh (s)	58.4

12: 12th Avenue & Victoria Drive Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	3.0	8.6	8.8	0.0	0.0	0.0	0.1	0.1	0.5	3.7
Total Del/Veh (s)	16.5	11.3	44.9	35.3	32.4	51.1	28.6	16.5	72.9	44.0	28.0	31.0

Total Network Performance

Denied Del/Veh (s)	65.0
Total Del/Veh (s)	79.1

Intersection: 1: Commercial Drive & North Grandview Highway

Movement	EB	EB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	T	TR
Maximum Queue (m)	7.1	3.2	41.0	21.9	43.0	50.8	60.8	51.9
Average Queue (m)	2.1	0.7	24.2	10.7	20.3	29.0	37.7	32.4
95th Queue (m)	6.6	2.8	45.6	25.3	42.9	52.4	63.3	54.6
Link Distance (m)	78.1	78.1	232.9		66.9	66.9	106.4	106.4
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)				22.0				
Storage Blk Time (%)				9	5			
Queuing Penalty (veh)				21	4			

Intersection: 2: Commercial Drive & E Broadway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	B30
Directions Served	L	T	T	TR	L	T	T	R	LT	T	R	T
Maximum Queue (m)	62.9	140.9	130.4	139.0	60.8	106.0	105.5	8.7	56.1	49.7	31.3	9.7
Average Queue (m)	42.6	116.7	103.3	107.1	34.3	84.1	85.4	5.0	34.6	29.3	18.3	2.9
95th Queue (m)	82.1	166.7	152.5	158.0	69.9	129.4	128.5	13.1	58.4	52.0	32.5	17.5
Link Distance (m)		144.3	144.3	144.3		110.6	110.6		44.7	44.7		32.7
Upstream Blk Time (%)		8	5	9		5	4		13	2		6
Queuing Penalty (veh)		0	0	0		36	32		34	5		17
Storage Bay Dist (m)	47.0				45.0			10.0			30.0	
Storage Blk Time (%)	1	49			1	32	52	1		6	1	
Queuing Penalty (veh)	6	54			5	53	18	5		8	2	

Intersection: 2: Commercial Drive & E Broadway

Movement	SB	SB	SB	B21	B21
Directions Served	LT	T	TR	T	T
Maximum Queue (m)	66.3	60.2	34.9	46.0	34.7
Average Queue (m)	58.1	49.3	15.5	17.1	12.1
95th Queue (m)	72.2	67.8	33.8	58.1	49.2
Link Distance (m)	49.0	49.0	49.0	66.9	66.9
Upstream Blk Time (%)	35	14	0	3	1
Queuing Penalty (veh)	89	34	0	11	6
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: Road B & E Broadway

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB
Directions Served	T	T	TR	L	T	T	T	L	R
Maximum Queue (m)	88.2	89.7	93.3	31.0	61.1	50.6	35.9	26.6	25.2
Average Queue (m)	42.8	43.0	48.4	19.1	36.9	33.3	21.4	22.2	15.9
95th Queue (m)	89.2	86.9	91.1	32.4	70.4	54.9	39.0	30.0	26.7
Link Distance (m)	110.6	110.6	110.6		67.4	67.4	67.4	41.2	41.2
Upstream Blk Time (%)	0	0	0		0	0			
Queuing Penalty (veh)	1	1	2		2	0			
Storage Bay Dist (m)				20.0					
Storage Blk Time (%)				5	14				
Queuing Penalty (veh)				24	22				

Intersection: 5: E Broadway & North Grandview Highway

Movement	EB	EB	EB	WB	WB	WB	SB
Directions Served	T	T	T	T	T	TR	R
Maximum Queue (m)	43.3	45.2	39.4	20.6	20.4	17.2	8.4
Average Queue (m)	16.2	15.9	16.3	4.8	3.4	4.5	2.6
95th Queue (m)	49.5	48.3	50.0	21.0	18.3	22.5	7.6
Link Distance (m)	67.4	67.4	67.4	35.6	35.6	35.6	232.9
Upstream Blk Time (%)	1	0	1	0	0	1	
Queuing Penalty (veh)	4	3	5	1	1	3	
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 6: Victoria Drive & E Broadway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	T	R	L
Maximum Queue (m)	27.3	75.3	72.3	70.8	44.5	92.8	66.7	56.6	29.7	67.9	16.0	42.5
Average Queue (m)	23.6	57.4	53.8	56.1	14.5	69.5	47.7	37.4	7.7	45.6	13.8	38.2
95th Queue (m)	31.7	87.7	85.5	84.6	39.8	99.5	69.7	57.7	27.5	74.0	19.7	51.9
Link Distance (m)		35.6	35.6	35.6		91.2	91.2	91.2		88.1		
Upstream Blk Time (%)		33	18	23		2						
Queuing Penalty (veh)		207	110	143		0						
Storage Bay Dist (m)	25.0				35.0				28.0		8.0	40.0
Storage Blk Time (%)	33	24			1	26				49	18	12
Queuing Penalty (veh)	186	20			3	13				58	44	53

Intersection: 6: Victoria Drive & E Broadway

Movement	SB
Directions Served	TR
Maximum Queue (m)	160.6
Average Queue (m)	135.0
95th Queue (m)	223.9
Link Distance (m)	187.8
Upstream Blk Time (%)	24
Queuing Penalty (veh)	0
Storage Bay Dist (m)	
Storage Blk Time (%)	54
Queuing Penalty (veh)	94

Intersection: 7: Commercial Drive & 10th Avenue

Movement	EB	WB	NB	NB	SB	SB	B30	B30
Directions Served	LTR	LTR	LT	TR	LT	TR	T	T
Maximum Queue (m)	23.2	10.4	30.9	31.2	46.9	48.1	6.9	19.5
Average Queue (m)	10.1	3.8	16.8	17.4	27.8	34.1	1.0	4.2
95th Queue (m)	20.3	11.5	33.7	31.4	50.4	57.6	9.2	16.7
Link Distance (m)	143.8	117.9	188.7	188.7	32.7	32.7	44.7	44.7
Upstream Blk Time (%)					3	6		
Queuing Penalty (veh)					13	26		
Storage Bay Dist (m)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 9: 10th Avenue & Road B

Movement	SB
Directions Served	LR
Maximum Queue (m)	11.6
Average Queue (m)	7.8
95th Queue (m)	14.7
Link Distance (m)	37.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Victoria Drive & 10th Avenue

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	16.8	41.6	22.0
Average Queue (m)	11.6	18.6	6.8
95th Queue (m)	17.2	42.7	20.1
Link Distance (m)	132.0	190.2	88.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Commercial Drive & 12th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	TR	L	T	TR
Maximum Queue (m)	40.9	164.2	165.0	30.9	147.0	150.0	29.3	44.4	38.8	37.8	62.5	68.6
Average Queue (m)	38.7	158.6	159.0	21.0	108.7	114.5	16.1	26.0	20.6	23.3	40.7	46.0
95th Queue (m)	45.9	164.0	164.5	41.5	248.5	247.5	31.6	45.5	38.7	43.1	66.2	70.9
Link Distance (m)		152.5	152.5		261.4	261.4		152.9	152.9		188.7	188.7
Upstream Blk Time (%)		87	78		2	2						
Queuing Penalty (veh)		0	0		17	18						
Storage Bay Dist (m)	25.0			27.0			27.0			30.0		
Storage Blk Time (%)	87	26		31	21		3	6		3	15	
Queuing Penalty (veh)	687	40		207	13		4	5		10	19	

Intersection: 12: 12th Avenue & Victoria Drive

Movement	EB	EB	WB	WB	NB	NB	B20	SB	SB
Directions Served	LT	TR	LT	TR	LT	TR	T	LT	TR
Maximum Queue (m)	80.4	82.9	166.5	143.5	34.9	35.8	33.7	85.1	70.2
Average Queue (m)	55.5	61.9	113.8	103.1	28.5	25.3	11.9	58.4	51.6
95th Queue (m)	82.9	91.8	184.9	174.0	40.6	39.6	42.4	92.8	80.7
Link Distance (m)	261.4	261.4	162.7	162.7	21.2	21.2	51.7	190.2	
Upstream Blk Time (%)			11	10	35	21	2		
Queuing Penalty (veh)			0	0	0	0	0		
Storage Bay Dist (m)									80.0
Storage Blk Time (%)								3	2
Queuing Penalty (veh)								6	7

Network Summary

Network wide Queuing Penalty: 2512

1: Commercial Drive & North Grandview Highway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.1		0.1	0.0	0.0	0.0	0.9	0.0	0.0	0.3	0.3	0.2
Total Del/Veh (s)	23.6		3.7	4.5	10.4	9.2	21.9	8.6	13.0	11.3	4.4	10.7

2: Commercial Drive & E Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.6	0.2	0.3	0.0	2.1	0.1	0.4	0.2	0.1	0.0	0.0	0.0
Total Del/Veh (s)	22.3	19.6	16.2	34.2	33.8	41.4	31.8	20.9	11.1	37.0	14.6	19.3

2: Commercial Drive & E Broadway Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	24.3

4: Road B & E Broadway Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.3	0.0	4.5	0.0	3.0	0.4
Total Del/Veh (s)	8.5	9.5	16.1	17.2	33.1	0.4	5.3	13.7

5: E Broadway & North Grandview Highway Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	2.6	2.2	2.0	1.3	7.1	2.4

6: Victoria Drive & E Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	2.3	0.3	0.4	0.0	0.0	0.0	3.2	0.5	0.7
Total Del/Veh (s)	113.6	14.6	14.9	63.5	15.1	11.5	34.9	18.0	13.0	28.1	16.3	13.1

6: Victoria Drive & E Broadway Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	18.4

7: Commercial Drive & 10th Avenue Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	18.3	5.5	23.5	0.1	5.6	13.9	10.1	9.6	13.8	7.9	4.5	8.9

9: 10th Avenue & Road B Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.7	0.9	0.5	0.2	4.8	0.2	2.5	0.6

10: Victoria Drive & 10th Avenue Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.0	0.1
Total Del/Veh (s)	9.3	5.0	8.0	2.9	2.4	1.1	2.9

11: Commercial Drive & 12th Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	258.6	258.3	232.5	0.0	0.0	0.0	3.5	0.2	0.2	0.0	0.0	0.0
Total Del/Veh (s)	413.2	76.0	64.8	93.0	39.2	41.2	19.4	14.8	14.1	18.6	15.5	20.5

11: Commercial Drive & 12th Avenue Performance by movement

Movement	All
Denied Del/Veh (s)	110.0
Total Del/Veh (s)	58.7

12: 12th Avenue & Victoria Drive Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.7	0.7	0.8	0.0	0.0	0.0	0.0	0.0	0.3
Total Del/Veh (s)	62.7	15.1	13.9	36.0	23.0	16.1	24.3	18.6	13.5	38.0	21.2	20.6

Total Network Performance

Denied Del/Veh (s)	54.8
Total Del/Veh (s)	61.9

Intersection: 1: Commercial Drive & North Grandview Highway

Movement	EB	EB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	T	TR
Maximum Queue (m)	5.8	3.3	23.5	13.2	34.3	40.4	53.0	42.2
Average Queue (m)	1.8	1.0	10.8	6.3	19.9	21.9	33.6	27.0
95th Queue (m)	6.0	3.4	24.1	16.3	39.4	45.7	53.9	47.1
Link Distance (m)	78.1	78.1	233.5		66.9	66.9	106.4	106.4
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)				22.0				
Storage Blk Time (%)				0	4			
Queuing Penalty (veh)				0	3			

Intersection: 2: Commercial Drive & E Broadway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	B30
Directions Served	L	T	T	TR	L	T	T	R	LT	T	R	T
Maximum Queue (m)	50.4	67.3	56.1	47.3	60.2	103.5	104.4	12.5	42.0	42.7	28.1	2.3
Average Queue (m)	22.0	49.5	35.2	29.3	28.2	73.6	76.2	7.0	29.1	27.9	17.2	0.3
95th Queue (m)	47.4	74.5	61.2	51.8	63.4	128.5	127.9	15.5	44.5	46.5	32.2	3.5
Link Distance (m)		144.3	144.3	144.3		110.8	110.8		44.6	44.6		32.7
Upstream Blk Time (%)						6	7		1	1		
Queuing Penalty (veh)						35	45		2	4		
Storage Bay Dist (m)	47.0				45.0			10.0			30.0	
Storage Blk Time (%)		9				33	56	3		7	1	
Queuing Penalty (veh)		9				35	26	15		10	2	

Intersection: 2: Commercial Drive & E Broadway

Movement	SB	SB	SB
Directions Served	LT	T	TR
Maximum Queue (m)	49.8	38.8	28.0
Average Queue (m)	33.0	24.6	14.8
95th Queue (m)	51.7	43.2	29.6
Link Distance (m)	49.0	49.0	49.0
Upstream Blk Time (%)	1	0	
Queuing Penalty (veh)	3	0	
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Road B & E Broadway

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB
Directions Served	T	T	TR	L	T	T	T	L	R
Maximum Queue (m)	37.7	32.1	40.3	34.7	65.3	67.2	54.6	24.5	18.5
Average Queue (m)	21.8	19.7	22.9	20.8	43.3	40.9	30.9	19.4	11.8
95th Queue (m)	46.4	41.3	42.7	39.0	80.3	70.5	59.0	28.6	20.3
Link Distance (m)	110.8	110.8	110.8		71.1	71.1	71.1	35.8	35.8
Upstream Blk Time (%)					1	0	0		
Queuing Penalty (veh)					4	0	0		
Storage Bay Dist (m)				20.0					
Storage Blk Time (%)				2	20				
Queuing Penalty (veh)				9	23				

Intersection: 5: E Broadway & North Grandview Highway

Movement	EB	EB	EB	WB	WB	WB	SB
Directions Served	T	T	T	T	T	TR	R
Maximum Queue (m)	14.5	14.2	13.9	13.8	7.0	18.6	6.0
Average Queue (m)	3.9	3.0	2.0	4.4	1.2	5.3	1.7
95th Queue (m)	23.6	23.0	21.1	20.4	9.5	17.9	5.9
Link Distance (m)	71.1	71.1	71.1	35.6	35.6	35.6	233.5
Upstream Blk Time (%)			0	0			
Queuing Penalty (veh)			0	1			
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 6: Victoria Drive & E Broadway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	T	R	L
Maximum Queue (m)	26.8	65.8	59.7	55.1	49.9	88.0	59.4	47.8	21.5	47.3	16.0	27.4
Average Queue (m)	15.6	37.4	35.4	37.7	24.0	63.3	38.4	27.9	10.7	31.8	14.0	15.6
95th Queue (m)	29.7	73.5	61.3	57.6	52.1	92.4	63.5	52.2	23.1	49.3	17.6	31.6
Link Distance (m)		35.6	35.6	35.6		91.2	91.2	91.2		88.1		
Upstream Blk Time (%)		20	10	11		1	0					
Queuing Penalty (veh)		74	38	42		0	0					
Storage Bay Dist (m)	25.0				35.0				28.0		8.0	40.0
Storage Blk Time (%)	19	9			6	23			0	42	11	0
Queuing Penalty (veh)	62	6			26	15			0	60	32	0

Intersection: 6: Victoria Drive & E Broadway

Movement	SB
Directions Served	TR
Maximum Queue (m)	58.3
Average Queue (m)	32.0
95th Queue (m)	57.6
Link Distance (m)	187.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	4
Queuing Penalty (veh)	3

Intersection: 7: Commercial Drive & 10th Avenue

Movement	EB	WB	NB	NB	SB	SB	B30
Directions Served	LTR	LTR	LT	TR	LT	TR	T
Maximum Queue (m)	10.2	9.2	34.6	38.2	32.5	39.0	2.7
Average Queue (m)	5.4	4.5	20.4	21.9	20.0	23.7	0.4
95th Queue (m)	12.8	11.7	36.7	43.6	32.2	40.0	4.1
Link Distance (m)	143.8	116.4	188.7	188.7	32.7	32.7	44.6
Upstream Blk Time (%)					1	2	
Queuing Penalty (veh)					2	6	
Storage Bay Dist (m)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 9: 10th Avenue & Road B

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	1.7	9.0
Average Queue (m)	0.2	4.6
95th Queue (m)	2.6	11.9
Link Distance (m)	116.4	38.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Victoria Drive & 10th Avenue

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	11.7	26.8	24.6
Average Queue (m)	4.7	8.1	5.7
95th Queue (m)	12.5	25.8	24.6
Link Distance (m)	133.8	190.4	88.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Commercial Drive & 12th Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	TR	L	T	TR
Maximum Queue (m)	40.9	162.2	159.8	34.8	124.5	126.7	23.2	41.7	34.7	25.9	34.8	44.1
Average Queue (m)	40.3	157.7	152.0	21.8	90.9	94.4	14.3	25.4	20.3	11.6	19.1	30.1
95th Queue (m)	42.6	162.2	196.8	41.5	140.4	144.0	27.1	46.2	35.3	23.9	33.4	44.5
Link Distance (m)		152.5	152.5		261.4	261.4		152.9	152.9		188.7	188.7
Upstream Blk Time (%)		98	58									
Queuing Penalty (veh)		0	0									
Storage Bay Dist (m)	25.0			27.0			27.0			30.0		
Storage Blk Time (%)	100	18		11	46		1	5		1	2	
Queuing Penalty (veh)	659	25		67	27		2	5		1	2	

Intersection: 12: 12th Avenue & Victoria Drive

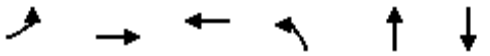
Movement	EB	EB	WB	WB	NB	NB	B20	SB	SB
Directions Served	LT	TR	LT	TR	LT	TR	T	LT	TR
Maximum Queue (m)	65.0	67.4	99.2	94.0	29.7	30.9	7.4	40.7	34.4
Average Queue (m)	37.3	39.9	75.0	65.6	20.7	20.1	1.1	27.5	21.4
95th Queue (m)	70.4	74.9	142.0	134.5	31.6	32.7	8.3	42.2	36.0
Link Distance (m)	261.4	261.4	162.7	162.7	21.2	21.2	51.7	190.4	
Upstream Blk Time (%)			5	4	9	8			
Queuing Penalty (veh)			0	0	0	0			
Storage Bay Dist (m)									80.0
Storage Blk Time (%)									
Queuing Penalty (veh)									

Network Summary

Network wide Queuing Penalty: 1381

APPENDIX D

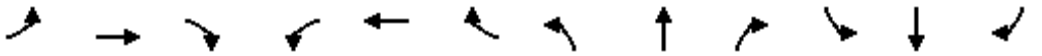
HCM6 Reports



Lane Group	EBL	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	35	74	449	182	554	466
v/c Ratio	0.16	0.14	0.78	0.52	0.38	0.31
Control Delay	18.8	5.5	32.7	19.2	12.0	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.8	5.5	32.7	19.2	12.0	11.0
Queue Length 50th (m)	3.3	0.2	62.7	16.2	23.1	18.1
Queue Length 95th (m)	9.0	7.0	#91.4	32.1	31.3	25.1
Internal Link Dist (m)		70.4	262.7		65.2	96.3
Turn Bay Length (m)				22.0		
Base Capacity (vph)	216	514	575	348	1462	1487
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.14	0.78	0.52	0.38	0.31

Intersection Summary

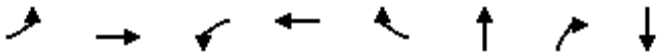
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	2	61	31	301	50	155	449	22	0	358	38
Future Volume (veh/h)	30	2	61	31	301	50	155	449	22	0	358	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.91	0.93		0.91	0.95		0.68	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1683	1710	1710	1683	1683	1683	1670	1643	1643	0	1617	1617
Adj Flow Rate, veh/h	35	2	72	36	354	59	182	528	26	0	421	45
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	0	0	2	2	2	3	5	5	0	7	7
Cap, veh/h	282	13	464	78	469	75	423	1497	73	0	1392	147
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.51	0.51	0.51	0.00	0.51	0.51
Sat Flow, veh/h	853	36	1289	73	1302	208	787	2954	145	0	2828	290
Grp Volume(v), veh/h	35	0	74	449	0	0	182	277	277	0	233	233
Grp Sat Flow(s),veh/h/ln	853	0	1324	1583	0	0	787	1561	1537	0	1536	1502
Q Serve(g_s), s	0.0	0.0	2.8	7.7	0.0	0.0	13.2	8.0	8.1	0.0	6.6	6.8
Cycle Q Clear(g_c), s	5.0	0.0	2.8	18.8	0.0	0.0	20.0	8.0	8.1	0.0	6.6	6.8
Prop In Lane	1.00		0.97	0.08		0.13	1.00		0.09	0.00		0.19
Lane Grp Cap(c), veh/h	282	0	477	622	0	0	423	791	779	0	778	761
V/C Ratio(X)	0.12	0.00	0.16	0.72	0.00	0.00	0.43	0.35	0.36	0.00	0.30	0.31
Avail Cap(c_a), veh/h	282	0	477	622	0	0	423	791	779	0	778	761
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	0.0	16.3	21.3	0.0	0.0	16.6	11.1	11.1	0.0	10.8	10.8
Incr Delay (d2), s/veh	0.9	0.0	0.7	7.1	0.0	0.0	3.2	1.2	1.3	0.0	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.3	3.1	0.0	0.0	0.8	0.3	0.3	0.0	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.9	0.0	17.0	28.4	0.0	0.0	19.8	12.3	12.4	0.0	11.7	11.8
LnGrp LOS	B	A	B	C	A	A	B	B	B	A	B	B
Approach Vol, veh/h		109			449			736			466	
Approach Delay, s/veh		17.3			28.4			14.2			11.8	
Approach LOS		B			C			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		43.0		32.0		43.0		32.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		38.0		27.0		38.0		27.0				
Max Q Clear Time (g_c+I1), s		22.0		7.0		8.8		20.8				
Green Ext Time (p_c), s		8.7		1.2		8.6		3.0				

Intersection Summary												
HCM 6th Ctrl Delay			17.4									
HCM 6th LOS			B									

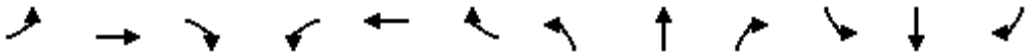


Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	59	1101	55	1420	52	657	89	464
v/c Ratio	0.27	0.63	0.21	1.17	0.13	0.63	0.20	0.32
Control Delay	12.4	20.1	11.2	110.0	2.5	21.2	5.5	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.4	20.1	11.2	110.0	2.5	21.2	5.5	11.6
Queue Length 50th (m)	3.8	44.5	3.5	~126.9	0.0	37.9	0.0	11.0
Queue Length 95th (m)	9.1	60.0	8.5	#171.5	3.3	57.8	8.5	19.0
Internal Link Dist (m)		133.2		100.0		40.7		44.6
Turn Bay Length (m)	47.0		45.0		10.0		30.0	
Base Capacity (vph)	290	1761	358	1214	415	1038	442	1460
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.63	0.15	1.17	0.13	0.63	0.20	0.32

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	1028	40	53	1377	50	107	531	86	54	267	129
Future Volume (veh/h)	57	1028	40	53	1377	50	107	531	86	54	267	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.73	0.97		0.72	0.84		0.65	0.90		0.65
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1381	1811	1811	1767	1796	1856	1856	1856	1885	1796	1796	1796
Adj Flow Rate, veh/h	59	1060	41	55	1420	52	110	547	89	56	275	133
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	35	6	6	9	7	3	3	3	1	7	7	7
Cap, veh/h	172	1722	66	270	1216	403	206	900	400	174	783	318
Arrive On Green	0.05	0.36	0.36	0.05	0.36	0.36	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1316	4806	185	1682	3413	1131	340	2330	1037	246	2028	824
Grp Volume(v), veh/h	59	726	375	55	1420	52	276	381	89	115	194	155
Grp Sat Flow(s),veh/h/ln	1316	1648	1696	1682	1706	1131	1066	1604	1037	650	1487	960
Q Serve(g_s), s	1.9	12.2	12.3	1.4	24.0	2.1	8.4	12.9	3.9	2.8	6.2	8.0
Cycle Q Clear(g_c), s	1.9	12.2	12.3	1.4	24.0	2.1	16.4	12.9	3.9	15.7	6.2	8.0
Prop In Lane	1.00		0.11	1.00		1.00	0.40		1.00	0.49		0.86
Lane Grp Cap(c), veh/h	172	1181	608	270	1216	403	486	619	400	331	574	371
V/C Ratio(X)	0.34	0.61	0.62	0.20	1.17	0.13	0.57	0.62	0.22	0.35	0.34	0.42
Avail Cap(c_a), veh/h	322	1181	608	464	1216	403	486	619	400	331	574	371
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.7	17.8	17.8	13.6	21.7	14.6	17.9	16.6	13.9	16.5	14.6	15.1
Incr Delay (d2), s/veh	1.2	2.4	4.6	0.4	84.5	0.7	4.7	4.5	1.3	2.9	1.6	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.2	1.6	0.1	16.0	0.2	1.0	1.4	0.3	0.4	0.5	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.9	20.2	22.5	14.0	106.2	15.3	22.6	21.2	15.2	19.4	16.2	18.6
LnGrp LOS	B	C	C	B	F	B	C	C	B	B	B	B
Approach Vol, veh/h		1160			1527			746			464	
Approach Delay, s/veh		20.8			99.8			21.0			17.8	
Approach LOS		C			F			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	29.0		31.0	7.2	29.1		31.0				
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0				
Max Green Setting (Gmax), s	11.0	24.0		26.0	11.0	24.0		26.0				
Max Q Clear Time (g_c+I1), s	3.9	26.0		18.4	3.4	14.3		17.7				
Green Ext Time (p_c), s	0.1	0.0		5.1	0.1	8.1		4.1				

Intersection Summary												
HCM 6th Ctrl Delay			51.4									
HCM 6th LOS			D									

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1105	63	0	1480	0	43
Future Vol, veh/h	1105	63	0	1480	0	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1201	68	0	1609	0	47

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	635
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	361
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	361
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	16.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	361	-	-	-
HCM Lane V/C Ratio	0.129	-	-	-
HCM Control Delay (s)	16.5	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.4	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1147	1	0	1480	0	25
Future Vol, veh/h	1147	1	0	1480	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1247	1	0	1609	0	27

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	624
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	367
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	367
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	367	-	-	-
HCM Lane V/C Ratio	0.074	-	-	-
HCM Control Delay (s)	15.6	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1172	1463	347	0	17
Future Vol, veh/h	0	1172	1463	347	0	17
Conflicting Peds, #/hr	97	0	0	97	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	100
Mvmt Flow	0	1379	1721	408	0	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1162
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	9.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	4.9
Pot Cap-1 Maneuver	0	-	-	-	0	78
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	71
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	74.5
HCM LOS			F

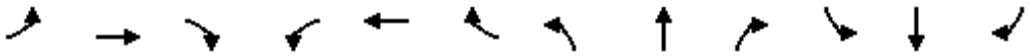
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	71
HCM Lane V/C Ratio	-	-	-	0.282
HCM Control Delay (s)	-	-	-	74.5
HCM Lane LOS	-	-	-	F
HCM 95th %tile Q(veh)	-	-	-	1



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	1226	102	1785	136	248	103	93	401
v/c Ratio	0.52	0.51	0.68	0.75	0.56	0.36	0.19	0.27	0.61
Control Delay	38.7	13.7	41.5	17.8	27.6	17.5	11.2	19.1	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	13.7	41.5	17.8	27.6	17.5	11.2	19.1	23.6
Queue Length 50th (m)	4.4	40.2	10.3	70.1	17.9	30.7	9.2	9.0	44.3
Queue Length 95th (m)	#20.4	51.5	#35.8	87.4	m32.6	m48.8	m19.9	19.7	71.5
Internal Link Dist (m)		20.3		77.8		85.4			178.0
Turn Bay Length (m)	25.0		35.0		28.0		8.0	40.0	
Base Capacity (vph)	92	2384	151	2371	244	688	533	346	660
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.51	0.68	0.75	0.56	0.36	0.19	0.27	0.61

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



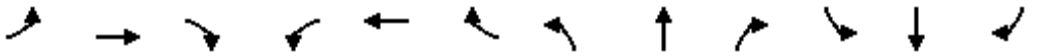
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	1079	49	94	1600	42	125	228	95	86	304	85
Future Volume (veh/h)	44	1079	49	94	1600	42	125	228	95	86	304	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.88	0.99		0.86	0.95		0.88	0.94		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1811	1811	1856	1796	1796	1870	1856	1885	1856	1870	1870
Adj Flow Rate, veh/h	48	1173	53	102	1739	46	136	248	103	93	313	88
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.97
Percent Heavy Veh, %	9	6	6	3	7	7	2	3	1	3	2	2
Cap, veh/h	149	2376	107	244	2412	64	268	693	523	360	505	142
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	251	4816	217	448	4889	129	934	1856	1400	955	1352	380
Grp Volume(v), veh/h	48	802	424	102	1162	623	136	248	103	93	0	401
Grp Sat Flow(s),veh/h/ln	251	1648	1738	448	1635	1749	934	1856	1400	955	0	1733
Q Serve(g_s), s	14.0	12.2	12.2	14.8	21.0	21.0	10.4	7.3	3.7	5.8	0.0	14.2
Cycle Q Clear(g_c), s	35.0	12.2	12.2	27.1	21.0	21.0	24.6	7.3	3.7	13.1	0.0	14.2
Prop In Lane	1.00		0.13	1.00		0.07	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	149	1626	857	244	1613	863	268	693	523	360	0	647
V/C Ratio(X)	0.32	0.49	0.49	0.42	0.72	0.72	0.51	0.36	0.20	0.26	0.00	0.62
Avail Cap(c_a), veh/h	149	1626	857	244	1613	863	268	693	523	360	0	647
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.7	12.7	12.7	21.8	14.9	14.9	29.2	17.0	15.9	21.7	0.0	19.2
Incr Delay (d2), s/veh	5.6	1.1	2.0	5.2	2.8	5.2	6.7	1.4	0.8	1.7	0.0	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.4	0.6	0.8	0.9	1.5	1.6	1.1	0.4	0.7	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.3	13.8	14.8	27.0	17.8	20.1	35.9	18.4	16.7	23.5	0.0	23.6
LnGrp LOS	C	B	B	C	B	C	D	B	B	C	A	C
Approach Vol, veh/h		1274			1887			487			494	
Approach Delay, s/veh		14.9			19.0			22.9			23.6	
Approach LOS		B			B			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		33.0		42.0		33.0		42.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		28.0		37.0		28.0		37.0				
Max Q Clear Time (g_c+I1), s		26.6		37.0		16.2		29.1				
Green Ext Time (p_c), s		0.7		0.0		5.1		7.8				

Intersection Summary												
HCM 6th Ctrl Delay			18.8									
HCM 6th LOS			B									

Lane Group	EBT	NBT	SBT
Lane Group Flow (vph)	30	799	474
v/c Ratio	0.08	0.38	0.22
Control Delay	4.8	8.4	7.1
Queue Delay	0.0	0.0	0.0
Total Delay	4.8	8.4	7.1
Queue Length 50th (m)	0.0	26.4	13.4
Queue Length 95th (m)	3.3	35.0	19.0
Internal Link Dist (m)	130.6	180.5	19.3
Turn Bay Length (m)			
Base Capacity (vph)	454	2591	2733
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.07	0.31	0.17

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	15	0	0	0	20	659	0	0	386	17
Future Volume (veh/h)	10	0	15	0	0	0	20	659	0	0	386	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.55		0.82	1.00		1.00	0.86		1.00	1.00		0.65
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	0	18	0	0	0	24	775	0	0	454	20
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	199	31	211	0	598	0	88	1672	0	0	1667	73
Arrive On Green	0.32	0.00	0.32	0.00	0.00	0.00	0.49	0.49	0.00	0.00	0.49	0.49
Sat Flow, veh/h	342	98	661	0	1870	0	42	3474	0	0	3472	147
Grp Volume(v), veh/h	30	0	0	0	0	0	423	376	0	0	237	237
Grp Sat Flow(s),veh/h/ln	1101	0	0	0	1870	0	1813	1617	0	0	1777	1749
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.6	0.0	0.0	4.4	4.5
Cycle Q Clear(g_c), s	0.8	0.0	0.0	0.0	0.0	0.0	8.3	8.6	0.0	0.0	4.4	4.5
Prop In Lane	0.40		0.60	0.00		0.00	0.06		0.00	0.00		0.08
Lane Grp Cap(c), veh/h	442	0	0	0	598	0	962	798	0	0	877	863
V/C Ratio(X)	0.07	0.00	0.00	0.00	0.00	0.00	0.44	0.47	0.00	0.00	0.27	0.27
Avail Cap(c_a), veh/h	451	0	0	0	615	0	1525	1322	0	0	1453	1430
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	13.3	0.0	0.0	0.0	0.0	0.0	9.3	9.4	0.0	0.0	8.3	8.4
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.0	0.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.3	0.0	0.0	0.0	0.0	0.0	9.6	9.8	0.0	0.0	8.5	8.5
LnGrp LOS	B	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		30			0			799			474	
Approach Delay, s/veh		13.3			0.0			9.7			8.5	
Approach LOS		B						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		33.8		22.5		33.8		22.5				
Change Period (Y+Rc), s		6.0		4.5		6.0		4.5				
Max Green Setting (Gmax), s		46.0		18.5		46.0		18.5				
Max Q Clear Time (g_c+I1), s		10.6		2.8		6.5		0.0				
Green Ext Time (p_c), s		17.1		0.2		9.8		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			9.4									
HCM 6th LOS			A									

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	0	0	2	29	0	0	0	33	0	0
Future Vol, veh/h	0	0	0	0	2	29	0	0	0	33	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	2	32	0	0	0	36	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	34	0	0	1	0	0	19	35	1	19	19	18
Stage 1	-	-	-	-	-	-	1	1	-	18	18	-
Stage 2	-	-	-	-	-	-	18	34	-	1	1	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1578	-	-	1622	-	-	995	857	1084	995	875	1061
Stage 1	-	-	-	-	-	-	1022	895	-	1001	880	-
Stage 2	-	-	-	-	-	-	1001	867	-	1022	895	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1578	-	-	1622	-	-	995	857	1084	995	875	1061
Mov Cap-2 Maneuver	-	-	-	-	-	-	995	857	-	995	875	-
Stage 1	-	-	-	-	-	-	1022	895	-	1001	880	-
Stage 2	-	-	-	-	-	-	1001	867	-	1022	895	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	0	8.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1578	-	-	1622	-	-	995
HCM Lane V/C Ratio	-	-	-	-	-	-	-	0.036
HCM Control Delay (s)	0	0	-	-	0	-	-	8.8
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	44	53	51	37	2
Future Vol, veh/h	1	44	53	51	37	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	48	58	55	40	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	113	0	-	0	136	86
Stage 1	-	-	-	-	86	-
Stage 2	-	-	-	-	50	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1476	-	-	-	857	973
Stage 1	-	-	-	-	937	-
Stage 2	-	-	-	-	972	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1476	-	-	-	856	973
Mov Cap-2 Maneuver	-	-	-	-	856	-
Stage 1	-	-	-	-	936	-
Stage 2	-	-	-	-	972	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1476	-	-	-	861
HCM Lane V/C Ratio	0.001	-	-	-	0.049
HCM Control Delay (s)	7.4	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

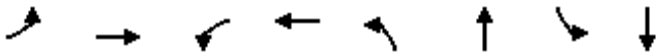
Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	63	59	441	352	50
Future Vol, veh/h	40	63	59	441	352	50
Conflicting Peds, #/hr	0	144	144	0	0	23
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	45	72	67	501	400	57

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1208	717	601	0	-	0
Stage 1	573	-	-	-	-	-
Stage 2	635	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	204	433	986	-	-	-
Stage 1	568	-	-	-	-	-
Stage 2	532	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	135	321	849	-	-	-
Mov Cap-2 Maneuver	135	-	-	-	-	-
Stage 1	436	-	-	-	-	-
Stage 2	458	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	42.1	1.1	0
HCM LOS	E		

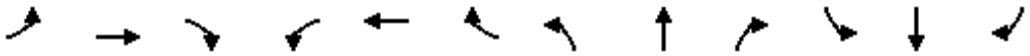
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	849	-	209	-	-
HCM Lane V/C Ratio	0.079	-	0.56	-	-
HCM Control Delay (s)	9.6	0	42.1	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.3	-	3	-	-



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	1481	63	1577	112	641	59	283
v/c Ratio	0.62	0.87	0.61	0.93	0.38	0.63	0.22	0.22
Control Delay	46.6	25.2	45.5	30.7	25.9	25.1	15.0	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.6	25.2	45.5	30.7	25.9	25.1	15.0	14.6
Queue Length 50th (m)	6.7	99.2	6.6	110.8	12.8	41.0	4.8	12.5
Queue Length 95th (m)	#27.2	#147.2	#26.6	#163.2	27.0	58.0	11.1	20.1
Internal Link Dist (m)		139.0		257.0		139.7		180.5
Turn Bay Length (m)	25.0		27.0		27.0		30.0	
Base Capacity (vph)	104	1693	104	1691	295	1024	273	1491
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.87	0.61	0.93	0.38	0.63	0.22	0.19

Intersection Summary

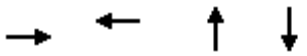
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	1400	51	62	1463	82	110	569	59	58	233	44
Future Volume (veh/h)	63	1400	51	62	1463	82	110	569	59	58	233	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	0.86		0.79	0.96		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	1429	52	63	1493	84	112	581	60	59	238	45
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	1622	59	131	1585	89	368	907	93	295	1160	212
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.29	0.29	0.29	0.06	0.40	0.40
Sat Flow, veh/h	325	3492	127	356	3413	191	939	3161	325	1781	2908	531
Grp Volume(v), veh/h	64	726	755	63	774	803	112	325	316	59	142	141
Grp Sat Flow(s),veh/h/ln	325	1777	1842	356	1777	1827	939	1777	1709	1781	1777	1662
Q Serve(g_s), s	3.3	27.1	27.3	6.7	30.2	30.7	7.1	11.7	11.8	1.6	3.8	4.1
Cycle Q Clear(g_c), s	34.0	27.1	27.3	34.0	30.2	30.7	7.1	11.7	11.8	1.6	3.8	4.1
Prop In Lane	1.00		0.07	1.00		0.10	1.00		0.19	1.00		0.32
Lane Grp Cap(c), veh/h	113	825	855	131	825	849	368	510	490	295	709	663
V/C Ratio(X)	0.57	0.88	0.88	0.48	0.94	0.95	0.30	0.64	0.64	0.20	0.20	0.21
Avail Cap(c_a), veh/h	113	825	855	131	825	849	368	510	490	339	709	663
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	17.7	17.8	34.8	18.6	18.7	21.1	22.8	22.8	16.4	14.4	14.5
Incr Delay (d2), s/veh	19.0	12.8	12.8	12.0	19.4	20.3	2.1	6.0	6.4	0.1	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	3.7	3.8	1.1	5.3	5.7	0.8	2.5	2.5	0.2	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.3	30.6	30.6	46.9	38.0	39.0	23.3	28.8	29.2	16.5	15.0	15.2
LnGrp LOS	E	C	C	D	D	D	C	C	C	B	B	B
Approach Vol, veh/h		1545			1640			753			342	
Approach Delay, s/veh		31.6			38.8			28.1			15.3	
Approach LOS		C			D			C			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.2	26.0		39.0		34.2		39.0				
Change Period (Y+Rc), s	4.0	5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s	6.0	21.0		34.0		21.0		34.0				
Max Q Clear Time (g_c+I1), s	3.6	13.8		36.0		6.1		36.0				
Green Ext Time (p_c), s	0.0	4.7		0.0		3.5		0.0				

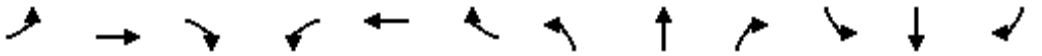
Intersection Summary												
HCM 6th Ctrl Delay			32.5									
HCM 6th LOS			C									



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	1506	1667	472	458
v/c Ratio	0.93	0.81	0.50	0.52
Control Delay	26.5	16.8	22.6	20.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	26.5	16.8	22.6	20.4
Queue Length 50th (m)	92.7	89.7	26.8	31.0
Queue Length 95th (m)	#148.8	119.2	40.3	44.2
Internal Link Dist (m)	257.0	147.5	13.0	180.5
Turn Bay Length (m)				
Base Capacity (vph)	1626	2048	939	880
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.93	0.81	0.50	0.52

Intersection Summary

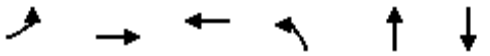
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	1398	16	0	1503	97	22	343	88	43	298	99
Future Volume (veh/h)	32	1398	16	0	1503	97	22	343	88	43	298	99
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	0.99		0.97	0.99		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1900	1900	1900	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	33	1456	17	0	1566	101	23	357	92	45	310	103
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	0	0	0	2	2	2	1	1	1
Cap, veh/h	65	1768	22	0	1972	126	75	770	192	110	656	214
Arrive On Green	0.57	0.57	0.57	0.00	0.57	0.57	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	25	3084	38	0	3535	220	78	2625	653	180	2236	729
Grp Volume(v), veh/h	743	0	763	0	817	850	252	0	220	240	0	218
Grp Sat Flow(s),veh/h/ln	1439	0	1708	0	1805	1855	1797	0	1559	1600	0	1545
Q Serve(g_s), s	8.1	0.0	25.8	0.0	26.5	27.1	0.0	0.0	8.7	0.5	0.0	8.7
Cycle Q Clear(g_c), s	35.1	0.0	25.8	0.0	26.5	27.1	8.3	0.0	8.7	9.2	0.0	8.7
Prop In Lane	0.04		0.02	0.00		0.12	0.09		0.42	0.19		0.47
Lane Grp Cap(c), veh/h	875	0	979	0	1035	1064	579	0	457	526	0	453
V/C Ratio(X)	0.85	0.00	0.78	0.00	0.79	0.80	0.44	0.00	0.48	0.46	0.00	0.48
Avail Cap(c_a), veh/h	875	0	979	0	1035	1064	579	0	457	526	0	453
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.2	0.0	12.3	0.0	12.5	12.6	21.6	0.0	21.8	21.5	0.0	21.8
Incr Delay (d2), s/veh	10.1	0.0	6.1	0.0	6.1	6.3	2.4	0.0	3.6	2.8	0.0	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	1.7	0.0	1.8	1.9	1.7	0.0	1.6	1.6	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.3	0.0	18.4	0.0	18.6	18.9	24.0	0.0	25.4	24.3	0.0	25.4
LnGrp LOS	C	A	B	A	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1506			1667			472			458	
Approach Delay, s/veh		20.3			18.7			24.7			24.9	
Approach LOS		C			B			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		27.0		48.0		27.0		48.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		22.0		43.0		22.0		43.0				
Max Q Clear Time (g_c+I1), s		10.7		37.1		11.2		29.1				
Green Ext Time (p_c), s		4.9		5.6		4.7		13.4				

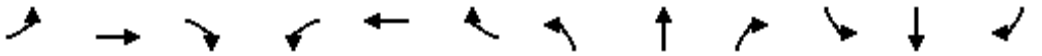
Intersection Summary												
HCM 6th Ctrl Delay			20.7									
HCM 6th LOS			C									



Lane Group	EBL	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	11	12	294	81	485	726
v/c Ratio	0.04	0.02	0.49	0.40	0.35	0.49
Control Delay	15.3	10.8	15.1	20.9	13.8	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.3	10.8	15.1	20.9	13.8	15.7
Queue Length 50th (m)	1.0	0.4	37.8	7.6	22.7	37.7
Queue Length 95th (m)	4.0	3.5	m63.5	19.7	33.2	52.1
Internal Link Dist (m)		70.4	262.7		65.2	96.3
Turn Bay Length (m)				22.0		
Base Capacity (vph)	294	489	604	205	1387	1491
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.02	0.49	0.40	0.35	0.49

Intersection Summary

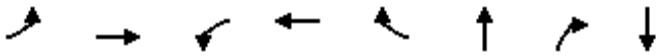
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1	10	6	188	73	74	418	24	0	656	5
Future Volume (veh/h)	10	1	10	6	188	73	74	418	24	0	656	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.90		0.78	0.79		0.78	0.95		0.56	1.00		0.67
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1683	1710	1710	1710	1710	1710	1697	1683	1683	0	1670	1670
Adj Flow Rate, veh/h	11	1	11	7	207	80	81	459	26	0	721	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	0	0	0	0	0	1	2	2	0	3	3
Cap, veh/h	386	39	427	50	431	163	292	1395	78	0	1528	11
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47	0.47	0.00	0.47	0.47
Sat Flow, veh/h	889	97	1067	10	1077	407	626	2937	164	0	3301	22
Grp Volume(v), veh/h	11	0	12	294	0	0	81	247	238	0	355	371
Grp Sat Flow(s),veh/h/ln	889	0	1164	1494	0	0	626	1599	1502	0	1586	1653
Q Serve(g_s), s	0.0	0.0	0.5	0.0	0.0	0.0	8.1	7.7	7.9	0.0	12.1	12.1
Cycle Q Clear(g_c), s	1.1	0.0	0.5	11.7	0.0	0.0	20.2	7.7	7.9	0.0	12.1	12.1
Prop In Lane	1.00		0.92	0.02		0.27	1.00		0.11	0.00		0.01
Lane Grp Cap(c), veh/h	386	0	465	644	0	0	292	760	714	0	754	785
V/C Ratio(X)	0.03	0.00	0.03	0.46	0.00	0.00	0.28	0.32	0.33	0.00	0.47	0.47
Avail Cap(c_a), veh/h	386	0	465	644	0	0	292	760	714	0	754	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	14.7	0.0	14.6	17.9	0.0	0.0	21.0	13.0	13.1	0.0	14.2	14.2
Incr Delay (d2), s/veh	0.1	0.0	0.1	2.3	0.0	0.0	2.3	1.1	1.3	0.0	2.1	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.1	1.5	0.0	0.0	0.6	0.6	0.6	0.0	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.9	0.0	14.7	20.2	0.0	0.0	23.4	14.2	14.4	0.0	16.3	16.2
LnGrp LOS	B	A	B	C	A	A	C	B	B	A	B	B
Approach Vol, veh/h		23			294			566			726	
Approach Delay, s/veh		14.8			20.2			15.6			16.3	
Approach LOS		B			C			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		43.0		37.0		43.0		37.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		38.0		32.0		38.0		32.0				
Max Q Clear Time (g_c+I1), s		22.2		3.1		14.1		13.7				
Green Ext Time (p_c), s		7.2		0.2		12.2		4.4				

Intersection Summary												
HCM 6th Ctrl Delay			16.7									
HCM 6th LOS			B									

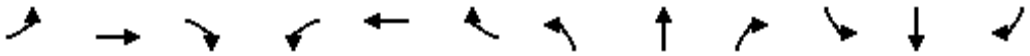


Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	109	1835	103	1312	21	447	93	745
v/c Ratio	0.43	0.96	0.37	0.98	0.05	0.46	0.25	0.56
Control Delay	14.3	36.7	12.6	44.8	0.2	21.9	6.7	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	36.7	12.6	44.8	0.2	21.9	6.7	20.9
Queue Length 50th (m)	7.2	94.2	6.7	~99.5	0.0	26.6	0.0	29.5
Queue Length 95th (m)	14.3	#135.8	13.4	#153.4	0.0	41.6	9.7	43.2
Internal Link Dist (m)		133.2		93.7		40.7		44.6
Turn Bay Length (m)	47.0		45.0		10.0		30.0	
Base Capacity (vph)	308	1917	357	1344	452	974	371	1342
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.96	0.29	0.98	0.05	0.46	0.25	0.56

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	1596	129	97	1233	20	48	372	87	77	504	119
Future Volume (veh/h)	102	1596	129	97	1233	20	48	372	87	77	504	119
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.74	1.00		0.73	0.88		0.59	0.84		0.59
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1648	1856	1856	1885	1841	1900	1870	1870	1885	1856	1856	1856
Adj Flow Rate, veh/h	109	1698	137	103	1312	21	51	396	93	82	536	127
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	17	3	3	1	4	0	2	2	1	3	3	3
Cap, veh/h	208	1842	148	216	1377	466	127	862	335	168	970	214
Arrive On Green	0.06	0.40	0.40	0.06	0.39	0.39	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1570	4637	372	1795	3497	1183	182	2442	949	285	2748	606
Grp Volume(v), veh/h	109	1234	601	103	1312	21	181	266	93	221	295	229
Grp Sat Flow(s),veh/h/ln	1570	1689	1632	1795	1749	1183	1007	1617	949	1010	1537	1092
Q Serve(g_s), s	3.0	25.6	25.9	2.4	26.8	0.8	1.4	9.4	5.2	6.4	11.3	12.6
Cycle Q Clear(g_c), s	3.0	25.6	25.9	2.4	26.8	0.8	14.0	9.4	5.2	15.8	11.3	12.6
Prop In Lane	1.00		0.23	1.00		1.00	0.28		1.00	0.37		0.55
Lane Grp Cap(c), veh/h	208	1341	648	216	1377	466	418	571	335	424	542	385
V/C Ratio(X)	0.53	0.92	0.93	0.48	0.95	0.05	0.43	0.47	0.28	0.52	0.54	0.59
Avail Cap(c_a), veh/h	343	1341	648	378	1377	466	418	571	335	424	542	385
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	21.1	21.2	17.2	21.7	13.8	17.6	18.4	17.1	20.4	19.1	19.5
Incr Delay (d2), s/veh	2.1	11.6	21.4	1.6	15.3	0.2	3.2	2.7	2.0	4.5	3.9	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	4.2	5.8	0.2	5.2	0.1	1.0	1.4	0.5	1.3	1.7	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.3	32.7	42.6	18.8	37.0	14.0	20.9	21.2	19.1	24.9	23.0	26.1
LnGrp LOS	B	C	D	B	D	B	C	C	B	C	C	C
Approach Vol, veh/h		1944			1436			540			745	
Approach Delay, s/veh		35.0			35.3			20.7			24.5	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	34.0		31.0	8.4	34.3		31.0				
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0				
Max Green Setting (Gmax), s	11.0	29.0		26.0	11.0	29.0		26.0				
Max Q Clear Time (g_c+I1), s	5.0	28.8		16.0	4.4	27.9		17.8				
Green Ext Time (p_c), s	0.2	0.2		4.8	0.2	1.1		5.7				

Intersection Summary												
HCM 6th Ctrl Delay			31.8									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1629	131	0	1350	0	55
Future Vol, veh/h	1629	131	0	1350	0	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1771	142	0	1467	0	60

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	957
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	222
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	222
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	27.1
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	222	-	-	-
HCM Lane V/C Ratio	0.269	-	-	-
HCM Control Delay (s)	27.1	-	-	-
HCM Lane LOS	D	-	-	-
HCM 95th %tile Q(veh)	1.1	-	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1681	3	0	1350	0	65
Future Vol, veh/h	1681	3	0	1350	0	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1827	3	0	1467	0	71

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	915
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	236
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	236
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	26.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	236	-	-	-
HCM Lane V/C Ratio	0.299	-	-	-
HCM Control Delay (s)	26.6	-	-	-
HCM Lane LOS	D	-	-	-
HCM 95th %tile Q(veh)	1.2	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1746	1329	269	0	21
Future Vol, veh/h	0	1746	1329	269	0	21
Conflicting Peds, #/hr	0	0	0	0	15	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1838	1399	283	0	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	841
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	-	0	264
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	264
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	19.9
HCM LOS			C

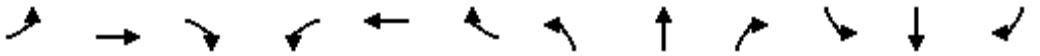
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	264
HCM Lane V/C Ratio	-	-	-	0.084
HCM Control Delay (s)	-	-	-	19.9
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.3



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	72	1728	92	1630	26	213	96	175	455
v/c Ratio	0.78	0.66	1.00	0.62	0.15	0.32	0.20	0.54	0.70
Control Delay	72.0	15.2	122.2	14.6	36.6	36.6	29.9	28.4	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.0	15.2	122.2	14.6	36.6	36.6	29.9	28.4	29.0
Queue Length 50th (m)	8.3	65.1	13.1	59.2	3.6	30.5	9.5	21.0	57.6
Queue Length 95th (m)	#33.0	80.1	#28.9	73.2	m8.4	m47.7	m21.9	40.9	89.9
Internal Link Dist (m)		20.3		77.8		85.4			178.0
Turn Bay Length (m)	25.0		35.0		28.0		8.0	40.0	
Base Capacity (vph)	92	2629	92	2636	176	665	473	323	647
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.66	1.00	0.62	0.15	0.32	0.20	0.54	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	1649	27	89	1528	53	25	207	93	170	397	45
Future Volume (veh/h)	70	1649	27	89	1528	53	25	207	93	170	397	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.89	1.00		0.87	0.95		0.84	0.91		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1856	1856	1885	1870	1870	1900	1900	1870	1826	1885	1885
Adj Flow Rate, veh/h	72	1700	28	92	1575	55	26	213	96	175	409	46
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	3	3	1	2	2	0	0	2	5	1	1
Cap, veh/h	186	2688	44	172	2644	92	208	665	465	344	569	64
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	311	5121	84	283	5036	176	899	1900	1328	949	1625	183
Grp Volume(v), veh/h	72	1121	607	92	1064	566	26	213	96	175	0	455
Grp Sat Flow(s),veh/h/ln	311	1689	1828	283	1702	1808	899	1900	1328	949	0	1808
Q Serve(g_s), s	16.7	18.9	18.9	23.1	17.3	17.3	2.1	6.6	4.1	13.2	0.0	17.5
Cycle Q Clear(g_c), s	34.0	18.9	18.9	42.0	17.3	17.3	19.6	6.6	4.1	19.8	0.0	17.5
Prop In Lane	1.00		0.05	1.00		0.10	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	186	1773	960	172	1787	949	208	665	465	344	0	633
V/C Ratio(X)	0.39	0.63	0.63	0.54	0.60	0.60	0.12	0.32	0.21	0.51	0.00	0.72
Avail Cap(c_a), veh/h	186	1773	960	172	1787	949	208	665	465	344	0	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	13.5	13.5	29.7	13.1	13.1	31.1	19.0	18.2	26.3	0.0	22.6
Incr Delay (d2), s/veh	6.0	1.7	3.2	11.5	1.5	2.8	1.2	1.3	1.0	5.3	0.0	6.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.6	1.1	1.3	0.6	0.9	0.3	1.2	0.6	1.8	0.0	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.9	15.2	16.7	41.2	14.6	15.9	32.3	20.3	19.2	31.6	0.0	29.5
LnGrp LOS	C	B	B	D	B	B	C	C	B	C	A	C
Approach Vol, veh/h		1800			1722			335			630	
Approach Delay, s/veh		16.3			16.4			20.9			30.1	
Approach LOS		B			B			C			C	

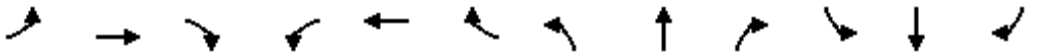
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		33.0		47.0		33.0		47.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		28.0		42.0		28.0		42.0				
Max Q Clear Time (g_c+I1), s		21.6		36.0		21.8		44.0				
Green Ext Time (p_c), s		1.8		5.9		3.6		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			18.7									
HCM 6th LOS			B									



Lane Group	EBT	NBT	SBT
Lane Group Flow (vph)	57	465	666
v/c Ratio	0.14	0.28	0.39
Control Delay	6.7	9.3	10.0
Queue Delay	0.0	0.0	0.0
Total Delay	6.7	9.3	10.0
Queue Length 50th (m)	1.4	13.5	20.3
Queue Length 95th (m)	6.0	22.0	31.5
Internal Link Dist (m)	130.6	180.5	19.3
Turn Bay Length (m)			
Base Capacity (vph)	416	2950	3079
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.14	0.16	0.22

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	1	39	0	0	0	9	442	0	0	626	20
Future Volume (veh/h)	16	1	39	0	0	0	9	442	0	0	626	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.79		0.78	1.00		1.00	0.89		1.00	1.00		0.59
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	1	40	0	0	0	9	456	0	0	645	21
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	2	2	2	2	2	2
Cap, veh/h	174	44	304	0	646	0	80	1570	0	0	1563	51
Arrive On Green	0.34	0.34	0.34	0.00	0.00	0.00	0.46	0.46	0.00	0.00	0.46	0.46
Sat Flow, veh/h	249	130	892	0	1900	0	17	3525	0	0	3519	111
Grp Volume(v), veh/h	57	0	0	0	0	0	248	217	0	0	334	332
Grp Sat Flow(s),veh/h/ln	1272	0	0	0	1900	0	1841	1617	0	0	1777	1760
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	6.5	6.5
Cycle Q Clear(g_c), s	1.5	0.0	0.0	0.0	0.0	0.0	4.3	4.3	0.0	0.0	6.5	6.5
Prop In Lane	0.28		0.70	0.00		0.00	0.04		0.00	0.00		0.06
Lane Grp Cap(c), veh/h	522	0	0	0	646	0	912	738	0	0	811	803
V/C Ratio(X)	0.11	0.00	0.00	0.00	0.00	0.00	0.27	0.29	0.00	0.00	0.41	0.41
Avail Cap(c_a), veh/h	544	0	0	0	681	0	1848	1598	0	0	1756	1740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	11.7	0.0	0.0	0.0	0.0	0.0	8.8	8.8	0.0	0.0	9.4	9.4
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.8	0.0	0.0	0.0	0.0	0.0	9.0	9.0	0.0	0.0	9.7	9.7
LnGrp LOS	B	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		57			0			465			666	
Approach Delay, s/veh		11.8			0.0			9.0			9.7	
Approach LOS		B						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		29.5		22.1		29.5		22.1				
Change Period (Y+Rc), s		6.0		4.5		6.0		4.5				
Max Green Setting (Gmax), s		51.0		18.5		51.0		18.5				
Max Q Clear Time (g_c+I1), s		6.3		3.5		8.5		0.0				
Green Ext Time (p_c), s		9.9		0.5		15.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			9.5									
HCM 6th LOS			A									

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	1	0	6	0	29	0	2	6	74	0	1
Future Vol, veh/h	0	1	0	6	0	29	0	2	6	74	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	0	7	0	32	0	2	7	80	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	32	0	0	1	0	0	32	47	1	36	31	16
Stage 1	-	-	-	-	-	-	1	1	-	30	30	-
Stage 2	-	-	-	-	-	-	31	46	-	6	1	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1580	-	-	1622	-	-	976	845	1084	970	862	1063
Stage 1	-	-	-	-	-	-	1022	895	-	987	870	-
Stage 2	-	-	-	-	-	-	986	857	-	1016	895	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1580	-	-	1622	-	-	972	842	1084	959	859	1063
Mov Cap-2 Maneuver	-	-	-	-	-	-	972	842	-	959	859	-
Stage 1	-	-	-	-	-	-	1022	895	-	987	867	-
Stage 2	-	-	-	-	-	-	981	854	-	1007	895	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.2	8.6	9.1
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1011	1580	-	-	1622	-	-	960
HCM Lane V/C Ratio	0.009	-	-	-	0.004	-	-	0.085
HCM Control Delay (s)	8.6	0	-	-	7.2	0	-	9.1
HCM Lane LOS	A	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	79	30	96	80	5
Future Vol, veh/h	5	79	30	96	80	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	86	33	104	87	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	137	0	-	0	181	85
Stage 1	-	-	-	-	85	-
Stage 2	-	-	-	-	96	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1447	-	-	-	808	974
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	928	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1447	-	-	-	805	974
Mov Cap-2 Maneuver	-	-	-	-	805	-
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	928	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1447	-	-	-	813
HCM Lane V/C Ratio	0.004	-	-	-	0.114
HCM Control Delay (s)	7.5	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

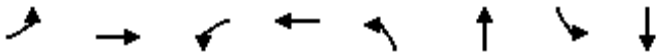
Intersection	
Int Delay, s/veh	9.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	71	129	83	237	414	81
Future Vol, veh/h	71	129	83	237	414	81
Conflicting Peds, #/hr	0	84	84	0	0	37
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	76	139	89	255	445	87

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1006	657	616	0	-	0
Stage 1	573	-	-	-	-	-
Stage 2	433	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	267	465	964	-	-	-
Stage 1	564	-	-	-	-	-
Stage 2	654	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	199	392	886	-	-	-
Mov Cap-2 Maneuver	199	-	-	-	-	-
Stage 1	457	-	-	-	-	-
Stage 2	601	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	45.2	2.5	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	886	-	292	-	-
HCM Lane V/C Ratio	0.101	-	0.736	-	-
HCM Control Delay (s)	9.5	0	45.2	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.3	-	5.4	-	-

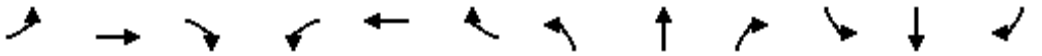


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	103	1668	60	1496	87	333	129	666
v/c Ratio	1.12	1.09	0.65	0.97	0.42	0.31	0.31	0.46
Control Delay	159.2	74.6	55.4	40.7	31.7	21.7	15.2	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	159.2	74.6	55.4	40.7	31.7	21.7	15.2	16.9
Queue Length 50th (m)	~18.2	~152.4	6.9	112.5	10.7	19.4	11.2	35.5
Queue Length 95th (m)	#47.4	#193.8	#27.2	#163.0	25.9	31.6	21.1	49.3
Internal Link Dist (m)		139.0		257.0		139.7		180.5
Turn Bay Length (m)	25.0		27.0		27.0		30.0	
Base Capacity (vph)	92	1534	92	1537	207	1072	452	1458
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.12	1.09	0.65	0.97	0.42	0.31	0.29	0.46

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

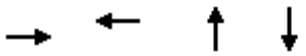
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	1572	79	59	1410	71	86	289	41	128	569	90
Future Volume (veh/h)	102	1572	79	59	1410	71	86	289	41	128	569	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	0.91		0.76	0.91		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	1588	80	60	1424	72	87	292	41	129	575	91
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	103	1502	75	90	1501	76	302	954	130	445	1303	205
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.32	0.32	0.32	0.07	0.44	0.44
Sat Flow, veh/h	351	3433	172	298	3431	173	701	3012	410	1781	2979	469
Grp Volume(v), veh/h	103	817	851	60	735	761	87	168	165	129	341	325
Grp Sat Flow(s),veh/h/ln	351	1777	1828	298	1777	1827	701	1777	1646	1781	1777	1671
Q Serve(g_s), s	2.9	35.0	35.0	0.0	31.7	32.1	7.9	5.7	6.1	3.7	10.7	10.8
Cycle Q Clear(g_c), s	35.0	35.0	35.0	35.0	31.7	32.1	9.1	5.7	6.1	3.7	10.7	10.8
Prop In Lane	1.00		0.09	1.00		0.09	1.00		0.25	1.00		0.28
Lane Grp Cap(c), veh/h	103	777	800	90	777	799	302	563	521	445	777	731
V/C Ratio(X)	1.00	1.05	1.06	0.67	0.95	0.95	0.29	0.30	0.32	0.29	0.44	0.44
Avail Cap(c_a), veh/h	103	777	800	90	777	799	302	563	521	541	777	731
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.8	22.5	22.5	40.0	21.6	21.7	22.3	20.6	20.7	15.4	15.7	15.7
Incr Delay (d2), s/veh	89.7	46.6	50.2	32.8	21.4	22.1	2.4	1.4	1.6	0.1	1.8	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	13.1	14.3	1.5	7.4	7.8	0.7	1.1	1.1	0.4	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	129.5	69.1	72.7	72.8	43.0	43.7	24.7	22.0	22.3	15.5	17.5	17.7
LnGrp LOS	F	F	F	E	D	D	C	C	C	B	B	B
Approach Vol, veh/h		1771			1556			420			795	
Approach Delay, s/veh		74.4			44.5			22.7			17.2	
Approach LOS		E			D			C			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.7	30.3		40.0		40.0		40.0				
Change Period (Y+Rc), s	4.0	5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s	10.0	21.0		35.0		35.0		35.0				
Max Q Clear Time (g_c+I1), s	5.7	11.1		37.0		12.8		37.0				
Green Ext Time (p_c), s	0.1	3.8		0.0		10.8		0.0				

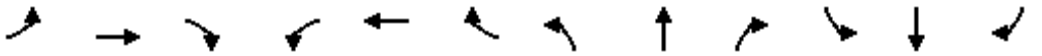
Intersection Summary			
HCM 6th Ctrl Delay		49.4	
HCM 6th LOS		D	



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	1679	1585	411	626
v/c Ratio	0.89	0.98	0.43	0.74
Control Delay	22.7	37.7	22.6	32.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	22.7	37.7	22.6	32.1
Queue Length 50th (m)	107.7	114.0	24.6	37.6
Queue Length 95th (m)	#148.4	#172.4	37.0	m55.0
Internal Link Dist (m)	257.0	147.5	13.0	180.5
Turn Bay Length (m)				
Base Capacity (vph)	1895	1610	960	849
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.89	0.98	0.43	0.74

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



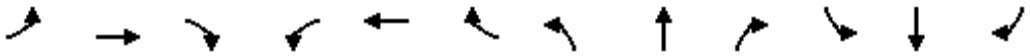
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1588	23	25	1434	62	25	307	62	87	414	100
Future Volume (veh/h)	1	1588	23	25	1434	62	25	307	62	87	414	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.95	0.99		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	1654	24	26	1494	65	26	320	65	91	431	104
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	45	1975	29	55	1661	77	79	807	163	150	642	164
Arrive On Green	0.56	0.56	0.56	0.56	0.56	0.56	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	0	3510	51	16	2953	136	91	2581	521	295	2054	524
Grp Volume(v), veh/h	880	0	799	786	0	799	214	0	197	314	0	312
Grp Sat Flow(s),veh/h/ln	1869	0	1692	1432	0	1674	1614	0	1579	1302	0	1570
Q Serve(g_s), s	0.0	0.0	31.3	11.8	0.0	32.0	0.3	0.0	7.8	10.8	0.0	13.6
Cycle Q Clear(g_c), s	31.1	0.0	31.3	43.1	0.0	32.0	13.9	0.0	7.8	18.7	0.0	13.6
Prop In Lane	0.00		0.03	0.03		0.08	0.12		0.33	0.29		0.33
Lane Grp Cap(c), veh/h	1097	0	952	852	0	941	555	0	493	465	0	491
V/C Ratio(X)	0.80	0.00	0.84	0.92	0.00	0.85	0.39	0.00	0.40	0.68	0.00	0.64
Avail Cap(c_a), veh/h	1097	0	952	852	0	941	555	0	493	465	0	491
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.5	0.0	14.5	14.9	0.0	14.6	21.4	0.0	21.6	25.7	0.0	23.6
Incr Delay (d2), s/veh	6.2	0.0	8.8	17.0	0.0	9.4	2.0	0.0	2.4	7.7	0.0	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	2.3	4.0	0.0	2.5	1.5	0.0	1.5	2.9	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.7	0.0	23.3	31.8	0.0	24.1	23.4	0.0	24.0	33.4	0.0	29.7
LnGrp LOS	C	A	C	C	A	C	C	A	C	C	A	C
Approach Vol, veh/h		1679			1585			411			626	
Approach Delay, s/veh		21.9			27.9			23.7			31.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		30.0		50.0		30.0		50.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		25.0		45.0		25.0		45.0				
Max Q Clear Time (g_c+I1), s		15.9		33.3		20.7		45.1				
Green Ext Time (p_c), s		3.6		11.3		2.8		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			25.7									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
1: Commercial Drive & North Grandview Highway

10/04/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	2	10	3	111	52	60	521	18	0	656	5
Future Volume (veh/h)	10	2	10	3	111	52	60	521	18	0	656	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.93		0.89	0.90		0.89	0.94		0.59	1.00		0.66
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1710	1710	1710	1710	1710	1710	1710	1683	1683	0	1670	1670
Adj Flow Rate, veh/h	11	2	11	3	122	57	66	573	20	0	721	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	2	2	0	3	3
Cap, veh/h	497	79	437	54	408	187	302	1447	50	0	1516	11
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.47	0.47	0.47	0.00	0.47	0.47
Sat Flow, veh/h	1025	206	1132	5	1058	485	624	3070	107	0	3300	22
Grp Volume(v), veh/h	11	0	13	182	0	0	66	297	296	0	355	371
Grp Sat Flow(s),veh/h/ln	1025	0	1338	1548	0	0	624	1599	1578	0	1586	1653
Q Serve(g_s), s	0.0	0.0	0.4	0.0	0.0	0.0	5.6	8.4	8.5	0.0	10.7	10.7
Cycle Q Clear(g_c), s	0.5	0.0	0.4	5.7	0.0	0.0	16.3	8.4	8.5	0.0	10.7	10.7
Prop In Lane	1.00		0.85	0.02		0.31	1.00		0.07	0.00		0.01
Lane Grp Cap(c), veh/h	497	0	516	649	0	0	302	754	744	0	748	779
V/C Ratio(X)	0.02	0.00	0.03	0.28	0.00	0.00	0.22	0.39	0.40	0.00	0.48	0.48
Avail Cap(c_a), veh/h	497	0	516	649	0	0	302	754	744	0	748	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	0.0	13.3	15.0	0.0	0.0	18.2	12.0	12.0	0.0	12.6	12.6
Incr Delay (d2), s/veh	0.1	0.0	0.1	1.1	0.0	0.0	1.7	1.5	1.6	0.0	2.2	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.5	0.0	0.0	0.4	0.3	0.3	0.0	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.4	0.0	13.4	16.0	0.0	0.0	19.8	13.6	13.6	0.0	14.8	14.7
LnGrp LOS	B	A	B	B	A	A	B	B	B	A	B	B
Approach Vol, veh/h		24			182			659			726	
Approach Delay, s/veh		13.4			16.0			14.2			14.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		38.0		32.0		38.0		32.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		33.0		27.0		33.0		27.0				
Max Q Clear Time (g_c+I1), s		18.3		2.5		12.7		7.7				
Green Ext Time (p_c), s		7.9		0.1		11.0		2.5				

Intersection Summary												
HCM 6th Ctrl Delay			14.6									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	914	61	57	1062	33	70	412	81	57	334	97
Future Volume (veh/h)	93	914	61	57	1062	33	70	412	81	57	334	97
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.71	0.95		0.70	0.85		0.66	0.86		0.66
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1648	1856	1856	1900	1826	1856	1856	1856	1885	1856	1856	1856
Adj Flow Rate, veh/h	99	972	65	61	1130	35	74	438	86	61	355	103
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	17	3	3	0	5	3	3	3	1	3	3	3
Cap, veh/h	214	1530	102	283	1082	343	197	1050	428	205	1100	287
Arrive On Green	0.06	0.32	0.32	0.05	0.31	0.31	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	1570	4713	313	1810	3469	1099	304	2590	1056	315	2713	708
Grp Volume(v), veh/h	99	695	342	61	1130	35	238	274	86	161	193	165
Grp Sat Flow(s),veh/h/ln	1570	1689	1649	1810	1735	1099	1290	1604	1056	1067	1537	1132
Q Serve(g_s), s	2.7	11.2	11.3	1.4	20.0	1.5	2.3	7.9	3.4	1.3	5.5	6.5
Cycle Q Clear(g_c), s	2.7	11.2	11.3	1.4	20.0	1.5	8.8	7.9	3.4	9.2	5.5	6.5
Prop In Lane	1.00		0.19	1.00		1.00	0.31		1.00	0.38		0.63
Lane Grp Cap(c), veh/h	214	1097	535	283	1082	343	596	650	428	510	623	459
V/C Ratio(X)	0.46	0.63	0.64	0.22	1.04	0.10	0.40	0.42	0.20	0.32	0.31	0.36
Avail Cap(c_a), veh/h	357	1097	535	472	1082	343	596	650	428	510	623	459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.4	18.4	18.5	14.4	22.1	15.7	13.4	13.7	12.3	12.9	13.0	13.3
Incr Delay (d2), s/veh	1.6	2.8	5.8	0.4	39.8	0.6	2.0	2.0	1.1	1.6	1.3	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.2	1.6	0.1	7.5	0.1	0.4	0.5	0.2	0.3	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.0	21.2	24.2	14.8	61.8	16.3	15.4	15.7	13.4	14.5	14.3	15.5
LnGrp LOS	B	C	C	B	F	B	B	B	B	B	B	B
Approach Vol, veh/h		1136			1226			598			519	
Approach Delay, s/veh		21.8			58.2			15.2			14.7	
Approach LOS		C			E			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.1	25.0		31.0	7.3	25.8		31.0
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	10.0	20.0		26.0	10.0	20.0		26.0
Max Q Clear Time (g_c+I1), s	4.7	22.0		10.8	3.4	13.3		11.2
Green Ext Time (p_c), s	0.2	0.0		7.3	0.1	5.6		6.8

Intersection Summary	
HCM 6th Ctrl Delay	32.5
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	984	68	0	1152	0	40
Future Vol, veh/h	984	68	0	1152	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1070	74	0	1252	0	43

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	572
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	397
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	397
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	397	-	-	-
HCM Lane V/C Ratio	0.11	-	-	-
HCM Control Delay (s)	15.2	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.4	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1020	4	0	1152	0	29
Future Vol, veh/h	1020	4	0	1152	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1109	4	0	1252	0	32

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	557
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	406
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	406
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	406	-	-	-
HCM Lane V/C Ratio	0.078	-	-	-
HCM Control Delay (s)	14.6	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

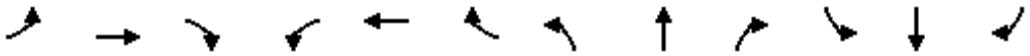
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1049	1137	173	0	15
Future Vol, veh/h	0	1049	1137	173	0	15
Conflicting Peds, #/hr	92	0	0	92	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1104	1197	182	0	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	782
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	-	0	289
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	263
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	19.6
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	263
HCM Lane V/C Ratio	-	-	-	0.06
HCM Control Delay (s)	-	-	-	19.6
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	955	43	92	1188	80	67	227	82	84	256	55
Future Volume (veh/h)	51	955	43	92	1188	80	67	227	82	84	256	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.84	0.98		0.84	0.94		0.89	0.94		0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1856	1856	1900	1900	1885	1885	1885	1885
Adj Flow Rate, veh/h	53	995	45	96	1238	83	70	236	85	88	267	57
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	1	3	3	0	0	1	1	1	1
Cap, veh/h	213	2268	102	275	2187	147	372	760	568	418	587	125
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	412	4961	224	536	4784	321	1010	1900	1419	1000	1469	314
Grp Volume(v), veh/h	53	682	358	96	874	447	70	236	85	88	0	324
Grp Sat Flow(s),veh/h/ln	412	1702	1781	536	1689	1727	1010	1900	1419	1000	0	1782
Q Serve(g_s), s	7.6	9.5	9.6	10.4	13.3	13.3	3.8	6.0	2.7	4.6	0.0	9.3
Cycle Q Clear(g_c), s	20.8	9.5	9.6	19.9	13.3	13.3	13.2	6.0	2.7	10.6	0.0	9.3
Prop In Lane	1.00		0.13	1.00		0.19	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	213	1556	814	275	1544	790	372	760	568	418	0	713
V/C Ratio(X)	0.25	0.44	0.44	0.35	0.57	0.57	0.19	0.31	0.15	0.21	0.00	0.45
Avail Cap(c_a), veh/h	213	1556	814	275	1544	790	372	760	568	418	0	713
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.6	12.9	12.9	19.7	13.9	13.9	20.2	14.4	13.4	18.0	0.0	15.4
Incr Delay (d2), s/veh	2.8	0.9	1.7	3.5	1.5	2.9	1.1	1.1	0.6	1.1	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.3	0.5	0.6	0.5	0.8	0.4	0.6	0.2	0.4	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.3	13.8	14.6	23.2	15.4	16.9	21.3	15.5	14.0	19.2	0.0	17.5
LnGrp LOS	C	B	B	C	B	B	C	B	B	B	A	B
Approach Vol, veh/h		1093			1417			391			412	
Approach Delay, s/veh		14.6			16.4			16.2			17.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		33.0		37.0		33.0		37.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		28.0		32.0		28.0		32.0				
Max Q Clear Time (g_c+I1), s		15.2		22.8		12.6		21.9				
Green Ext Time (p_c), s		3.5		7.6		4.9		9.2				

Intersection Summary												
HCM 6th Ctrl Delay			16.0									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	0	16	0	0	0	8	489	0	0	454	14
Future Volume (veh/h)	13	0	16	0	0	0	8	489	0	0	454	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.83		0.82	1.00		1.00	0.77		1.00	1.00		0.47
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	0	17	0	0	0	9	520	0	0	483	15
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	294	36	261	0	696	0	88	1366	0	0	1343	41
Arrive On Green	0.37	0.00	0.37	0.00	0.00	0.00	0.40	0.40	0.00	0.00	0.40	0.40
Sat Flow, veh/h	481	97	703	0	1870	0	16	3530	0	0	3481	104
Grp Volume(v), veh/h	31	0	0	0	0	0	283	246	0	0	251	247
Grp Sat Flow(s),veh/h/ln	1281	0	0	0	1870	0	1844	1617	0	0	1777	1714
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	0.0	0.0	4.5	4.6
Cycle Q Clear(g_c), s	0.6	0.0	0.0	0.0	0.0	0.0	4.9	4.9	0.0	0.0	4.5	4.6
Prop In Lane	0.45		0.55	0.00		0.00	0.03		0.00	0.00		0.06
Lane Grp Cap(c), veh/h	592	0	0	0	696	0	813	641	0	0	705	680
V/C Ratio(X)	0.05	0.00	0.00	0.00	0.00	0.00	0.35	0.38	0.00	0.00	0.36	0.36
Avail Cap(c_a), veh/h	636	0	0	0	762	0	1713	1461	0	0	1605	1549
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	9.1	0.0	0.0	0.0	0.0	0.0	9.7	9.7	0.0	0.0	9.6	9.7
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.0	0.0	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.2	0.0	0.0	0.0	0.0	0.0	10.0	10.1	0.0	0.0	9.9	10.0
LnGrp LOS	A	A	A	A	A	A	A	B	A	A	A	A
Approach Vol, veh/h		31			0			529			498	
Approach Delay, s/veh		9.2			0.0			10.1			10.0	
Approach LOS		A						B			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	24.0	21.4	24.0	21.4
Change Period (Y+Rc), s	6.0	4.5	6.0	4.5
Max Green Setting (Gmax), s	41.0	18.5	41.0	18.5
Max Q Clear Time (g_c+I1), s	6.9	2.6	6.6	0.0
Green Ext Time (p_c), s	10.5	0.2	9.9	0.0

Intersection Summary	
HCM 6th Ctrl Delay	10.0
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	4	0	0	42	39	0	0	0	78	0	0
Future Vol, veh/h	1	4	0	0	42	39	0	0	0	78	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	5	0	0	53	49	0	0	0	98	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	102	0	0	5	0	0	85	109	5	85	85	78
Stage 1	-	-	-	-	-	-	7	7	-	78	78	-
Stage 2	-	-	-	-	-	-	78	102	-	7	7	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1490	-	-	1616	-	-	901	781	1078	901	805	983
Stage 1	-	-	-	-	-	-	1015	890	-	931	830	-
Stage 2	-	-	-	-	-	-	931	811	-	1015	890	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1490	-	-	1616	-	-	900	780	1078	900	804	983
Mov Cap-2 Maneuver	-	-	-	-	-	-	900	780	-	900	804	-
Stage 1	-	-	-	-	-	-	1014	889	-	930	830	-
Stage 2	-	-	-	-	-	-	931	811	-	1014	889	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0	0	9.5
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1490	-	-	1616	-	-	900
HCM Lane V/C Ratio	-	0.001	-	-	-	-	-	0.108
HCM Control Delay (s)	0	7.4	0	-	0	-	-	9.5
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.4

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	84	80	75	62	1
Future Vol, veh/h	1	84	80	75	62	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	91	87	82	67	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	169	0	-	0	221	128
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	93	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1409	-	-	-	767	922
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	931	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1409	-	-	-	766	922
Mov Cap-2 Maneuver	-	-	-	-	766	-
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	931	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1409	-	-	-	768
HCM Lane V/C Ratio	0.001	-	-	-	0.089
HCM Control Delay (s)	7.6	0	-	-	10.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

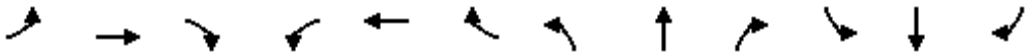
Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	61	84	57	288	279	64
Future Vol, veh/h	61	84	57	288	279	64
Conflicting Peds, #/hr	0	64	64	0	0	37
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	2	0	2
Mvmt Flow	78	108	73	369	358	82

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	978	527	504	0	-	0
Stage 1	463	-	-	-	-	-
Stage 2	515	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	280	555	1071	-	-	-
Stage 1	638	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	224	488	1005	-	-	-
Mov Cap-2 Maneuver	224	-	-	-	-	-
Stage 1	544	-	-	-	-	-
Stage 2	567	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	29.7	1.5	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1005	-	326	-	-
HCM Lane V/C Ratio	0.073	-	0.57	-	-
HCM Control Delay (s)	8.9	0	29.7	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.2	-	3.3	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	1310	72	58	1236	73	98	373	43	78	311	107
Future Volume (veh/h)	98	1310	72	58	1236	73	98	373	43	78	311	107
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	0.88		0.79	0.92		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1885	1900	1885	1885	1900	1856	1856	1900	1841	1841
Adj Flow Rate, veh/h	99	1323	73	59	1248	74	99	377	43	79	314	108
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	1	1	0	1	1	0	3	3	0	4	4
Cap, veh/h	126	1332	73	113	1326	78	393	1008	113	447	1127	372
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.33	0.33	0.33	0.07	0.46	0.46
Sat Flow, veh/h	415	3440	189	393	3423	203	866	3100	348	1810	2461	814
Grp Volume(v), veh/h	99	687	709	59	652	670	99	212	208	79	219	203
Grp Sat Flow(s),veh/h/ln	415	1791	1838	393	1791	1835	866	1763	1684	1810	1749	1526
Q Serve(g_s), s	2.2	24.6	24.8	0.2	22.6	22.8	5.6	5.9	6.1	1.7	5.0	5.4
Cycle Q Clear(g_c), s	25.0	24.6	24.8	25.0	22.6	22.8	5.6	5.9	6.1	1.7	5.0	5.4
Prop In Lane	1.00		0.10	1.00		0.11	1.00		0.21	1.00		0.53
Lane Grp Cap(c), veh/h	126	694	712	113	694	711	393	574	548	447	800	699
V/C Ratio(X)	0.79	0.99	1.00	0.52	0.94	0.94	0.25	0.37	0.38	0.18	0.27	0.29
Avail Cap(c_a), veh/h	126	694	712	113	694	711	393	574	548	600	800	699
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	19.7	19.7	32.3	19.0	19.1	16.6	16.7	16.8	11.7	10.9	10.9
Incr Delay (d2), s/veh	37.7	32.0	32.6	16.3	22.2	22.4	1.5	1.8	2.0	0.1	0.8	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	7.0	7.3	1.0	5.0	5.2	0.4	0.7	0.7	0.0	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.8	51.6	52.3	48.6	41.3	41.4	18.1	18.5	18.8	11.7	11.7	12.0
LnGrp LOS	E	D	D	D	D	D	B	B	B	B	B	B
Approach Vol, veh/h		1495			1381			519			501	
Approach Delay, s/veh		53.2			41.7			18.5			11.8	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.5	26.0		30.0		34.5		30.0				
Change Period (Y+Rc), s	4.0	5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s	10.0	21.0		25.0		25.0		25.0				
Max Q Clear Time (g_c+I1), s	3.7	8.1		27.0		7.4		27.0				
Green Ext Time (p_c), s	0.1	5.4		0.0		6.0		0.0				

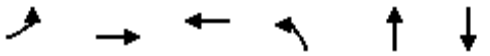
Intersection Summary			
HCM 6th Ctrl Delay		39.2	
HCM 6th LOS		D	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	1153	28	33	1229	68	35	255	87	51	247	75
Future Volume (veh/h)	44	1153	28	33	1229	68	35	255	87	51	247	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	0.97		0.93	0.97		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	46	1201	29	34	1280	71	36	266	91	53	257	78
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	0	0	0	0	0	0	0	0	0
Cap, veh/h	87	1749	44	78	1851	102	108	672	218	142	616	185
Arrive On Green	0.57	0.57	0.57	0.57	0.57	0.57	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	55	3061	76	42	3240	178	169	2353	761	268	2158	647
Grp Volume(v), veh/h	629	0	647	712	0	673	211	0	182	202	0	186
Grp Sat Flow(s),veh/h/ln	1491	0	1700	1769	0	1691	1758	0	1525	1526	0	1546
Q Serve(g_s), s	3.0	0.0	18.4	0.0	0.0	19.8	0.0	0.0	6.8	1.0	0.0	6.9
Cycle Q Clear(g_c), s	22.9	0.0	18.4	18.0	0.0	19.8	6.2	0.0	6.8	7.8	0.0	6.9
Prop In Lane	0.07		0.04	0.05		0.11	0.17		0.50	0.26		0.42
Lane Grp Cap(c), veh/h	907	0	972	1065	0	967	562	0	436	501	0	442
V/C Ratio(X)	0.69	0.00	0.67	0.67	0.00	0.70	0.37	0.00	0.42	0.40	0.00	0.42
Avail Cap(c_a), veh/h	907	0	972	1065	0	967	562	0	436	501	0	442
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.9	0.0	10.4	10.3	0.0	10.7	20.1	0.0	20.3	20.1	0.0	20.3
Incr Delay (d2), s/veh	4.3	0.0	3.6	3.3	0.0	4.2	1.9	0.0	2.9	2.4	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	1.0	1.0	0.0	1.1	1.2	0.0	1.1	1.2	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.2	0.0	14.0	13.6	0.0	14.8	22.0	0.0	23.2	22.5	0.0	23.3
LnGrp LOS	B	A	B	B	A	B	C	A	C	C	A	C
Approach Vol, veh/h		1276			1385			393			388	
Approach Delay, s/veh		14.1			14.2			22.6			22.9	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	25.0	45.0	25.0	45.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	20.0	40.0	20.0	40.0
Max Q Clear Time (g_c+I1), s	8.8	24.9	9.8	21.8
Green Ext Time (p_c), s	4.1	13.3	3.8	16.2

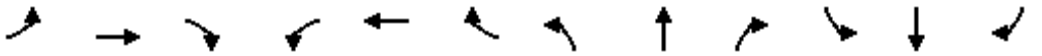
Intersection Summary	
HCM 6th Ctrl Delay	16.1
HCM 6th LOS	B



Lane Group	EBL	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	35	77	449	205	577	477
v/c Ratio	0.16	0.15	0.78	0.60	0.39	0.32
Control Delay	18.8	5.5	33.4	22.0	12.2	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.8	5.5	33.4	22.0	12.2	11.1
Queue Length 50th (m)	3.3	0.2	62.0	19.2	24.4	18.6
Queue Length 95th (m)	9.0	7.1	#91.5	38.0	32.7	25.8
Internal Link Dist (m)		70.4	262.7		65.2	96.3
Turn Bay Length (m)				27.0		
Base Capacity (vph)	216	516	574	344	1465	1488
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.15	0.78	0.60	0.39	0.32

Intersection Summary

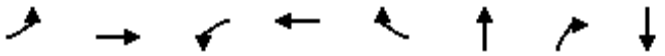
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	2	64	31	301	50	174	468	22	0	367	38
Future Volume (veh/h)	30	2	64	31	301	50	174	468	22	0	367	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.91	0.93		0.91	0.95		0.68	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1683	1710	1710	1683	1683	1683	1670	1643	1643	0	1617	1617
Adj Flow Rate, veh/h	35	2	75	36	354	59	205	551	26	0	432	45
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	0	0	2	2	2	3	5	5	0	7	7
Cap, veh/h	282	12	464	78	469	75	419	1501	70	0	1396	144
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.51	0.51	0.51	0.00	0.51	0.51
Sat Flow, veh/h	853	34	1290	73	1301	208	780	2963	139	0	2837	284
Grp Volume(v), veh/h	35	0	77	449	0	0	205	289	288	0	239	238
Grp Sat Flow(s),veh/h/ln	853	0	1324	1583	0	0	780	1561	1541	0	1536	1504
Q Serve(g_s), s	0.0	0.0	3.0	7.7	0.0	0.0	15.7	8.4	8.5	0.0	6.8	7.0
Cycle Q Clear(g_c), s	5.0	0.0	3.0	18.8	0.0	0.0	22.6	8.4	8.5	0.0	6.8	7.0
Prop In Lane	1.00		0.97	0.08		0.13	1.00		0.09	0.00		0.19
Lane Grp Cap(c), veh/h	282	0	477	622	0	0	419	791	781	0	778	762
V/C Ratio(X)	0.12	0.00	0.16	0.72	0.00	0.00	0.49	0.37	0.37	0.00	0.31	0.31
Avail Cap(c_a), veh/h	282	0	477	622	0	0	419	791	781	0	778	762
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	0.0	16.3	21.3	0.0	0.0	17.5	11.2	11.2	0.0	10.8	10.8
Incr Delay (d2), s/veh	0.9	0.0	0.7	7.1	0.0	0.0	4.1	1.3	1.3	0.0	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.3	2.9	0.0	0.0	0.9	0.3	0.3	0.0	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.9	0.0	17.0	28.4	0.0	0.0	21.5	12.5	12.6	0.0	11.8	11.9
LnGrp LOS	B	A	B	C	A	A	C	B	B	A	B	B
Approach Vol, veh/h		112			449			782			477	
Approach Delay, s/veh		17.3			28.4			14.9			11.9	
Approach LOS		B			C			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		43.0		32.0		43.0		32.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		38.0		27.0		38.0		27.0				
Max Q Clear Time (g_c+I1), s		24.6		7.0		9.0		20.8				
Green Ext Time (p_c), s		7.9		1.2		8.6		3.0				

Intersection Summary												
HCM 6th Ctrl Delay			17.6									
HCM 6th LOS			B									

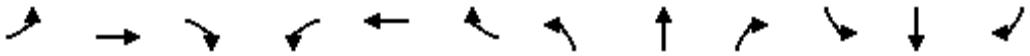


Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	59	1098	100	1439	75	698	145	475
v/c Ratio	0.28	0.66	0.36	1.11	0.17	0.73	0.31	0.35
Control Delay	12.5	22.3	13.1	87.4	4.7	25.5	5.5	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	22.3	13.1	87.4	4.7	25.5	5.5	12.7
Queue Length 50th (m)	3.8	45.5	6.5	~129.5	0.0	42.3	0.1	11.6
Queue Length 95th (m)	9.0	62.1	13.5	#174.2	6.9	#65.4	11.1	20.2
Internal Link Dist (m)		133.2		100.0		40.7		44.6
Turn Bay Length (m)	47.0		45.0		10.0		30.0	
Base Capacity (vph)	284	1661	344	1292	436	957	462	1343
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.66	0.29	1.11	0.17	0.73	0.31	0.35

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	1018	48	97	1396	73	131	546	141	62	270	129
Future Volume (veh/h)	57	1018	48	97	1396	73	131	546	141	62	270	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.72	0.97		0.73	0.84		0.65	0.92		0.65
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1381	1811	1811	1767	1796	1856	1856	1856	1885	1796	1796	1796
Adj Flow Rate, veh/h	59	1049	49	100	1439	75	135	563	145	64	278	133
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	35	6	6	9	7	3	3	3	1	7	7	7
Cap, veh/h	170	1669	78	289	1244	417	223	806	394	175	716	295
Arrive On Green	0.05	0.35	0.35	0.06	0.36	0.36	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	1316	4747	221	1682	3413	1144	377	2115	1034	226	1878	774
Grp Volume(v), veh/h	59	727	371	100	1439	75	268	430	145	94	210	171
Grp Sat Flow(s),veh/h/ln	1316	1648	1672	1682	1706	1144	888	1604	1034	394	1487	997
Q Serve(g_s), s	1.9	12.5	12.6	2.5	24.9	3.0	11.6	15.5	6.9	5.2	7.0	8.8
Cycle Q Clear(g_c), s	1.9	12.5	12.6	2.5	24.9	3.0	20.4	15.5	6.9	20.7	7.0	8.8
Prop In Lane	1.00		0.13	1.00		1.00	0.50		1.00	0.68		0.78
Lane Grp Cap(c), veh/h	170	1159	588	289	1244	417	418	611	394	239	567	380
V/C Ratio(X)	0.35	0.63	0.63	0.35	1.16	0.18	0.64	0.70	0.37	0.39	0.37	0.45
Avail Cap(c_a), veh/h	318	1159	588	455	1244	417	418	611	394	239	567	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	18.4	18.4	13.9	21.7	14.7	20.7	17.9	15.2	22.0	15.2	15.8
Incr Delay (d2), s/veh	1.2	2.6	5.1	0.7	79.8	0.9	7.4	6.7	2.6	4.8	1.9	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.2	1.6	0.1	15.2	0.2	1.2	1.8	0.5	0.4	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.2	21.0	23.5	14.7	101.5	15.7	28.1	24.5	17.8	26.8	17.1	19.6
LnGrp LOS	B	C	C	B	F	B	C	C	B	C	B	B
Approach Vol, veh/h		1157			1614			843			475	
Approach Delay, s/veh		21.6			92.2			24.5			19.9	
Approach LOS		C			F			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	29.9		31.0	8.2	29.0		31.0				
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0				
Max Green Setting (Gmax), s	11.0	24.0		26.0	11.0	24.0		26.0				
Max Q Clear Time (g_c+I1), s	3.9	26.9		22.4	4.5	14.6		22.7				
Green Ext Time (p_c), s	0.1	0.0		2.8	0.2	7.8		1.8				

Intersection Summary			
HCM 6th Ctrl Delay		49.9	
HCM 6th LOS		D	



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1258	134	1482	132	104
v/c Ratio	0.62	0.27	0.41	0.39	0.24
Control Delay	19.0	7.1	6.4	27.6	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	7.1	6.4	27.6	7.7
Queue Length 50th (m)	51.6	6.4	34.1	15.5	0.0
Queue Length 95th (m)	65.8	13.6	42.6	30.1	11.4
Internal Link Dist (m)	116.0		74.6	30.2	
Turn Bay Length (m)		20.0			
Base Capacity (vph)	2041	497	3620	411	432
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.62	0.27	0.41	0.32	0.24

Intersection Summary

HCM 6th Edition methodology does not support Non-NEMA phasing.

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1200	1551	347	0	17
Future Vol, veh/h	0	1200	1551	347	0	17
Conflicting Peds, #/hr	97	0	0	97	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	100
Mvmt Flow	0	1412	1825	408	0	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1214
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	9.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	4.9
Pot Cap-1 Maneuver	0	-	-	-	0	70
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	63
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	86.8
HCM LOS			F

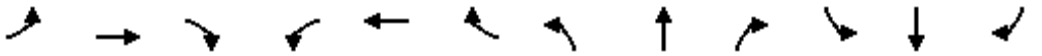
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	63
HCM Lane V/C Ratio	-	-	-	0.317
HCM Control Delay (s)	-	-	-	86.8
HCM Lane LOS	-	-	-	F
HCM 95th %tile Q(veh)	-	-	-	1.1



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	55	1208	77	1783	156	252	119	91	415
v/c Ratio	0.60	0.51	0.50	0.75	0.67	0.37	0.22	0.27	0.63
Control Delay	46.3	13.5	26.5	17.8	35.0	18.5	13.0	19.0	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.3	13.5	26.5	17.8	35.0	18.5	13.0	19.0	24.3
Queue Length 50th (m)	5.3	39.0	6.9	69.9	20.3	30.4	10.9	8.8	46.4
Queue Length 95th (m)	#24.0	50.1	#22.7	87.3	m#37.8	m47.2	m21.3	19.4	74.8
Internal Link Dist (m)		20.3		77.8		85.4			178.0
Turn Bay Length (m)	25.0		35.0		28.0		8.0	40.0	
Base Capacity (vph)	92	2355	155	2372	234	688	533	343	655
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.51	0.50	0.75	0.67	0.37	0.22	0.27	0.63

Intersection Summary

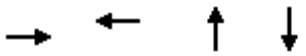
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	1052	96	73	1652	42	148	239	113	86	296	98
Future Volume (veh/h)	52	1052	96	73	1652	42	148	239	113	86	296	98
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.88	0.99		0.86	0.95		0.88	0.94		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1811	1811	1856	1796	1796	1870	1856	1885	1856	1870	1870
Adj Flow Rate, veh/h	55	1107	101	77	1739	44	156	252	119	91	312	103
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	9	6	6	3	7	7	2	3	1	3	2	2
Cap, veh/h	150	2246	205	246	2416	61	256	693	523	354	482	159
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	251	4553	415	455	4896	124	925	1856	1400	940	1290	426
Grp Volume(v), veh/h	55	801	407	77	1161	622	156	252	119	91	0	415
Grp Sat Flow(s),veh/h/ln	251	1648	1671	455	1635	1751	925	1856	1400	940	0	1716
Q Serve(g_s), s	16.0	12.2	12.2	10.2	20.9	21.0	12.6	7.4	4.4	5.8	0.0	15.0
Cycle Q Clear(g_c), s	37.0	12.2	12.2	22.5	20.9	21.0	27.6	7.4	4.4	13.2	0.0	15.0
Prop In Lane	1.00		0.25	1.00		0.07	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	150	1626	824	246	1613	864	256	693	523	354	0	641
V/C Ratio(X)	0.37	0.49	0.49	0.31	0.72	0.72	0.61	0.36	0.23	0.26	0.00	0.65
Avail Cap(c_a), veh/h	150	1626	824	246	1613	864	256	693	523	354	0	641
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.7	12.7	12.7	20.2	14.9	14.9	30.8	17.0	16.1	21.8	0.0	19.4
Incr Delay (d2), s/veh	6.8	1.1	2.1	3.3	2.8	5.2	10.3	1.5	1.0	1.7	0.0	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.2	0.5	0.5	0.6	1.2	2.0	1.0	0.5	0.6	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.5	13.8	14.8	23.5	17.7	20.1	41.1	18.5	17.1	23.6	0.0	24.4
LnGrp LOS	D	B	B	C	B	C	D	B	B	C	A	C
Approach Vol, veh/h		1263			1860			527			506	
Approach Delay, s/veh		15.1			18.8			24.9			24.3	
Approach LOS		B			B			C			C	

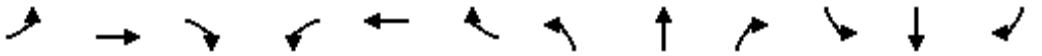
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		33.0		42.0		33.0		42.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		28.0		37.0		28.0		37.0				
Max Q Clear Time (g_c+I1), s		29.6		39.0		17.0		24.5				
Green Ext Time (p_c), s		0.0		0.0		4.9		12.1				

Intersection Summary												
HCM 6th Ctrl Delay			19.1									
HCM 6th LOS			B									



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	30	79	883	540
v/c Ratio	0.07	0.23	0.47	0.29
Control Delay	4.2	9.3	10.3	8.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.2	9.3	10.3	8.7
Queue Length 50th (m)	0.0	1.9	30.2	15.8
Queue Length 95th (m)	3.1	9.6	40.3	22.7
Internal Link Dist (m)	130.6	115.6	180.5	19.3
Turn Bay Length (m)				
Base Capacity (vph)	496	411	2846	2815
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.06	0.19	0.31	0.19

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	15	28	0	39	20	714	16	12	430	17
Future Volume (veh/h)	10	0	15	28	0	39	20	714	16	12	430	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.60		0.82	0.83		0.53	0.89		0.67	0.95		0.67
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	0	18	33	0	46	24	840	19	14	506	20
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	194	30	207	190	22	174	84	1725	38	78	1683	65
Arrive On Green	0.31	0.00	0.31	0.31	0.00	0.31	0.52	0.52	0.52	0.52	0.52	0.52
Sat Flow, veh/h	354	97	677	338	70	569	39	3348	75	27	3266	127
Grp Volume(v), veh/h	30	0	0	79	0	0	464	0	419	286	0	254
Grp Sat Flow(s),veh/h/ln	1128	0	0	978	0	0	1816	0	1645	1814	0	1606
Q Serve(g_s), s	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	9.7	0.0	0.0	5.4
Cycle Q Clear(g_c), s	0.8	0.0	0.0	3.2	0.0	0.0	9.4	0.0	9.7	5.1	0.0	5.4
Prop In Lane	0.40		0.60	0.42		0.58	0.05		0.05	0.05		0.08
Lane Grp Cap(c), veh/h	431	0	0	386	0	0	1000	0	847	999	0	827
V/C Ratio(X)	0.07	0.00	0.00	0.20	0.00	0.00	0.46	0.00	0.49	0.29	0.00	0.31
Avail Cap(c_a), veh/h	440	0	0	394	0	0	1467	0	1287	1453	0	1257
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.4	0.0	0.0	15.2	0.0	0.0	9.2	0.0	9.3	8.2	0.0	8.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.4	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	0.0	0.0	15.5	0.0	0.0	9.5	0.0	9.7	8.3	0.0	8.4
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		30			79			883			540	
Approach Delay, s/veh		14.5			15.5			9.6			8.4	
Approach LOS		B			B			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.3		22.5		36.3		22.5				
Change Period (Y+Rc), s		6.0		4.5		6.0		4.5				
Max Green Setting (Gmax), s		46.0		18.5		46.0		18.5				
Max Q Clear Time (g_c+I1), s		11.7		2.8		7.4		5.2				
Green Ext Time (p_c), s		18.5		0.2		11.2		0.8				

Intersection Summary												
HCM 6th Ctrl Delay			9.6									
HCM 6th LOS			A									

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	28	12	24	30	51	67
Future Vol, veh/h	28	12	24	30	51	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	13	26	33	55	73

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	59	0	-	0	116	43
Stage 1	-	-	-	-	43	-
Stage 2	-	-	-	-	73	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1545	-	-	-	880	1027
Stage 1	-	-	-	-	979	-
Stage 2	-	-	-	-	950	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1545	-	-	-	862	1027
Mov Cap-2 Maneuver	-	-	-	-	862	-
Stage 1	-	-	-	-	959	-
Stage 2	-	-	-	-	950	-

Approach	EB	WB	SB
HCM Control Delay, s	5.2	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1545	-	-	-	949
HCM Lane V/C Ratio	0.02	-	-	-	0.135
HCM Control Delay (s)	7.4	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

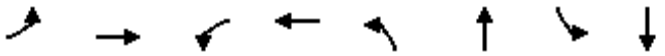
Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	32	53	42	501	402	18
Future Vol, veh/h	32	53	42	501	402	18
Conflicting Peds, #/hr	0	144	144	0	0	23
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	36	60	48	569	457	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1276	755	621	0	-	0
Stage 1	611	-	-	-	-	-
Stage 2	665	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	186	412	969	-	-	-
Stage 1	546	-	-	-	-	-
Stage 2	515	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	126	305	834	-	-	-
Mov Cap-2 Maneuver	126	-	-	-	-	-
Stage 1	431	-	-	-	-	-
Stage 2	443	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	39.1	0.7	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	834	-	199	-	-
HCM Lane V/C Ratio	0.057	-	0.485	-	-
HCM Control Delay (s)	9.6	0	39.1	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.2	-	2.4	-	-

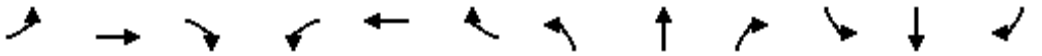


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	117	1481	63	1540	112	661	59	357
v/c Ratio	1.12	0.87	0.61	0.91	0.40	0.65	0.22	0.29
Control Delay	152.9	25.2	45.5	28.2	26.9	25.5	15.1	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	152.9	25.2	45.5	28.2	26.9	25.5	15.1	15.3
Queue Length 50th (m)	~20.3	99.2	6.6	106.0	12.9	42.6	4.8	16.3
Queue Length 95th (m)	#50.0	#147.2	#26.6	#156.8	27.5	60.1	11.1	25.2
Internal Link Dist (m)		139.0		257.0		139.7		180.5
Turn Bay Length (m)	25.0		27.0		27.0		30.0	
Base Capacity (vph)	104	1693	104	1691	277	1024	267	1431
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.87	0.61	0.91	0.40	0.65	0.22	0.25

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

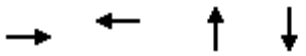
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	1400	51	62	1427	82	110	589	59	58	243	107
Future Volume (veh/h)	115	1400	51	62	1427	82	110	589	59	58	243	107
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	0.87		0.79	0.96		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	117	1429	52	63	1456	84	112	601	60	59	248	109
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	119	1622	59	131	1583	91	354	911	90	289	924	381
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.29	0.29	0.29	0.06	0.40	0.40
Sat Flow, veh/h	337	3492	127	356	3407	196	892	3175	315	1781	2317	955
Grp Volume(v), veh/h	117	726	755	63	756	784	112	335	326	59	186	171
Grp Sat Flow(s),veh/h/ln	337	1777	1842	356	1777	1826	892	1777	1713	1781	1777	1495
Q Serve(g_s), s	4.5	27.1	27.3	6.7	29.0	29.5	7.5	12.1	12.3	1.6	5.2	5.7
Cycle Q Clear(g_c), s	34.0	27.1	27.3	34.0	29.0	29.5	7.5	12.1	12.3	1.6	5.2	5.7
Prop In Lane	1.00		0.07	1.00		0.11	1.00		0.18	1.00		0.64
Lane Grp Cap(c), veh/h	119	825	855	131	825	848	354	510	492	289	709	596
V/C Ratio(X)	0.98	0.88	0.88	0.48	0.92	0.92	0.32	0.66	0.66	0.20	0.26	0.29
Avail Cap(c_a), veh/h	119	825	855	131	825	848	354	510	492	333	709	596
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	17.7	17.8	34.8	18.3	18.4	21.3	22.9	23.0	16.5	14.8	14.9
Incr Delay (d2), s/veh	77.5	12.8	12.8	12.0	16.6	17.2	2.3	6.5	6.9	0.1	0.9	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	3.3	3.5	1.0	4.2	4.5	0.7	2.5	2.5	0.1	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	113.7	30.6	30.6	46.9	34.9	35.5	23.6	29.4	29.9	16.6	15.7	16.1
LnGrp LOS	F	C	C	D	C	D	C	C	C	B	B	B
Approach Vol, veh/h		1598			1603			773			416	
Approach Delay, s/veh		36.7			35.7			28.8			16.0	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.2	26.0		39.0		34.2		39.0				
Change Period (Y+Rc), s	4.0	5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s	6.0	21.0		34.0		21.0		34.0				
Max Q Clear Time (g_c+I1), s	3.6	14.3		36.0		7.7		36.0				
Green Ext Time (p_c), s	0.0	4.5		0.0		4.1		0.0				

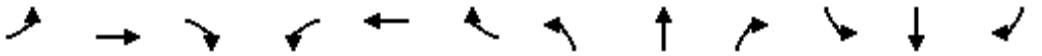
Intersection Summary			
HCM 6th Ctrl Delay		32.9	
HCM 6th LOS		C	



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	1506	1724	460	501
v/c Ratio	0.95	0.85	0.49	0.69
Control Delay	30.1	18.3	22.4	25.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	30.1	18.3	22.4	25.5
Queue Length 50th (m)	95.4	95.5	26.0	34.9
Queue Length 95th (m)	#152.2	128.0	39.2	52.3
Internal Link Dist (m)	257.0	147.5	13.0	180.5
Turn Bay Length (m)				
Base Capacity (vph)	1585	2036	934	726
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.95	0.85	0.49	0.69

Intersection Summary

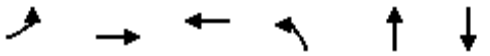
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	1398	16	0	1503	152	22	331	88	106	311	64
Future Volume (veh/h)	32	1398	16	0	1503	152	22	331	88	106	311	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	0.99		0.97	0.99		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1900	1900	1900	1870	1870	1870	1885	1885	1885
Adj Flow Rate, veh/h	33	1456	17	0	1566	158	23	345	92	110	324	67
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	0	0	0	2	2	2	1	1	1
Cap, veh/h	62	1719	22	0	1897	189	76	764	196	179	537	120
Arrive On Green	0.57	0.57	0.57	0.00	0.57	0.57	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	21	2998	38	0	3403	330	80	2605	669	371	1832	410
Grp Volume(v), veh/h	735	0	771	0	846	878	246	0	214	236	0	265
Grp Sat Flow(s),veh/h/ln	1349	0	1708	0	1805	1833	1798	0	1556	993	0	1620
Q Serve(g_s), s	9.9	0.0	26.3	0.0	28.2	29.4	0.0	0.0	8.4	9.7	0.0	10.3
Cycle Q Clear(g_c), s	39.3	0.0	26.3	0.0	28.2	29.4	8.0	0.0	8.4	18.1	0.0	10.3
Prop In Lane	0.04		0.02	0.00		0.18	0.09		0.43	0.47		0.25
Lane Grp Cap(c), veh/h	823	0	979	0	1035	1051	580	0	456	362	0	475
V/C Ratio(X)	0.89	0.00	0.79	0.00	0.82	0.84	0.42	0.00	0.47	0.65	0.00	0.56
Avail Cap(c_a), veh/h	823	0	979	0	1035	1051	580	0	456	362	0	475
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.6	0.0	12.4	0.0	12.9	13.1	21.6	0.0	21.7	26.2	0.0	22.4
Incr Delay (d2), s/veh	14.1	0.0	6.4	0.0	7.2	7.9	2.3	0.0	3.4	8.9	0.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	1.7	0.0	2.1	2.3	1.5	0.0	1.5	2.0	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.7	0.0	18.8	0.0	20.0	21.0	23.8	0.0	25.1	35.1	0.0	27.0
LnGrp LOS	C	A	B	A	C	C	C	A	C	D	A	C
Approach Vol, veh/h		1506			1724			460			501	
Approach Delay, s/veh		22.6			20.5			24.4			30.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		27.0		48.0		27.0		48.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		22.0		43.0		22.0		43.0				
Max Q Clear Time (g_c+I1), s		10.4		41.3		20.1		31.4				
Green Ext Time (p_c), s		4.8		1.7		1.1		11.2				

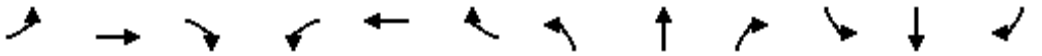
Intersection Summary												
HCM 6th Ctrl Delay			22.9									
HCM 6th LOS			C									



Lane Group	EBL	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	11	12	294	90	495	737
v/c Ratio	0.04	0.02	0.49	0.45	0.36	0.49
Control Delay	15.3	11.5	14.9	22.9	13.9	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.3	11.5	14.9	22.9	13.9	15.8
Queue Length 50th (m)	1.0	0.5	38.2	8.7	23.3	38.4
Queue Length 95th (m)	4.0	3.6	m63.7	22.8	34.0	53.1
Internal Link Dist (m)		70.4	262.7		65.2	96.3
Turn Bay Length (m)				22.0		
Base Capacity (vph)	294	489	604	202	1389	1491
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.02	0.49	0.45	0.36	0.49

Intersection Summary

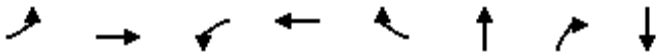
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1	10	6	188	73	82	427	24	0	666	5
Future Volume (veh/h)	10	1	10	6	188	73	82	427	24	0	666	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.90		0.78	0.79		0.78	0.95		0.56	1.00		0.67
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1683	1710	1710	1710	1710	1710	1697	1683	1683	0	1670	1670
Adj Flow Rate, veh/h	11	1	11	7	207	80	90	469	26	0	732	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	0	0	0	0	0	1	2	2	0	3	3
Cap, veh/h	386	39	427	50	431	163	289	1398	76	0	1528	10
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.47	0.47	0.47	0.00	0.47	0.47
Sat Flow, veh/h	889	97	1067	10	1077	407	621	2944	161	0	3301	22
Grp Volume(v), veh/h	11	0	12	294	0	0	90	252	243	0	361	376
Grp Sat Flow(s),veh/h/ln	889	0	1164	1494	0	0	621	1599	1505	0	1586	1653
Q Serve(g_s), s	0.0	0.0	0.5	0.0	0.0	0.0	9.2	7.8	8.1	0.0	12.4	12.4
Cycle Q Clear(g_c), s	1.1	0.0	0.5	11.7	0.0	0.0	21.6	7.8	8.1	0.0	12.4	12.4
Prop In Lane	1.00		0.92	0.02		0.27	1.00		0.11	0.00		0.01
Lane Grp Cap(c), veh/h	386	0	465	644	0	0	289	760	715	0	754	785
V/C Ratio(X)	0.03	0.00	0.03	0.46	0.00	0.00	0.31	0.33	0.34	0.00	0.48	0.48
Avail Cap(c_a), veh/h	386	0	465	644	0	0	289	760	715	0	754	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	14.7	0.0	14.6	17.9	0.0	0.0	21.6	13.1	13.1	0.0	14.3	14.3
Incr Delay (d2), s/veh	0.1	0.0	0.1	2.3	0.0	0.0	2.8	1.2	1.3	0.0	2.2	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.1	1.5	0.0	0.0	0.7	0.7	0.7	0.0	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.9	0.0	14.7	20.2	0.0	0.0	24.4	14.3	14.4	0.0	16.4	16.4
LnGrp LOS	B	A	B	C	A	A	C	B	B	A	B	B
Approach Vol, veh/h		23			294			585			737	
Approach Delay, s/veh		14.8			20.2			15.9			16.4	
Approach LOS		B			C			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		43.0		37.0		43.0		37.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		38.0		32.0		38.0		32.0				
Max Q Clear Time (g_c+I1), s		23.6		3.1		14.4		13.7				
Green Ext Time (p_c), s		7.0		0.2		12.3		4.4				

Intersection Summary												
HCM 6th Ctrl Delay			16.9									
HCM 6th LOS			B									

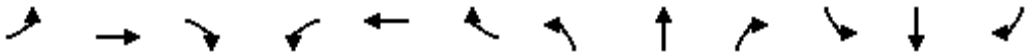


Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	109	1819	164	1317	35	459	139	755
v/c Ratio	0.44	1.01	0.54	0.93	0.07	0.51	0.36	0.60
Control Delay	15.1	49.6	18.0	37.1	0.6	23.7	6.7	22.6
Queue Delay	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0
Total Delay	15.1	49.6	18.0	37.9	0.6	23.7	6.7	22.6
Queue Length 50th (m)	7.2	~98.2	11.1	99.4	0.0	28.3	0.0	31.1
Queue Length 95th (m)	14.9	#139.2	25.5	#154.7	0.8	43.5	11.9	44.6
Internal Link Dist (m)		133.2		109.7		40.7		44.6
Turn Bay Length (m)	47.0		45.0		10.0		30.0	
Base Capacity (vph)	301	1801	344	1415	472	893	390	1252
Starvation Cap Reductn	0	0	0	18	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	1.01	0.48	0.94	0.07	0.51	0.36	0.60

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	1571	139	154	1238	33	55	376	131	84	507	119
Future Volume (veh/h)	102	1571	139	154	1238	33	55	376	131	84	507	119
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.73	1.00		0.74	0.89		0.59	0.85		0.59
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1648	1856	1856	1885	1841	1900	1870	1870	1885	1856	1856	1856
Adj Flow Rate, veh/h	109	1671	148	164	1317	35	59	400	139	89	539	127
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	17	3	3	1	4	0	2	2	1	3	3	3
Cap, veh/h	211	1769	156	250	1414	485	132	763	327	169	896	199
Arrive On Green	0.06	0.39	0.39	0.08	0.40	0.40	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1570	4583	403	1795	3497	1199	193	2205	944	287	2590	574
Grp Volume(v), veh/h	109	1229	590	164	1317	35	162	297	139	195	313	247
Grp Sat Flow(s),veh/h/ln	1570	1689	1609	1795	1749	1199	782	1617	944	798	1537	1116
Q Serve(g_s), s	3.1	26.4	26.7	4.0	27.0	1.3	3.8	11.1	8.5	8.2	12.6	14.0
Cycle Q Clear(g_c), s	3.1	26.4	26.7	4.0	27.0	1.3	17.7	11.1	8.5	19.2	12.6	14.0
Prop In Lane	1.00		0.25	1.00		1.00	0.36		1.00	0.46		0.51
Lane Grp Cap(c), veh/h	211	1304	621	250	1414	485	336	560	327	346	532	386
V/C Ratio(X)	0.52	0.94	0.95	0.66	0.93	0.07	0.48	0.53	0.43	0.56	0.59	0.64
Avail Cap(c_a), veh/h	341	1304	621	367	1414	485	336	560	327	346	532	386
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.6	22.3	22.4	17.3	21.4	13.7	20.5	19.7	18.8	23.2	20.2	20.6
Incr Delay (d2), s/veh	2.0	14.5	25.8	2.9	12.3	0.3	4.9	3.6	4.0	6.5	4.7	7.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	5.1	6.8	0.3	4.7	0.1	1.1	1.8	0.9	1.4	2.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.5	36.8	48.1	20.2	33.7	14.0	25.4	23.3	22.9	29.7	24.9	28.5
LnGrp LOS	B	D	D	C	C	B	C	C	C	C	C	C
Approach Vol, veh/h		1928			1516			598			755	
Approach Delay, s/veh		39.3			31.8			23.8			27.3	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	35.4		31.0	10.1	34.0		31.0				
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0				
Max Green Setting (Gmax), s	11.0	29.0		26.0	11.0	29.0		26.0				
Max Q Clear Time (g_c+I1), s	5.1	29.0		19.7	6.0	28.7		21.2				
Green Ext Time (p_c), s	0.2	0.0		3.6	0.3	0.3		3.5				

Intersection Summary			
HCM 6th Ctrl Delay		33.1	
HCM 6th LOS		C	



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1860	161	1311	174	169
v/c Ratio	0.72	0.50	0.37	0.56	0.40
Control Delay	15.7	12.8	4.9	34.3	7.9
Queue Delay	0.3	0.0	0.0	0.0	0.0
Total Delay	16.0	12.8	4.9	34.3	7.9
Queue Length 50th (m)	60.3	5.6	20.4	21.0	0.0
Queue Length 95th (m)	103.2	22.1	35.0	40.9	14.4
Internal Link Dist (m)	109.7		80.9	36.9	
Turn Bay Length (m)		20.0			
Base Capacity (vph)	2701	427	3985	462	539
Starvation Cap Reductn	269	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.76	0.38	0.33	0.38	0.31

Intersection Summary

HCM 6th Edition methodology does not support Non-NEMA phasing.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1787	1393	269	0	21
Future Vol, veh/h	0	1787	1393	269	0	21
Conflicting Peds, #/hr	0	0	0	0	15	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1881	1466	283	0	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	875
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	-	0	251
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	251
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	20.7
HCM LOS			C

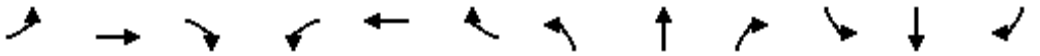
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	251
HCM Lane V/C Ratio	-	-	-	0.088
HCM Control Delay (s)	-	-	-	20.7
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.3



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	85	1758	48	1693	12	233	105	175	460
v/c Ratio	0.92	0.68	0.52	0.64	0.07	0.35	0.22	0.56	0.72
Control Delay	101.8	15.5	37.9	14.9	33.9	36.4	29.9	29.6	29.7
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.8	15.8	37.9	14.9	33.9	36.4	29.9	29.6	29.7
Queue Length 50th (m)	11.1	66.9	4.5	62.8	1.6	33.1	10.5	21.2	58.7
Queue Length 95th (m)	#39.1	82.5	#21.1	77.5	m3.6	m48.0	m21.5	41.7	91.7
Internal Link Dist (m)		20.3		77.8		85.4			178.0
Turn Bay Length (m)	25.0		35.0		28.0		8.0	40.0	
Base Capacity (vph)	92	2601	92	2637	173	665	473	310	641
Starvation Cap Reductn	0	268	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.75	0.52	0.64	0.07	0.35	0.22	0.56	0.72

Intersection Summary

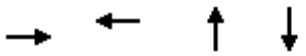
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	1626	80	47	1589	53	12	226	102	170	386	60
Future Volume (veh/h)	82	1626	80	47	1589	53	12	226	102	170	386	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.89	1.00		0.87	0.95		0.84	0.91		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1856	1856	1885	1870	1870	1900	1900	1870	1826	1885	1885
Adj Flow Rate, veh/h	85	1676	82	48	1638	55	12	233	105	175	398	62
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	3	3	1	2	2	0	0	2	5	1	1
Cap, veh/h	177	2580	126	167	2649	89	201	665	465	331	540	84
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	293	4914	240	275	5045	169	896	1900	1328	930	1543	240
Grp Volume(v), veh/h	85	1151	607	48	1105	588	12	233	105	175	0	460
Grp Sat Flow(s),veh/h/ln	293	1689	1777	275	1702	1810	896	1900	1328	930	0	1783
Q Serve(g_s), s	23.0	19.7	19.7	12.2	18.3	18.3	1.0	7.3	4.5	13.7	0.0	18.1
Cycle Q Clear(g_c), s	41.3	19.7	19.7	31.9	18.3	18.3	19.0	7.3	4.5	21.0	0.0	18.1
Prop In Lane	1.00		0.14	1.00		0.09	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	177	1773	933	167	1787	950	201	665	465	331	0	624
V/C Ratio(X)	0.48	0.65	0.65	0.29	0.62	0.62	0.06	0.35	0.23	0.53	0.00	0.74
Avail Cap(c_a), veh/h	177	1773	933	167	1787	950	201	665	465	331	0	624
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.9	13.7	13.7	25.2	13.4	13.4	31.1	19.3	18.4	27.0	0.0	22.8
Incr Delay (d2), s/veh	9.1	1.9	3.5	4.3	1.6	3.0	0.6	1.5	1.1	5.9	0.0	7.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.7	1.2	0.5	0.6	1.0	0.1	1.4	0.6	1.9	0.0	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.0	15.6	17.2	29.5	15.0	16.4	31.7	20.7	19.5	33.0	0.0	30.4
LnGrp LOS	D	B	B	C	B	B	C	C	B	C	A	C
Approach Vol, veh/h		1843			1741			350			635	
Approach Delay, s/veh		17.1			15.9			20.7			31.1	
Approach LOS		B			B			C			C	

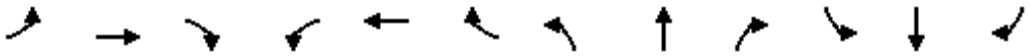
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		33.0		47.0		33.0		47.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		28.0		42.0		28.0		42.0				
Max Q Clear Time (g_c+I1), s		21.0		43.3		23.0		33.9				
Green Ext Time (p_c), s		2.1		0.0		3.0		7.8				

Intersection Summary												
HCM 6th Ctrl Delay			18.8									
HCM 6th LOS			B									



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	57	22	522	738
v/c Ratio	0.14	0.05	0.33	0.47
Control Delay	6.6	2.9	9.8	11.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	6.6	2.9	9.8	11.0
Queue Length 50th (m)	1.1	0.0	15.3	23.5
Queue Length 95th (m)	6.6	2.2	24.2	35.8
Internal Link Dist (m)	130.6	108.2	180.5	19.3
Turn Bay Length (m)				
Base Capacity (vph)	427	434	2996	2987
Starvation Cap Reductn	0	0	0	70
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.13	0.05	0.17	0.25

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	1	39	12	0	10	9	486	12	13	683	20
Future Volume (veh/h)	16	1	39	12	0	10	9	486	12	13	683	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.78		0.77	0.80		0.77	0.92		0.63	0.87		0.63
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	1	40	12	0	10	9	501	12	13	704	21
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	2	2	2	2	2	2
Cap, veh/h	164	41	284	287	25	175	75	1641	39	77	1623	48
Arrive On Green	0.32	0.32	0.32	0.32	0.00	0.32	0.49	0.49	0.49	0.49	0.49	0.49
Sat Flow, veh/h	246	128	880	574	79	544	15	3380	80	19	3343	98
Grp Volume(v), veh/h	57	0	0	22	0	0	276	0	246	393	0	345
Grp Sat Flow(s),veh/h/ln	1254	0	0	1197	0	0	1843	0	1632	1844	0	1617
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	7.6
Cycle Q Clear(g_c), s	1.6	0.0	0.0	0.5	0.0	0.0	4.9	0.0	5.0	7.5	0.0	7.6
Prop In Lane	0.28		0.70	0.55		0.45	0.03		0.05	0.03		0.06
Lane Grp Cap(c), veh/h	489	0	0	488	0	0	963	0	793	963	0	785
V/C Ratio(X)	0.12	0.00	0.00	0.05	0.00	0.00	0.29	0.00	0.31	0.41	0.00	0.44
Avail Cap(c_a), veh/h	507	0	0	506	0	0	1751	0	1521	1760	0	1507
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.1	0.0	0.0	12.7	0.0	0.0	8.5	0.0	8.5	9.2	0.0	9.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.2	0.0	0.0	12.8	0.0	0.0	8.7	0.0	8.7	9.4	0.0	9.6
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		57			22			522			738	
Approach Delay, s/veh		13.2			12.8			8.7			9.5	
Approach LOS		B			B			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		32.6		22.2		32.6		22.2				
Change Period (Y+Rc), s		6.0		4.5		6.0		4.5				
Max Green Setting (Gmax), s		51.0		18.5		51.0		18.5				
Max Q Clear Time (g_c+I1), s		7.0		3.6		9.6		2.5				
Green Ext Time (p_c), s		11.4		0.5		16.9		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			9.4									
HCM 6th LOS			A									

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	5	1	24	22	23
Future Vol, veh/h	25	5	1	24	22	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	5	1	26	24	25

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	27	0	-	0	73	14
Stage 1	-	-	-	-	14	-
Stage 2	-	-	-	-	59	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1587	-	-	-	931	1066
Stage 1	-	-	-	-	1009	-
Stage 2	-	-	-	-	964	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1587	-	-	-	915	1066
Mov Cap-2 Maneuver	-	-	-	-	915	-
Stage 1	-	-	-	-	992	-
Stage 2	-	-	-	-	964	-

Approach	EB	WB	SB
HCM Control Delay, s	6.1	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1587	-	-	-	986
HCM Lane V/C Ratio	0.017	-	-	-	0.05
HCM Control Delay (s)	7.3	0	-	-	8.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

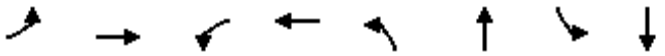
Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	21	46	44	302	476	19
Future Vol, veh/h	21	46	44	302	476	19
Conflicting Peds, #/hr	0	84	84	0	0	37
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	49	47	325	512	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1025	690	616	0	-	0
Stage 1	606	-	-	-	-	-
Stage 2	419	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	260	445	964	-	-	-
Stage 1	545	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	205	376	886	-	-	-
Mov Cap-2 Maneuver	205	-	-	-	-	-
Stage 1	468	-	-	-	-	-
Stage 2	610	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.9	1.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	886	-	298	-	-
HCM Lane V/C Ratio	0.053	-	0.242	-	-
HCM Control Delay (s)	9.3	0	20.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.2	-	0.9	-	-

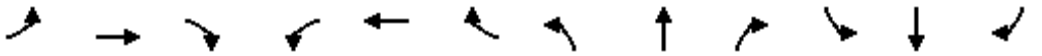


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	155	1668	60	1411	87	338	129	735
v/c Ratio	1.68	1.09	0.65	0.92	0.45	0.32	0.31	0.52
Control Delay	373.9	74.6	55.4	32.4	33.4	21.8	15.2	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	373.9	74.6	55.4	32.4	33.4	21.8	15.2	17.7
Queue Length 50th (m)	~34.9	~152.4	6.9	101.8	10.8	19.8	11.2	40.4
Queue Length 95th (m)	#57.1	#193.8	#27.2	#147.8	#28.9	32.2	21.1	55.7
Internal Link Dist (m)		139.0		257.0		139.7		180.5
Turn Bay Length (m)	25.0		27.0		27.0		30.0	
Base Capacity (vph)	92	1534	92	1536	195	1072	451	1421
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.68	1.09	0.65	0.92	0.45	0.32	0.29	0.52

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

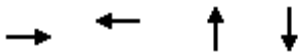
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	1572	79	59	1326	71	86	294	41	128	586	142
Future Volume (veh/h)	153	1572	79	59	1326	71	86	294	41	128	586	142
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	0.92		0.76	0.91		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	1588	80	60	1339	72	87	297	41	129	592	143
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	118	1502	75	90	1496	80	276	957	128	443	1189	285
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.32	0.32	0.32	0.07	0.44	0.44
Sat Flow, veh/h	381	3433	172	298	3418	183	667	3021	405	1781	2717	652
Grp Volume(v), veh/h	155	817	851	60	694	717	87	171	167	129	386	349
Grp Sat Flow(s),veh/h/ln	381	1777	1828	298	1777	1825	667	1777	1648	1781	1777	1593
Q Serve(g_s), s	5.9	35.0	35.0	0.0	28.9	29.1	8.6	5.8	6.2	3.7	12.5	12.6
Cycle Q Clear(g_c), s	35.0	35.0	35.0	35.0	28.9	29.1	11.6	5.8	6.2	3.7	12.5	12.6
Prop In Lane	1.00		0.09	1.00		0.10	1.00		0.25	1.00		0.41
Lane Grp Cap(c), veh/h	118	777	800	90	777	798	276	563	522	443	777	697
V/C Ratio(X)	1.31	1.05	1.06	0.67	0.89	0.90	0.31	0.30	0.32	0.29	0.50	0.50
Avail Cap(c_a), veh/h	118	777	800	90	777	798	276	563	522	539	777	697
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.3	22.5	22.5	40.0	20.8	20.8	23.9	20.7	20.8	15.4	16.2	16.2
Incr Delay (d2), s/veh	188.4	46.6	50.2	32.8	14.8	14.9	3.0	1.4	1.6	0.1	2.3	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	13.1	14.3	1.5	5.7	5.9	0.8	1.1	1.1	0.4	1.6	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	227.7	69.1	72.7	72.8	35.6	35.8	26.8	22.0	22.4	15.5	18.4	18.8
LnGrp LOS	F	F	F	E	D	D	C	C	C	B	B	B
Approach Vol, veh/h		1823			1471			425			864	
Approach Delay, s/veh		84.3			37.2			23.2			18.1	
Approach LOS		F			D			C			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.7	30.3		40.0		40.0		40.0				
Change Period (Y+Rc), s	4.0	5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s	10.0	21.0		35.0		35.0		35.0				
Max Q Clear Time (g_c+I1), s	5.7	13.6		37.0		14.6		37.0				
Green Ext Time (p_c), s	0.1	3.0		0.0		11.3		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		51.0	
HCM 6th LOS		D	

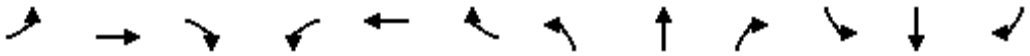


Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	1679	1635	388	605
v/c Ratio	0.89	1.02	0.41	0.76
Control Delay	22.7	46.8	22.2	35.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	22.7	46.8	22.2	35.3
Queue Length 50th (m)	107.7	~129.4	23.0	38.4
Queue Length 95th (m)	#148.4	#181.5	34.9	56.5
Internal Link Dist (m)	257.0	147.5	13.0	180.5
Turn Bay Length (m)				
Base Capacity (vph)	1895	1603	957	793
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.89	1.02	0.41	0.76

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



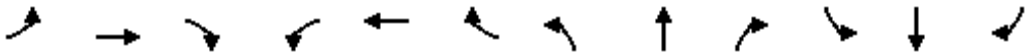
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1588	23	25	1434	110	25	285	62	139	425	16
Future Volume (veh/h)	1	1588	23	25	1434	110	25	285	62	139	425	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	0.99		0.95	0.98		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	1654	24	26	1494	115	26	297	65	145	443	17
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	45	1975	29	55	1599	130	82	792	172	216	664	27
Arrive On Green	0.56	0.56	0.56	0.56	0.56	0.56	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	0	3510	51	16	2842	231	100	2533	550	473	2123	88
Grp Volume(v), veh/h	880	0	799	810	0	825	202	0	186	279	0	326
Grp Sat Flow(s),veh/h/ln	1869	0	1692	1434	0	1654	1611	0	1572	1004	0	1680
Q Serve(g_s), s	0.0	0.0	31.3	13.7	0.0	34.8	0.3	0.0	7.4	14.9	0.0	13.2
Cycle Q Clear(g_c), s	31.1	0.0	31.3	45.0	0.0	34.8	13.5	0.0	7.4	22.3	0.0	13.2
Prop In Lane	0.00		0.03	0.03		0.14	0.13		0.35	0.52		0.05
Lane Grp Cap(c), veh/h	1097	0	952	853	0	930	554	0	491	382	0	525
V/C Ratio(X)	0.80	0.00	0.84	0.95	0.00	0.89	0.36	0.00	0.38	0.73	0.00	0.62
Avail Cap(c_a), veh/h	1097	0	952	853	0	930	554	0	491	382	0	525
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.5	0.0	14.5	15.6	0.0	15.3	21.2	0.0	21.4	28.6	0.0	23.5
Incr Delay (d2), s/veh	6.2	0.0	8.8	20.7	0.0	12.2	1.9	0.0	2.2	11.7	0.0	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	2.3	4.9	0.0	3.2	1.4	0.0	1.4	3.6	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.7	0.0	23.3	36.3	0.0	27.5	23.1	0.0	23.7	40.3	0.0	28.9
LnGrp LOS	C	A	C	D	A	C	C	A	C	D	A	C
Approach Vol, veh/h		1679			1635			388			605	
Approach Delay, s/veh		21.9			31.9			23.4			34.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		30.0		50.0		30.0		50.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		25.0		45.0		25.0		45.0				
Max Q Clear Time (g_c+I1), s		15.5		33.3		24.3		47.0				
Green Ext Time (p_c), s		3.5		11.3		0.5		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			27.6									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
1: Commercial Drive & North Grandview Highway

10/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	2	12	3	111	52	62	532	18	0	671	5
Future Volume (veh/h)	10	2	12	3	111	52	62	532	18	0	671	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.93		0.89	0.90		0.89	0.94		0.59	1.00		0.66
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1710	1710	1710	1710	1710	1710	1710	1683	1683	0	1670	1670
Adj Flow Rate, veh/h	11	2	13	3	122	57	68	585	20	0	737	5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	2	2	0	3	3
Cap, veh/h	497	68	445	54	408	187	297	1449	49	0	1517	10
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.47	0.47	0.47	0.00	0.47	0.47
Sat Flow, veh/h	1025	178	1154	5	1058	485	616	3074	105	0	3301	22
Grp Volume(v), veh/h	11	0	15	182	0	0	68	303	302	0	363	379
Grp Sat Flow(s),veh/h/ln	1025	0	1331	1548	0	0	616	1599	1580	0	1586	1653
Q Serve(g_s), s	0.0	0.0	0.5	0.0	0.0	0.0	6.0	8.6	8.7	0.0	11.0	11.0
Cycle Q Clear(g_c), s	0.5	0.0	0.5	5.7	0.0	0.0	16.9	8.6	8.7	0.0	11.0	11.0
Prop In Lane	1.00		0.87	0.02		0.31	1.00		0.07	0.00		0.01
Lane Grp Cap(c), veh/h	497	0	514	649	0	0	297	754	745	0	748	779
V/C Ratio(X)	0.02	0.00	0.03	0.28	0.00	0.00	0.23	0.40	0.41	0.00	0.49	0.49
Avail Cap(c_a), veh/h	497	0	514	649	0	0	297	754	745	0	748	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	0.0	13.4	15.0	0.0	0.0	18.5	12.1	12.1	0.0	12.7	12.7
Incr Delay (d2), s/veh	0.1	0.0	0.1	1.1	0.0	0.0	1.8	1.6	1.6	0.0	2.3	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.5	0.0	0.0	0.4	0.3	0.3	0.0	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.4	0.0	13.5	16.0	0.0	0.0	20.3	13.7	13.7	0.0	14.9	14.8
LnGrp LOS	B	A	B	B	A	A	C	B	B	A	B	B
Approach Vol, veh/h		26			182			673			742	
Approach Delay, s/veh		13.5			16.0			14.4			14.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		38.0		32.0		38.0		32.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		33.0		27.0		33.0		27.0				
Max Q Clear Time (g_c+I1), s		18.9		2.5		13.0		7.7				
Green Ext Time (p_c), s		7.8		0.2		11.1		2.5				

Intersection Summary												
HCM 6th Ctrl Delay			14.8									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	900	68	99	1055	43	75	415	123	69	339	97
Future Volume (veh/h)	93	900	68	99	1055	43	75	415	123	69	339	97
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.70	0.95		0.70	0.85		0.66	0.87		0.66
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1648	1856	1856	1900	1826	1856	1856	1856	1885	1856	1856	1856
Adj Flow Rate, veh/h	99	957	72	105	1122	46	80	441	131	73	361	103
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	17	3	3	0	5	3	3	3	1	3	3	3
Cap, veh/h	213	1447	108	301	1085	344	204	1004	427	224	1034	271
Arrive On Green	0.06	0.31	0.31	0.07	0.31	0.31	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1570	4647	347	1810	3469	1101	318	2480	1056	348	2554	669
Grp Volume(v), veh/h	99	693	336	105	1122	46	232	289	131	151	207	179
Grp Sat Flow(s),veh/h/ln	1570	1689	1617	1810	1735	1101	1193	1604	1056	871	1537	1163
Q Serve(g_s), s	2.7	11.4	11.6	2.5	20.1	1.9	3.4	8.4	5.4	3.4	6.0	7.0
Cycle Q Clear(g_c), s	2.7	11.4	11.6	2.5	20.1	1.9	10.3	8.4	5.4	11.8	6.0	7.0
Prop In Lane	1.00		0.21	1.00		1.00	0.34		1.00	0.48		0.58
Lane Grp Cap(c), veh/h	213	1052	503	301	1085	344	558	649	427	436	622	471
V/C Ratio(X)	0.46	0.66	0.67	0.35	1.03	0.13	0.42	0.44	0.31	0.35	0.33	0.38
Avail Cap(c_a), veh/h	356	1052	503	463	1085	344	558	649	427	436	622	471
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.5	19.2	19.2	14.5	22.1	15.8	13.9	13.9	13.0	14.5	13.2	13.4
Incr Delay (d2), s/veh	1.6	3.2	6.8	0.7	36.5	0.8	2.3	2.2	1.9	2.2	1.4	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.4	1.8	0.1	7.1	0.2	0.4	0.5	0.3	0.3	0.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.0	22.4	26.1	15.2	58.6	16.6	16.2	16.1	14.8	16.6	14.6	15.8
LnGrp LOS	B	C	C	B	F	B	B	B	B	B	B	B
Approach Vol, veh/h		1128			1273			652			537	
Approach Delay, s/veh		23.1			53.5			15.9			15.6	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.1	25.1		31.0	8.2	25.0		31.0
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0		5.0
Max Green Setting (Gmax), s	10.0	20.0		26.0	10.0	20.0		26.0
Max Q Clear Time (g_c+I1), s	4.7	22.1		12.3	4.5	13.6		13.8
Green Ext Time (p_c), s	0.2	0.0		7.1	0.2	5.4		6.1

Intersection Summary	
HCM 6th Ctrl Delay	31.4
HCM 6th LOS	C

HCM 6th Edition methodology does not support Non-NEMA phasing.

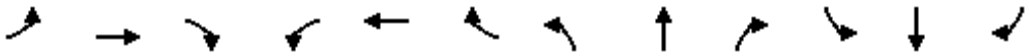
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1080	1173	173	0	15
Future Vol, veh/h	0	1080	1173	173	0	15
Conflicting Peds, #/hr	92	0	0	92	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1137	1235	182	0	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	801
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	-	0	281
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	256
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	20
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	256
HCM Lane V/C Ratio	-	-	-	0.062
HCM Control Delay (s)	-	-	-	20
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	934	86	60	1233	80	49	240	87	84	246	64
Future Volume (veh/h)	60	934	86	60	1233	80	49	240	87	84	246	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.84	0.98		0.84	0.94		0.89	0.94		0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1856	1856	1900	1900	1885	1885	1885	1885
Adj Flow Rate, veh/h	62	973	90	62	1284	83	51	250	91	88	256	67
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	1	3	3	0	0	1	1	1	1
Cap, veh/h	205	2136	197	268	2194	142	371	760	568	407	560	146
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	395	4672	430	525	4798	310	1011	1900	1419	984	1399	366
Grp Volume(v), veh/h	62	708	355	62	904	463	51	250	91	88	0	323
Grp Sat Flow(s),veh/h/ln	395	1702	1698	525	1689	1731	1011	1900	1419	984	0	1765
Q Serve(g_s), s	9.7	10.0	10.1	6.4	13.9	13.9	2.7	6.4	2.9	4.7	0.0	9.4
Cycle Q Clear(g_c), s	23.6	10.0	10.1	16.5	13.9	13.9	12.1	6.4	2.9	11.1	0.0	9.4
Prop In Lane	1.00		0.25	1.00		0.18	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	205	1556	776	268	1544	791	371	760	568	407	0	706
V/C Ratio(X)	0.30	0.45	0.46	0.23	0.59	0.59	0.14	0.33	0.16	0.22	0.00	0.46
Avail Cap(c_a), veh/h	205	1556	776	268	1544	791	371	760	568	407	0	706
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.8	13.0	13.0	18.7	14.1	14.1	19.9	14.5	13.5	18.3	0.0	15.4
Incr Delay (d2), s/veh	3.8	1.0	1.9	2.0	1.6	3.2	0.8	1.2	0.6	1.2	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.3	0.5	0.4	0.5	0.9	0.3	0.6	0.2	0.4	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6	14.0	15.0	20.7	15.7	17.2	20.6	15.7	14.1	19.6	0.0	17.6
LnGrp LOS	C	B	B	C	B	B	C	B	B	B	A	B
Approach Vol, veh/h		1125			1429			392			411	
Approach Delay, s/veh		15.0			16.4			15.9			18.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		33.0		37.0		33.0		37.0				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		28.0		32.0		28.0		32.0				
Max Q Clear Time (g_c+I1), s		14.1		25.6		13.1		18.5				
Green Ext Time (p_c), s		3.8		5.6		4.8		12.2				

Intersection Summary												
HCM 6th Ctrl Delay			16.1									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	0	16	9	0	8	8	531	13	12	496	14
Future Volume (veh/h)	13	0	16	9	0	8	8	531	13	12	496	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.83		0.82	0.83		0.82	0.81		0.52	0.82		0.51
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	0	17	10	0	9	9	565	14	13	528	15
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	284	35	253	325	31	216	85	1388	34	90	1365	38
Arrive On Green	0.36	0.00	0.36	0.36	0.00	0.36	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	479	96	698	576	86	595	14	3349	82	24	3293	92
Grp Volume(v), veh/h	31	0	0	19	0	0	315	0	273	298	0	258
Grp Sat Flow(s),veh/h/ln	1273	0	0	1257	0	0	1847	0	1598	1828	0	1580
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	0.0	0.0	5.4
Cycle Q Clear(g_c), s	0.6	0.0	0.0	0.4	0.0	0.0	5.6	0.0	5.7	5.2	0.0	5.4
Prop In Lane	0.45		0.55	0.53		0.47	0.03		0.05	0.04		0.06
Lane Grp Cap(c), veh/h	572	0	0	572	0	0	844	0	662	838	0	655
V/C Ratio(X)	0.05	0.00	0.00	0.03	0.00	0.00	0.37	0.00	0.41	0.36	0.00	0.39
Avail Cap(c_a), veh/h	611	0	0	610	0	0	1661	0	1393	1633	0	1378
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.8	0.0	0.0	9.7	0.0	0.0	9.7	0.0	9.7	9.6	0.0	9.6
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.4	0.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.8	0.0	0.0	9.7	0.0	0.0	10.0	0.0	10.1	9.8	0.0	10.0
LnGrp LOS	A	A	A	A	A	A	A	A	B	A	A	B
Approach Vol, veh/h		31			19			588			556	
Approach Delay, s/veh		9.8			9.7			10.0			9.9	
Approach LOS		A			A			B			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	25.5	21.5	25.5	21.5
Change Period (Y+Rc), s	6.0	4.5	6.0	4.5
Max Green Setting (Gmax), s	41.0	18.5	41.0	18.5
Max Q Clear Time (g_c+I1), s	7.7	2.6	7.4	2.4
Green Ext Time (p_c), s	11.8	0.2	11.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	10.0
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	6	41	23	15	17
Future Vol, veh/h	25	6	41	23	15	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	7	45	25	16	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	70	0	-	0	119	58
Stage 1	-	-	-	-	58	-
Stage 2	-	-	-	-	61	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1531	-	-	-	877	1008
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	962	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1531	-	-	-	861	1008
Mov Cap-2 Maneuver	-	-	-	-	861	-
Stage 1	-	-	-	-	948	-
Stage 2	-	-	-	-	962	-

Approach	EB	WB	SB
HCM Control Delay, s	6	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1531	-	-	-	933
HCM Lane V/C Ratio	0.018	-	-	-	0.037
HCM Control Delay (s)	7.4	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

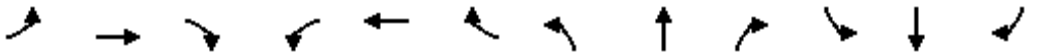
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	11	14	341	328	16
Future Vol, veh/h	9	11	14	341	328	16
Conflicting Peds, #/hr	0	64	64	0	0	37
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	2	0	2
Mvmt Flow	12	14	18	437	421	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	969	560	506	0	-	0
Stage 1	496	-	-	-	-	-
Stage 2	473	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	284	532	1069	-	-	-
Stage 1	616	-	-	-	-	-
Stage 2	631	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	244	468	1003	-	-	-
Mov Cap-2 Maneuver	244	-	-	-	-	-
Stage 1	564	-	-	-	-	-
Stage 2	592	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.8	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1003	-	331	-	-
HCM Lane V/C Ratio	0.018	-	0.077	-	-
HCM Control Delay (s)	8.7	0	16.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	142	1310	72	58	1161	73	98	383	43	78	320	148
Future Volume (veh/h)	142	1310	72	58	1161	73	98	383	43	78	320	148
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	0.89		0.79	0.92		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1885	1900	1885	1885	1900	1856	1856	1900	1841	1841
Adj Flow Rate, veh/h	143	1323	73	59	1173	74	99	387	43	79	323	149
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	1	1	0	1	1	0	3	3	0	4	4
Cap, veh/h	141	1332	73	113	1320	83	383	1012	111	444	1019	450
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.33	0.33	0.33	0.07	0.46	0.46
Sat Flow, veh/h	446	3440	189	393	3408	215	834	3111	340	1810	2227	983
Grp Volume(v), veh/h	143	687	709	59	616	631	99	217	213	79	251	221
Grp Sat Flow(s),veh/h/ln	446	1791	1838	393	1791	1832	834	1763	1688	1810	1749	1461
Q Serve(g_s), s	4.2	24.6	24.8	0.2	20.7	20.8	5.9	6.1	6.3	1.7	5.9	6.3
Cycle Q Clear(g_c), s	25.0	24.6	24.8	25.0	20.7	20.8	5.9	6.1	6.3	1.7	5.9	6.3
Prop In Lane	1.00		0.10	1.00		0.12	1.00		0.20	1.00		0.67
Lane Grp Cap(c), veh/h	141	694	712	113	694	710	383	574	549	444	800	669
V/C Ratio(X)	1.02	0.99	1.00	0.52	0.89	0.89	0.26	0.38	0.39	0.18	0.31	0.33
Avail Cap(c_a), veh/h	141	694	712	113	694	710	383	574	549	597	800	669
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	19.7	19.7	32.3	18.5	18.5	16.7	16.7	16.8	11.7	11.1	11.2
Incr Delay (d2), s/veh	80.4	32.0	32.6	16.3	15.7	15.6	1.6	1.9	2.1	0.1	1.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	7.0	7.3	1.0	3.7	3.8	0.4	0.8	0.8	0.0	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	112.3	51.6	52.3	48.6	34.1	34.0	18.3	18.6	18.9	11.7	12.1	12.5
LnGrp LOS	F	D	D	D	C	C	B	B	B	B	B	B
Approach Vol, veh/h		1539			1306			529			551	
Approach Delay, s/veh		57.6			34.7			18.7			12.2	
Approach LOS		E			C			B			B	

Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.5	26.0		30.0		34.5		30.0				
Change Period (Y+Rc), s	4.0	5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s	10.0	21.0		25.0		25.0		25.0				
Max Q Clear Time (g_c+I1), s	3.7	8.3		27.0		8.3		27.0				
Green Ext Time (p_c), s	0.1	5.5		0.0		6.6		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		38.4	
HCM 6th LOS		D	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	1153	28	33	1229	110	35	224	87	92	257	0
Future Volume (veh/h)	44	1153	28	33	1229	110	35	224	87	92	257	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	0.97		0.93	0.97		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	46	1201	29	34	1280	115	36	233	91	96	268	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	0	0	0	0	0	0	0	0	0
Cap, veh/h	84	1719	43	77	1785	159	116	643	236	220	632	0
Arrive On Green	0.57	0.57	0.57	0.57	0.57	0.57	0.29	0.29	0.29	0.29	0.29	0.00
Sat Flow, veh/h	51	3009	76	41	3124	278	192	2249	825	492	2300	0
Grp Volume(v), veh/h	626	0	650	739	0	690	194	0	166	176	188	0
Grp Sat Flow(s),veh/h/ln	1435	0	1700	1773	0	1670	1758	0	1508	1062	1643	0
Q Serve(g_s), s	4.0	0.0	18.5	0.4	0.0	21.1	0.0	0.0	6.2	5.9	6.4	0.0
Cycle Q Clear(g_c), s	25.1	0.0	18.5	19.2	0.0	21.1	5.7	0.0	6.2	12.1	6.4	0.0
Prop In Lane	0.07		0.04	0.05		0.17	0.19		0.55	0.54		0.00
Lane Grp Cap(c), veh/h	875	0	972	1067	0	954	563	0	431	383	469	0
V/C Ratio(X)	0.72	0.00	0.67	0.69	0.00	0.72	0.34	0.00	0.39	0.46	0.40	0.00
Avail Cap(c_a), veh/h	875	0	972	1067	0	954	563	0	431	383	469	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.0	0.0	10.4	10.5	0.0	11.0	19.9	0.0	20.1	22.8	20.2	0.0
Incr Delay (d2), s/veh	5.0	0.0	3.6	3.7	0.0	4.7	1.7	0.0	2.6	3.9	2.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.0	1.1	0.0	1.3	1.0	0.0	1.0	1.1	1.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.0	0.0	14.1	14.2	0.0	15.7	21.5	0.0	22.7	26.7	22.7	0.0
LnGrp LOS	B	A	B	B	A	B	C	A	C	C	C	A
Approach Vol, veh/h		1276			1429			360			364	
Approach Delay, s/veh		14.5			14.9			22.1			24.7	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	25.0	45.0	25.0	45.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	20.0	40.0	20.0	40.0
Max Q Clear Time (g_c+I1), s	8.2	27.1	14.1	23.1
Green Ext Time (p_c), s	3.9	11.5	2.3	15.4

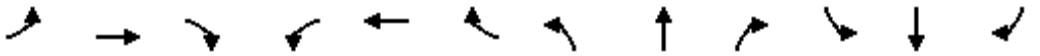
Intersection Summary	
HCM 6th Ctrl Delay	16.6
HCM 6th LOS	B

APPENDIX E

HCM2000 Reports

HCM Signalized Intersection Capacity Analysis
1: Commercial Drive & North Grandview Highway

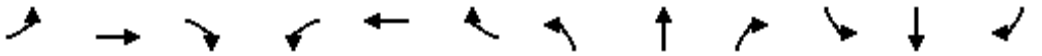
10/18/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	2	61	31	301	50	155	449	22	0	358	38
Future Volume (vph)	30	2	61	31	301	50	155	449	22	0	358	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.91			0.99		1.00	0.97			0.97	
Flpb, ped/bikes	0.97	1.00			0.99		0.87	1.00			1.00	
Frt	1.00	0.85			0.98		1.00	0.99			0.99	
Flt Protected	0.95	1.00			1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1539	1300			1615		1378	2876			2914	
Flt Permitted	0.37	1.00			0.97		0.47	1.00			1.00	
Satd. Flow (perm)	602	1300			1578		687	2876			2914	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	35	2	72	36	354	59	182	528	26	0	421	45
RTOR Reduction (vph)	0	46	0	0	7	0	0	5	0	0	11	0
Lane Group Flow (vph)	35	28	0	0	442	0	182	549	0	0	455	0
Confl. Peds. (#/hr)	94		97	97		94	138		425	425		138
Confl. Bikes (#/hr)			1			5			2			2
Heavy Vehicles (%)	2%	0%	2%	0%	2%	1%	3%	5%	95%	0%	7%	8%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Actuated Green, G (s)	27.0	27.0			27.0		38.0	38.0			38.0	
Effective Green, g (s)	27.0	27.0			27.0		38.0	38.0			38.0	
Actuated g/C Ratio	0.36	0.36			0.36		0.51	0.51			0.51	
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0			5.0	
Lane Grp Cap (vph)	216	468			568		348	1457			1476	
v/s Ratio Prot		0.02						0.19			0.16	
v/s Ratio Perm	0.06				c0.28		c0.26					
v/c Ratio	0.16	0.06			0.78		0.52	0.38			0.31	
Uniform Delay, d1	16.3	15.7			21.3		12.4	11.3			10.8	
Progression Factor	1.00	1.00			1.11		1.00	1.00			1.00	
Incremental Delay, d2	1.6	0.2			8.1		5.5	0.7			0.5	
Delay (s)	17.9	15.9			31.8		17.9	12.0			11.4	
Level of Service	B	B			C		B	B			B	
Approach Delay (s)		16.6			31.8			13.5			11.4	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	1028	40	53	1377	50	107	531	86	54	267	129
Future Volume (vph)	57	1028	40	53	1377	50	107	531	86	54	267	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00		0.95	1.00		0.91	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.65		1.00	0.63		0.94	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00		0.98	1.00		0.98	
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1337	4812		1644	3374	1013		3410	1012		4330	
Flt Permitted	0.16	1.00		0.17	1.00	1.00		0.78	1.00		0.82	
Satd. Flow (perm)	229	4812		297	3374	1013		2670	1012		3558	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	59	1060	41	55	1420	52	110	547	89	56	275	133
RTOR Reduction (vph)	0	5	0	0	0	34	0	0	55	0	82	0
Lane Group Flow (vph)	59	1096	0	55	1420	18	0	657	34	0	382	0
Confl. Peds. (#/hr)	500		402	402		500	261		740	740		261
Confl. Bikes (#/hr)						1			1			1
Heavy Vehicles (%)	35%	6%	2%	9%	7%	3%	3%	3%	1%	2%	7%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2		2	4		4	8		
Actuated Green, G (s)	29.1	24.6		28.3	24.2	24.2		26.2	26.2		26.2	
Effective Green, g (s)	29.1	24.6		28.3	24.2	24.2		26.2	26.2		26.2	
Actuated g/C Ratio	0.42	0.36		0.41	0.35	0.35		0.38	0.38		0.38	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	169	1718		202	1185	355		1015	384		1352	
v/s Ratio Prot	c0.02	0.23		0.02	c0.42							
v/s Ratio Perm	0.12			0.10		0.02		c0.25	0.03		0.11	
v/c Ratio	0.35	0.64		0.27	1.20	0.05		0.65	0.09		0.28	
Uniform Delay, d1	15.2	18.4		12.8	22.4	14.8		17.6	13.7		14.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	1.3	1.8		0.7	97.6	0.3		3.2	0.5		0.5	
Delay (s)	16.5	20.3		13.6	120.0	15.0		20.7	14.1		15.3	
Level of Service	B	C		B	F	B		C	B		B	
Approach Delay (s)		20.1			112.6			20.0			15.3	
Approach LOS		C			F			B			B	

Intersection Summary			
HCM 2000 Control Delay	55.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	68.9	Sum of lost time (s)	14.0
Intersection Capacity Utilization	99.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1105	63	0	1480	0	43
Future Volume (Veh/h)	1105	63	0	1480	0	43
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1201	68	0	1609	0	47
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	118			165		
pX, platoon unblocked			0.83		0.87	0.83
vC, conflicting volume			1269		1771	434
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			592		23	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	95
cM capacity (veh/h)			810		861	897

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	480	480	308	536	536	536	47
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	68	0	0	0	47
cSH	1700	1700	1700	1700	1700	1700	897
Volume to Capacity	0.28	0.28	0.18	0.32	0.32	0.32	0.05
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	1.3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.2
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.2
Approach LOS							A

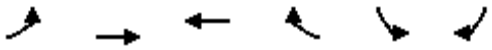
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	32.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1147	1	0	1480	0	25
Future Volume (Veh/h)	1147	1	0	1480	0	25
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1247	1	0	1609	0	27
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	159			124		
pX, platoon unblocked			0.84		0.84	0.84
vC, conflicting volume			1248		1784	416
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			644		28	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			790		830	914

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	499	499	250	536	536	536	27
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	1	0	0	0	27
cSH	1700	1700	1700	1700	1700	1700	914
Volume to Capacity	0.29	0.29	0.15	0.32	0.32	0.32	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.1
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.1
Approach LOS							A

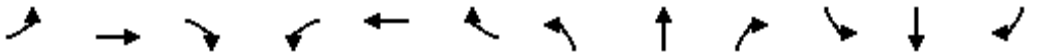
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	32.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1172	1463	347	0	17
Future Volume (Veh/h)	0	1172	1463	347	0	17
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	1379	1721	408	0	20
Pedestrians					97	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.1	
Percent Blockage					9	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		239	44			
pX, platoon unblocked	0.70				0.77	0.70
vC, conflicting volume	2226				2482	875
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1266				691	0
tC, single (s)	4.1				6.8	8.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	4.3
p0 queue free %	100				100	96
cM capacity (veh/h)	348				265	534

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	460	460	460	688	688	752	20
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	408	20
cSH	1700	1700	1700	1700	1700	1700	534
Volume to Capacity	0.27	0.27	0.27	0.40	0.40	0.44	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	12.0
Lane LOS							B
Approach Delay (s)	0.0			0.0			12.0
Approach LOS							B

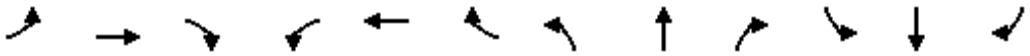
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1079	49	94	1600	42	125	228	95	86	304	85
Future Volume (vph)	44	1079	49	94	1600	42	125	228	95	86	304	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	0.86	1.00	0.98	
Flpb, ped/bikes	0.99	1.00		0.97	1.00		0.96	1.00	1.00	0.91	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1642	4818		1694	4801		1699	1845	1379	1600	1761	
Flt Permitted	0.11	1.00		0.17	1.00		0.37	1.00	1.00	0.55	1.00	
Satd. Flow (perm)	187	4818		307	4801		656	1845	1379	928	1761	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.97
Adj. Flow (vph)	48	1173	53	102	1739	46	136	248	103	93	313	88
RTOR Reduction (vph)	0	7	0	0	4	0	0	0	18	0	3	0
Lane Group Flow (vph)	48	1219	0	102	1781	0	136	248	85	93	398	0
Confl. Peds. (#/hr)	91		116	116		92	99		154	154		99
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	9%	6%	2%	3%	7%	10%	2%	3%	1%	3%	2%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	37.0	37.0		37.0	37.0		28.0	28.0	28.0	28.0	28.0	
Effective Green, g (s)	37.0	37.0		37.0	37.0		28.0	28.0	28.0	28.0	28.0	
Actuated g/C Ratio	0.49	0.49		0.49	0.49		0.37	0.37	0.37	0.37	0.37	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Grp Cap (vph)	92	2376		151	2368		244	688	514	346	657	
v/s Ratio Prot		0.25			c0.37			0.13			c0.23	
v/s Ratio Perm	0.26			0.33			0.21		0.06	0.10		
v/c Ratio	0.52	0.51		0.68	0.75		0.56	0.36	0.17	0.27	0.61	
Uniform Delay, d1	13.0	12.9		14.4	15.3		18.6	17.0	15.7	16.4	19.0	
Progression Factor	1.00	1.00		1.00	1.00		0.97	0.93	0.86	1.00	1.00	
Incremental Delay, d2	19.6	0.8		21.6	2.3		8.0	1.3	0.6	1.9	4.1	
Delay (s)	32.5	13.7		36.1	17.6		26.0	17.1	14.2	18.3	23.1	
Level of Service	C	B		D	B		C	B	B	B	C	
Approach Delay (s)		14.4			18.6			19.0			22.2	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

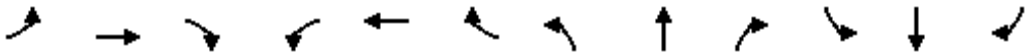
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	15	0	0	0	20	659	0	0	386	17
Future Volume (vph)	10	0	15	0	0	0	20	659	0	0	386	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						6.0			6.0	
Lane Util. Factor		1.00						0.95			0.95	
Frpb, ped/bikes		0.91						1.00			0.99	
Flpb, ped/bikes		0.93						1.00			1.00	
Frt		0.92						1.00			0.99	
Flt Protected		0.98						1.00			1.00	
Satd. Flow (prot)		1426						3518			3473	
Flt Permitted		0.92						0.93			1.00	
Satd. Flow (perm)		1340						3290			3473	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	12	0	18	0	0	0	24	775	0	0	454	20
RTOR Reduction (vph)	0	23	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	7	0	0	0	0	0	799	0	0	470	0
Confl. Peds. (#/hr)	177		136	1136		177	172		396	396		172
Confl. Bikes (#/hr)			3			2			5			1
Turn Type	Perm	NA					Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		13.3						35.0			35.0	
Effective Green, g (s)		13.3						35.0			35.0	
Actuated g/C Ratio		0.23						0.60			0.60	
Clearance Time (s)		4.5						6.0			6.0	
Vehicle Extension (s)		3.0						3.0			3.0	
Lane Grp Cap (vph)		303						1958			2067	
v/s Ratio Prot											0.14	
v/s Ratio Perm		c0.01						c0.24				
v/c Ratio		0.02						0.41			0.23	
Uniform Delay, d1		17.7						6.4			5.6	
Progression Factor		1.00						1.00			1.00	
Incremental Delay, d2		0.0						0.1			0.1	
Delay (s)		17.7						6.5			5.6	
Level of Service		B						A			A	
Approach Delay (s)		17.7			0.0			6.5			5.6	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	58.8	Sum of lost time (s)	10.5
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		

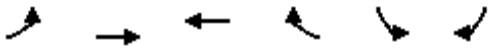
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	2	29	0	0	0	33	0	0
Future Volume (Veh/h)	0	0	0	0	2	29	0	0	0	33	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	2	32	0	0	0	36	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		121										
pX, platoon unblocked												
vC, conflicting volume	34			0			18	34	0	18	18	18
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	34			0			18	34	0	18	18	18
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	96	100	100
cM capacity (veh/h)	1578			1623			996	859	1085	996	876	1061

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	34	0	36
Volume Left	0	0	0	36
Volume Right	0	32	0	0
cSH	1700	1623	1700	996
Volume to Capacity	0.00	0.00	0.00	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.9
Control Delay (s)	0.0	0.0	0.0	8.7
Lane LOS			A	A
Approach Delay (s)	0.0	0.0	0.0	8.7
Approach LOS			A	A

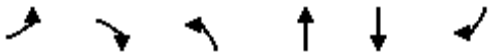
Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	44	53	51	37	2
Future Volume (Veh/h)	1	44	53	51	37	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	48	58	55	40	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		165				
pX, platoon unblocked						
vC, conflicting volume	113				136	86
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	113				136	86
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				95	100
cM capacity (veh/h)	1476				857	973

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	49	113	42
Volume Left	1	0	40
Volume Right	0	55	2
cSH	1476	1700	862
Volume to Capacity	0.00	0.07	0.05
Queue Length 95th (m)	0.0	0.0	1.2
Control Delay (s)	0.2	0.0	9.4
Lane LOS	A		A
Approach Delay (s)	0.2	0.0	9.4
Approach LOS			A

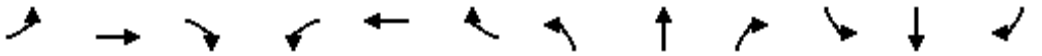
Intersection Summary			
Average Delay		2.0	
Intersection Capacity Utilization		15.9%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	40	63	59	441	352	50
Future Volume (Veh/h)	40	63	59	441	352	50
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	45	72	67	501	400	57
Pedestrians	144			144		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.1			1.1		
Percent Blockage	14			14		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				205	109	
pX, platoon unblocked	0.93	0.85	0.85			
vC, conflicting volume	1208	716	601			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	825	580	445			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	82	78	92			
cM capacity (veh/h)	253	328	828			

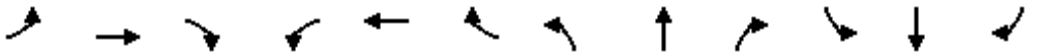
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	117	568	457
Volume Left	45	67	0
Volume Right	72	0	57
cSH	295	828	1700
Volume to Capacity	0.40	0.08	0.27
Queue Length 95th (m)	13.9	2.0	0.0
Control Delay (s)	25.0	2.1	0.0
Lane LOS	D	A	
Approach Delay (s)	25.0	2.1	0.0
Approach LOS	D		

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	1400	51	62	1463	82	110	569	59	58	233	44
Future Volume (vph)	63	1400	51	62	1463	82	110	569	59	58	233	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.93	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3511		1770	3504		1638	3415		1747	3389	
Flt Permitted	0.12	1.00		0.12	1.00		0.58	1.00		0.23	1.00	
Satd. Flow (perm)	218	3511		218	3504		997	3415		425	3389	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	64	1429	52	63	1493	84	112	581	60	59	238	45
RTOR Reduction (vph)	0	3	0	0	5	0	0	10	0	0	6	0
Lane Group Flow (vph)	64	1478	0	63	1572	0	112	631	0	59	277	0
Confl. Peds. (#/hr)	25		59	59		25	101		203	203		101
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.2	34.2		34.2	34.2		21.1	21.1		28.5	28.5	
Effective Green, g (s)	34.2	34.2		34.2	34.2		21.1	21.1		28.5	28.5	
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.29	0.29		0.39	0.39	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		1.5	3.0	
Lane Grp Cap (vph)	102	1651		102	1648		289	991		228	1328	
v/s Ratio Prot		0.42			c0.45			c0.18		0.01	c0.08	
v/s Ratio Perm	0.29			0.29			0.11			0.09		
v/c Ratio	0.63	0.90		0.62	0.95		0.39	0.64		0.26	0.21	
Uniform Delay, d1	14.5	17.6		14.4	18.5		20.6	22.5		14.8	14.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	25.8	8.0		24.9	13.6		3.9	3.1		0.2	0.4	
Delay (s)	40.2	25.6		39.3	32.1		24.5	25.6		15.0	15.0	
Level of Service	D	C		D	C		C	C		B	B	
Approach Delay (s)		26.2			32.4			25.4			15.0	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	72.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



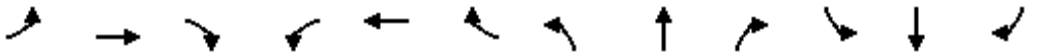
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	1398	16	0	1503	97	22	343	88	43	298	99
Future Volume (vph)	32	1398	16	0	1503	97	22	343	88	43	298	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.97			0.97	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3559			3561			3395			3393	
Flt Permitted		0.80			1.00			0.92			0.86	
Satd. Flow (perm)		2838			3561			3123			2945	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	33	1456	17	0	1566	101	23	357	92	45	310	103
RTOR Reduction (vph)	0	1	0	0	6	0	0	23	0	0	17	0
Lane Group Flow (vph)	0	1505	0	0	1661	0	0	449	0	0	441	0
Confl. Peds. (#/hr)	20		22	22		20	31		19	19		31
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	3%	1%	6%	0%	0%	1%	0%	2%	3%	0%	1%	1%
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		43.0			43.0			22.0			22.0	
Effective Green, g (s)		43.0			43.0			22.0			22.0	
Actuated g/C Ratio		0.57			0.57			0.29			0.29	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1627			2041			916			863	
v/s Ratio Prot					0.47							
v/s Ratio Perm		c0.53						0.14			c0.15	
v/c Ratio		0.93			0.81			0.49			0.51	
Uniform Delay, d1		14.5			12.8			21.9			22.0	
Progression Factor		1.00			1.00			1.00			0.87	
Incremental Delay, d2		10.4			3.7			1.9			1.9	
Delay (s)		25.0			16.5			23.8			21.1	
Level of Service		C			B			C			C	
Approach Delay (s)		25.0			16.5			23.8			21.1	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	101.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: Commercial Drive & North Grandview Highway

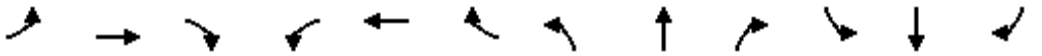
10/18/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1	10	6	188	73	74	418	24	0	656	5
Future Volume (vph)	10	1	10	6	188	73	74	418	24	0	656	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.82			0.93		1.00	0.96			1.00	
Flpb, ped/bikes	0.85	1.00			1.00		0.82	1.00			1.00	
Frt	1.00	0.86			0.96		1.00	0.99			1.00	
Flt Protected	0.95	1.00			1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1354	1215			1514		1311	2910			3139	
Flt Permitted	0.52	1.00			1.00		0.31	1.00			1.00	
Satd. Flow (perm)	738	1215			1511		432	2910			3139	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	11	1	11	7	207	80	81	459	26	0	721	5
RTOR Reduction (vph)	0	4	0	0	1	0	0	5	0	0	1	0
Lane Group Flow (vph)	11	8	0	0	293	0	81	480	0	0	725	0
Confl. Peds. (#/hr)	282		199	199		282	516		979	979		516
Confl. Bikes (#/hr)			1			4			2			
Heavy Vehicles (%)	2%	0%	0%	0%	0%	1%	1%	2%	79%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Actuated Green, G (s)	32.0	32.0			32.0		38.0	38.0			38.0	
Effective Green, g (s)	32.0	32.0			32.0		38.0	38.0			38.0	
Actuated g/C Ratio	0.40	0.40			0.40		0.48	0.48			0.48	
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0			5.0	
Lane Grp Cap (vph)	295	486			604		205	1382			1491	
v/s Ratio Prot		0.01						0.16			c0.23	
v/s Ratio Perm	0.01				c0.19		0.19					
v/c Ratio	0.04	0.02			0.49		0.40	0.35			0.49	
Uniform Delay, d1	14.6	14.5			17.9		13.6	13.2			14.3	
Progression Factor	1.00	1.00			0.69		1.00	1.00			1.00	
Incremental Delay, d2	0.2	0.1			2.3		5.6	0.7			1.1	
Delay (s)	14.9	14.6			14.7		19.2	13.9			15.5	
Level of Service	B	B			B		B	B			B	
Approach Delay (s)		14.7			14.7			14.7			15.5	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	1596	129	97	1233	20	48	372	87	77	504	119
Future Volume (vph)	102	1596	129	97	1233	20	48	372	87	77	504	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00		0.95	1.00		0.91	
Frpb, ped/bikes	1.00	0.97		1.00	1.00	0.65		1.00	0.57		0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		0.99	1.00		0.98	
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1543	4832		1787	3471	1048		3485	909		4529	
Flt Permitted	0.13	1.00		0.14	1.00	1.00		0.80	1.00		0.83	
Satd. Flow (perm)	219	4832		258	3471	1048		2803	909		3764	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	109	1698	137	103	1312	21	51	396	93	82	536	127
RTOR Reduction (vph)	0	11	0	0	0	13	0	0	61	0	38	0
Lane Group Flow (vph)	109	1824	0	103	1312	8	0	447	32	0	707	0
Confl. Peds. (#/hr)	441		710	710		441	450		1030	1030		450
Heavy Vehicles (%)	17%	3%	1%	1%	4%	0%	0%	2%	1%	1%	3%	0%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2		2	4		4	8		
Actuated Green, G (s)	36.5	29.7		35.5	29.2	29.2		26.1	26.1		26.1	
Effective Green, g (s)	36.5	29.7		35.5	29.2	29.2		26.1	26.1		26.1	
Actuated g/C Ratio	0.48	0.39		0.47	0.38	0.38		0.34	0.34		0.34	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	223	1885		246	1331	402		961	311		1290	
v/s Ratio Prot	c0.04	0.38		0.03	c0.38							
v/s Ratio Perm	0.19			0.16		0.01		0.16	0.04		c0.19	
v/c Ratio	0.49	0.97		0.42	0.99	0.02		0.47	0.10		0.55	
Uniform Delay, d1	15.5	22.7		15.1	23.2	14.6		19.5	17.0		20.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	1.7	14.4		1.2	21.5	0.1		1.6	0.7		1.7	
Delay (s)	17.1	37.1		16.2	44.7	14.7		21.2	17.7		21.9	
Level of Service	B	D		B	D	B		C	B		C	
Approach Delay (s)		36.0			42.2			20.6			21.9	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	76.1	Sum of lost time (s)	14.0
Intersection Capacity Utilization	97.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1629	131	0	1350	0	55
Future Volume (Veh/h)	1629	131	0	1350	0	55
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1771	142	0	1467	0	60
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	118			165		
pX, platoon unblocked			0.64		0.74	0.64
vC, conflicting volume			1913		2331	661
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			489		0	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	91
cM capacity (veh/h)			690		755	699

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	708	708	496	489	489	489	60
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	142	0	0	0	60
cSH	1700	1700	1700	1700	1700	1700	699
Volume to Capacity	0.42	0.42	0.29	0.29	0.29	0.29	0.09
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	2.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.6
Lane LOS							B
Approach Delay (s)	0.0			0.0			10.6
Approach LOS							B

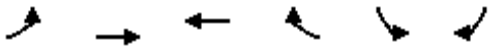
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1681	3	0	1350	0	65
Future Volume (Veh/h)	1681	3	0	1350	0	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1827	3	0	1467	0	71
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	159			124		
pX, platoon unblocked			0.66		0.76	0.66
vC, conflicting volume			1830		2318	610
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			484		0	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	90
cM capacity (veh/h)			715		781	721

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	731	731	368	489	489	489	71
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	3	0	0	0	71
cSH	1700	1700	1700	1700	1700	1700	721
Volume to Capacity	0.43	0.43	0.22	0.29	0.29	0.29	0.10
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	2.5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.5
Lane LOS							B
Approach Delay (s)	0.0			0.0			10.5
Approach LOS							B

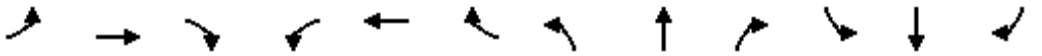
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1746	1329	269	0	21
Future Volume (Veh/h)	0	1746	1329	269	0	21
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	1838	1399	283	0	22
Pedestrians			15			
Lane Width (m)			3.6			
Walking Speed (m/s)			1.1			
Percent Blockage			1			
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		239	44			
pX, platoon unblocked	0.77				0.81	0.77
vC, conflicting volume	1682				2168	608
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	856				0	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	97
cM capacity (veh/h)	603				814	839

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	613	613	613	560	560	563	22
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	283	22
cSH	1700	1700	1700	1700	1700	1700	839
Volume to Capacity	0.36	0.36	0.36	0.33	0.33	0.33	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.4
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.4
Approach LOS							A

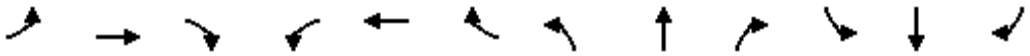
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	1649	27	89	1528	53	25	207	93	170	397	45
Future Volume (vph)	70	1649	27	89	1528	53	25	207	93	170	397	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00	0.82	1.00	0.99	
Flpb, ped/bikes	0.98	1.00		0.99	1.00		0.97	1.00	1.00	0.88	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1758	5003		1764	5013		1745	1900	1304	1512	1833	
Flt Permitted	0.10	1.00		0.10	1.00		0.28	1.00	1.00	0.58	1.00	
Satd. Flow (perm)	176	5003		177	5013		506	1900	1304	924	1833	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	72	1700	28	92	1575	55	26	213	96	175	409	46
RTOR Reduction (vph)	0	2	0	0	5	0	0	0	18	0	5	0
Lane Group Flow (vph)	72	1726	0	92	1625	0	26	213	78	175	450	0
Confl. Peds. (#/hr)	117		117	117		117	92		189	189		92
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	1%	3%	2%	1%	2%	3%	0%	0%	2%	5%	1%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	42.0	42.0		42.0	42.0		28.0	28.0	28.0	28.0	28.0	
Effective Green, g (s)	42.0	42.0		42.0	42.0		28.0	28.0	28.0	28.0	28.0	
Actuated g/C Ratio	0.52	0.52		0.52	0.52		0.35	0.35	0.35	0.35	0.35	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Grp Cap (vph)	92	2626		92	2631		177	665	456	323	641	
v/s Ratio Prot		0.34			0.32			0.11			c0.25	
v/s Ratio Perm	0.41			c0.52			0.05		0.06	0.19		
v/c Ratio	0.78	0.66		1.00	0.62		0.15	0.32	0.17	0.54	0.70	
Uniform Delay, d1	15.3	13.8		19.0	13.4		17.8	19.0	18.0	20.9	22.4	
Progression Factor	1.00	1.00		1.00	1.00		1.85	1.82	2.09	1.00	1.00	
Incremental Delay, d2	47.4	1.3		93.8	1.1		1.6	1.2	0.8	6.4	6.3	
Delay (s)	62.8	15.1		112.8	14.5		34.7	35.8	38.3	27.2	28.7	
Level of Service	E	B		F	B		C	D	D	C	C	
Approach Delay (s)		17.0			19.7			36.5			28.3	
Approach LOS		B			B			D			C	

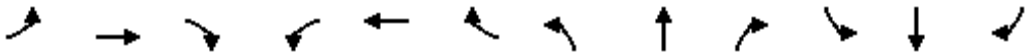
Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1	39	0	0	0	9	442	0	0	626	20
Future Volume (vph)	16	1	39	0	0	0	9	442	0	0	626	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						6.0			6.0	
Lane Util. Factor		1.00						0.95			0.95	
Frpb, ped/bikes		0.83						1.00			0.98	
Flpb, ped/bikes		0.95						1.00			1.00	
Frt		0.91						1.00			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		1346						3524			3467	
Flt Permitted		0.95						0.94			1.00	
Satd. Flow (perm)		1293						3319			3467	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	16	1	40	0	0	0	9	456	0	0	645	21
RTOR Reduction (vph)	0	27	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	30	0	0	0	0	0	465	0	0	662	0
Confl. Peds. (#/hr)	179		241	241		179	330		406	406		330
Confl. Bikes (#/hr)			3			2			5			1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	2%	0%
Turn Type	Perm	NA					Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.2						28.2			28.2	
Effective Green, g (s)		18.2						28.2			28.2	
Actuated g/C Ratio		0.32						0.50			0.50	
Clearance Time (s)		4.5						6.0			6.0	
Vehicle Extension (s)		3.0						3.0			3.0	
Lane Grp Cap (vph)		413						1644			1718	
v/s Ratio Prot											c0.19	
v/s Ratio Perm		c0.02						0.14				
v/c Ratio		0.07						0.28			0.39	
Uniform Delay, d1		13.5						8.4			8.9	
Progression Factor		1.00						1.00			1.00	
Incremental Delay, d2		0.1						0.1			0.1	
Delay (s)		13.5						8.5			9.1	
Level of Service		B						A			A	
Approach Delay (s)		13.5			0.0			8.5			9.1	
Approach LOS		B			A			A			A	

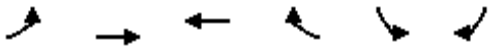
Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	56.9	Sum of lost time (s)	10.5
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	0	6	0	29	0	2	6	74	0	1
Future Volume (Veh/h)	0	1	0	6	0	29	0	2	6	74	0	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	7	0	32	0	2	7	80	0	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		121										
pX, platoon unblocked												
vC, conflicting volume	32			1			32	47	1	39	31	16
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	32			1			32	47	1	39	31	16
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	92	100	100
cM capacity (veh/h)	1580			1622			972	841	1084	954	858	1063

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1	39	9	81
Volume Left	0	7	0	80
Volume Right	0	32	7	1
cSH	1580	1622	1018	956
Volume to Capacity	0.00	0.00	0.01	0.08
Queue Length 95th (m)	0.0	0.1	0.2	2.1
Control Delay (s)	0.0	1.3	8.6	9.1
Lane LOS		A	A	A
Approach Delay (s)	0.0	1.3	8.6	9.1
Approach LOS			A	A

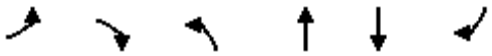
Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	25.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	79	30	96	80	5
Future Volume (Veh/h)	5	79	30	96	80	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	86	33	104	87	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		165				
pX, platoon unblocked						
vC, conflicting volume	137				181	85
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	137				181	85
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				89	99
cM capacity (veh/h)	1447				806	974

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	91	137	92
Volume Left	5	0	87
Volume Right	0	104	5
cSH	1447	1700	813
Volume to Capacity	0.00	0.08	0.11
Queue Length 95th (m)	0.1	0.0	2.9
Control Delay (s)	0.4	0.0	10.0
Lane LOS	A		A
Approach Delay (s)	0.4	0.0	10.0
Approach LOS			A

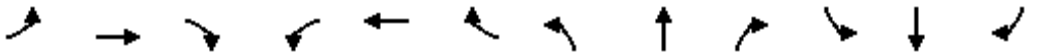
Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	19.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	71	129	83	237	414	81
Future Volume (Veh/h)	71	129	83	237	414	81
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	76	139	89	255	445	87
Pedestrians	84			84		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.1			1.1		
Percent Blockage	8			8		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				205	109	
pX, platoon unblocked	0.85	0.79	0.79			
vC, conflicting volume	1006	656	616			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	626	436	384			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	76	67	90			
cM capacity (veh/h)	313	416	856			

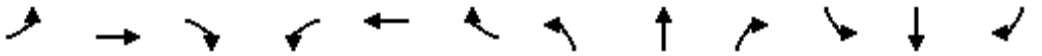
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	215	344	532
Volume Left	76	89	0
Volume Right	139	0	87
cSH	373	856	1700
Volume to Capacity	0.58	0.10	0.31
Queue Length 95th (m)	26.4	2.6	0.0
Control Delay (s)	27.0	3.4	0.0
Lane LOS	D	A	
Approach Delay (s)	27.0	3.4	0.0
Approach LOS	D		

Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	1572	79	59	1410	71	86	289	41	128	569	90
Future Volume (vph)	102	1572	79	59	1410	71	86	289	41	128	569	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.96		1.00	0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.88	1.00		0.93	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3496		1770	3503		1558	3342		1643	3321	
Flt Permitted	0.11	1.00		0.11	1.00		0.40	1.00		0.46	1.00	
Satd. Flow (perm)	213	3496		213	3503		654	3342		791	3321	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	103	1588	80	60	1424	72	87	292	41	129	575	91
RTOR Reduction (vph)	0	5	0	0	5	0	0	13	0	0	5	0
Lane Group Flow (vph)	103	1663	0	60	1491	0	87	320	0	129	661	0
Confl. Peds. (#/hr)	43		80	80		43	252		256	256		252
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	35.0	35.0		35.0	35.0		25.3	25.3		35.8	35.8	
Effective Green, g (s)	35.0	35.0		35.0	35.0		25.3	25.3		35.8	35.8	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.31	0.31		0.44	0.44	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		1.5	3.0	
Lane Grp Cap (vph)	92	1514		92	1517		204	1046		419	1471	
v/s Ratio Prot		0.48			0.43			0.10		0.02	c0.20	
v/s Ratio Perm	c0.48			0.28			0.13			0.11		
v/c Ratio	1.12	1.10		0.65	0.98		0.43	0.31		0.31	0.45	
Uniform Delay, d1	22.9	22.9		18.1	22.6		22.0	21.1		13.8	15.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	129.8	55.1		30.7	19.4		6.4	0.8		0.2	1.0	
Delay (s)	152.7	78.0		48.8	42.0		28.4	21.8		13.9	16.6	
Level of Service	F	E		D	D		C	C		B	B	
Approach Delay (s)		82.3			42.3			23.2			16.2	
Approach LOS		F			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	51.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	80.8	Sum of lost time (s)	14.0
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

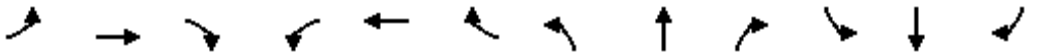


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1588	23	25	1434	62	25	307	62	87	414	100
Future Volume (vph)	1	1588	23	25	1434	62	25	307	62	87	414	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			0.99	
Frt		1.00			0.99			0.98			0.98	
Flt Protected		1.00			1.00			1.00			0.99	
Satd. Flow (prot)		3529			3505			3396			3369	
Flt Permitted		0.95			0.81			0.89			0.78	
Satd. Flow (perm)		3368			2855			3035			2660	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1	1654	24	26	1494	65	26	320	65	91	431	104
RTOR Reduction (vph)	0	1	0	0	4	0	0	12	0	0	19	0
Lane Group Flow (vph)	0	1678	0	0	1581	0	0	399	0	0	607	0
Confl. Peds. (#/hr)	20		27	27		20	38		47	47		38
Confl. Bikes (#/hr)												1
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		45.0			45.0			25.0			25.0	
Effective Green, g (s)		45.0			45.0			25.0			25.0	
Actuated g/C Ratio		0.56			0.56			0.31			0.31	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1894			1605			948			831	
v/s Ratio Prot												
v/s Ratio Perm		0.50			c0.55			0.13			c0.23	
v/c Ratio		0.89			0.99			0.42			0.73	
Uniform Delay, d1		15.3			17.2			21.8			24.5	
Progression Factor		1.00			1.00			1.00			1.14	
Incremental Delay, d2		6.5			19.2			1.4			4.8	
Delay (s)		21.8			36.4			23.1			32.7	
Level of Service		C			D			C			C	
Approach Delay (s)		21.8			36.4			23.1			32.7	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	103.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
1: Commercial Drive & North Grandview Highway

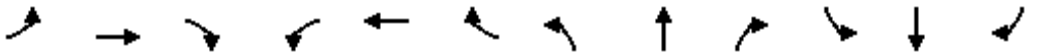
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	2	10	3	111	52	60	521	18	0	656	5
Future Volume (vph)	10	2	10	3	111	52	60	521	18	0	656	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.92			0.96		1.00	0.98			1.00	
Flpb, ped/bikes	0.92	1.00			1.00		0.84	1.00			1.00	
Frt	1.00	0.87			0.96		1.00	0.99			1.00	
Flt Protected	0.95	1.00			1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1499	1375			1565		1361	3024			3141	
Flt Permitted	0.65	1.00			1.00		0.32	1.00			1.00	
Satd. Flow (perm)	1029	1375			1563		457	3024			3141	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	11	2	11	3	122	57	66	573	20	0	721	5
RTOR Reduction (vph)	0	7	0	0	2	0	0	4	0	0	1	0
Lane Group Flow (vph)	11	6	0	0	180	0	66	589	0	0	725	0
Confl. Peds. (#/hr)	130		102	102		130	315		719	719		315
Confl. Bikes (#/hr)			1			2						3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	2%	78%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Actuated Green, G (s)	27.0	27.0			27.0		33.0	33.0			33.0	
Effective Green, g (s)	27.0	27.0			27.0		33.0	33.0			33.0	
Actuated g/C Ratio	0.39	0.39			0.39		0.47	0.47			0.47	
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0			5.0	
Lane Grp Cap (vph)	396	530			602		215	1425			1480	
v/s Ratio Prot		0.00						0.19			c0.23	
v/s Ratio Perm	0.01				c0.12		0.14					
v/c Ratio	0.03	0.01			0.30		0.31	0.41			0.49	
Uniform Delay, d1	13.4	13.3			14.9		11.4	12.1			12.7	
Progression Factor	1.00	1.00			0.95		1.00	1.00			1.00	
Incremental Delay, d2	0.1	0.0			1.1		3.7	0.9			1.2	
Delay (s)	13.5	13.3			15.3		15.1	13.0			13.9	
Level of Service	B	B			B		B	B			B	
Approach Delay (s)		13.4			15.3			13.2			13.9	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	914	61	57	1062	33	70	412	81	57	334	97
Future Volume (vph)	93	914	61	57	1062	33	70	412	81	57	334	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00		0.95	1.00		0.91	
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.69		1.00	0.64		0.94	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00		0.98	1.00		0.98	
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1543	4883		1785	3438	1078		3414	1018		4497	
Flt Permitted	0.17	1.00		0.20	1.00	1.00		0.80	1.00		0.83	
Satd. Flow (perm)	281	4883		385	3438	1078		2765	1018		3775	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	99	972	65	61	1130	35	74	438	86	61	355	103
RTOR Reduction (vph)	0	10	0	0	0	24	0	0	53	0	59	0
Lane Group Flow (vph)	99	1027	0	61	1130	11	0	512	33	0	460	0
Confl. Peds. (#/hr)	311		380	380		311	415		732	732		415
Heavy Vehicles (%)	17%	3%	4%	0%	5%	3%	1%	3%	1%	2%	3%	0%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2		2	4		4	8		
Actuated Green, G (s)	29.5	23.1		25.1	20.9	20.9		26.2	26.2		26.2	
Effective Green, g (s)	29.5	23.1		25.1	20.9	20.9		26.2	26.2		26.2	
Actuated g/C Ratio	0.44	0.34		0.37	0.31	0.31		0.39	0.39		0.39	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	242	1671		230	1064	333		1073	395		1465	
v/s Ratio Prot	c0.04	0.21		0.02	c0.33							
v/s Ratio Perm	0.14			0.08		0.01		c0.19	0.03		0.12	
v/c Ratio	0.41	0.61		0.27	1.06	0.03		0.48	0.08		0.31	
Uniform Delay, d1	14.3	18.5		14.0	23.3	16.2		15.5	13.1		14.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	1.1	1.7		0.6	45.6	0.2		1.5	0.4		0.6	
Delay (s)	15.4	20.2		14.6	68.9	16.4		17.0	13.5		14.9	
Level of Service	B	C		B	E	B		B	B		B	
Approach Delay (s)		19.8			64.7			16.5			14.9	
Approach LOS		B			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	67.5	Sum of lost time (s)	14.0
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	984	68	0	1152	0	40
Future Volume (Veh/h)	984	68	0	1152	0	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1070	74	0	1252	0	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	118			165		
pX, platoon unblocked			0.84		0.92	0.84
vC, conflicting volume			1144		1524	394
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			521		175	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	95
cM capacity (veh/h)			879		731	914

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	428	428	288	417	417	417	43
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	74	0	0	0	43
cSH	1700	1700	1700	1700	1700	1700	914
Volume to Capacity	0.25	0.25	0.17	0.25	0.25	0.25	0.05
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.1
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.1
Approach LOS							A

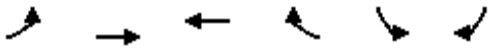
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1020	4	0	1152	0	29
Future Volume (Veh/h)	1020	4	0	1152	0	29
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1109	4	0	1252	0	32
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	159			124		
pX, platoon unblocked			0.86		0.91	0.86
vC, conflicting volume			1113		1528	372
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			577		220	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			857		681	936

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	444	444	226	417	417	417	32
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	4	0	0	0	32
cSH	1700	1700	1700	1700	1700	1700	936
Volume to Capacity	0.26	0.26	0.13	0.25	0.25	0.25	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.8
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.0
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.0
Approach LOS							A

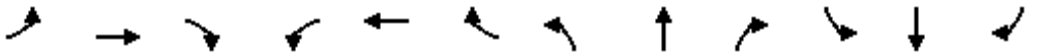
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	29.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1049	1137	173	0	15
Future Volume (Veh/h)	0	1049	1137	173	0	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	1104	1197	182	0	16
Pedestrians					92	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.1	
Percent Blockage					9	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		239	44			
pX, platoon unblocked	0.81				0.86	0.81
vC, conflicting volume	1471				1748	582
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	756				504	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	628				390	800

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	368	368	368	479	479	421	16
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	182	16
cSH	1700	1700	1700	1700	1700	1700	800
Volume to Capacity	0.22	0.22	0.22	0.28	0.28	0.25	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.6
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.6
Approach LOS							A

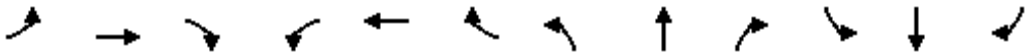
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	955	43	92	1188	80	67	227	82	84	256	55
Future Volume (vph)	51	955	43	92	1188	80	67	227	82	84	256	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	0.87	1.00	0.98	
Flpb, ped/bikes	0.98	1.00		0.95	1.00		0.95	1.00	1.00	0.92	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1731	4995		1691	4936		1535	1900	1398	1642	1789	
Flt Permitted	0.14	1.00		0.22	1.00		0.48	1.00	1.00	0.58	1.00	
Satd. Flow (perm)	257	4995		392	4936		775	1900	1398	1007	1789	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	53	995	45	96	1238	83	70	236	85	88	267	57
RTOR Reduction (vph)	0	7	0	0	11	0	0	0	19	0	9	0
Lane Group Flow (vph)	53	1033	0	96	1310	0	70	236	66	88	315	0
Confl. Peds. (#/hr)	98		144	144		98	120		149	149		120
Heavy Vehicles (%)	2%	2%	0%	1%	3%	0%	0%	0%	1%	1%	1%	4%
Parking (#/hr)							0					
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	32.0	32.0		32.0	32.0		28.0	28.0	28.0	28.0	28.0	
Effective Green, g (s)	32.0	32.0		32.0	32.0		28.0	28.0	28.0	28.0	28.0	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.40	0.40	0.40	0.40	0.40	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Grp Cap (vph)	117	2283		179	2256		310	760	559	402	715	
v/s Ratio Prot		0.21			c0.27			0.12			c0.18	
v/s Ratio Perm	0.21			0.24			0.09		0.05	0.09		
v/c Ratio	0.45	0.45		0.54	0.58		0.23	0.31	0.12	0.22	0.44	
Uniform Delay, d1	13.0	13.0		13.7	14.0		13.9	14.4	13.2	13.8	15.3	
Progression Factor	1.00	1.00		1.00	1.00		1.60	1.58	1.86	1.00	1.00	
Incremental Delay, d2	12.1	0.6		11.0	1.1		1.6	1.0	0.4	1.3	2.0	
Delay (s)	25.1	13.7		24.7	15.1		23.7	23.8	25.1	15.1	17.3	
Level of Service	C	B		C	B		C	C	C	B	B	
Approach Delay (s)		14.2			15.8			24.0			16.8	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

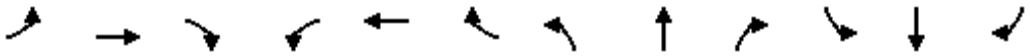
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	0	16	0	0	0	8	489	0	0	454	14
Future Volume (vph)	13	0	16	0	0	0	8	489	0	0	454	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						6.0			6.0	
Lane Util. Factor		1.00						0.95			0.95	
Frpb, ped/bikes		0.90						1.00			0.99	
Flpb, ped/bikes		0.91						1.00			1.00	
Frt		0.93						1.00			1.00	
Flt Protected		0.98						1.00			1.00	
Satd. Flow (prot)		1372						3522			3472	
Flt Permitted		0.92						0.95			1.00	
Satd. Flow (perm)		1293						3334			3472	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	14	0	17	0	0	0	9	520	0	0	483	15
RTOR Reduction (vph)	0	22	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	9	0	0	0	0	0	529	0	0	494	0
Confl. Peds. (#/hr)	209		176	176		209	284		466	466		284
Confl. Bikes (#/hr)			3			2						1
Turn Type	Perm	NA					Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.1						31.4			31.4	
Effective Green, g (s)		18.1						31.4			31.4	
Actuated g/C Ratio		0.30						0.52			0.52	
Clearance Time (s)		4.5						6.0			6.0	
Vehicle Extension (s)		3.0						3.0			3.0	
Lane Grp Cap (vph)		390						1744			1817	
v/s Ratio Prot											0.14	
v/s Ratio Perm		c0.01						c0.16				
v/c Ratio		0.02						0.30			0.27	
Uniform Delay, d1		14.7						8.1			7.9	
Progression Factor		1.00						1.00			1.00	
Incremental Delay, d2		0.0						0.1			0.1	
Delay (s)		14.8						8.2			8.0	
Level of Service		B						A			A	
Approach Delay (s)		14.8			0.0			8.2			8.0	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		

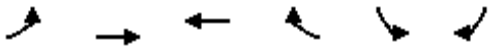
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	4	0	0	42	39	0	0	0	78	0	0
Future Volume (Veh/h)	1	4	0	0	42	39	0	0	0	78	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	1	5	0	0	53	49	0	0	0	98	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		121										
pX, platoon unblocked												
vC, conflicting volume	102			5			84	109	5	84	84	78
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	102			5			84	109	5	84	84	78
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	89	100	100
cM capacity (veh/h)	1490			1616			902	781	1078	902	805	983

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	102	0	98
Volume Left	1	0	0	98
Volume Right	0	49	0	0
cSH	1490	1616	1700	902
Volume to Capacity	0.00	0.00	0.00	0.11
Queue Length 95th (m)	0.0	0.0	0.0	2.8
Control Delay (s)	1.2	0.0	0.0	9.5
Lane LOS	A		A	A
Approach Delay (s)	1.2	0.0	0.0	9.5
Approach LOS			A	A

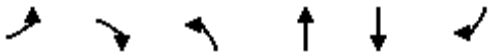
Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	15.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	84	80	75	62	1
Future Volume (Veh/h)	1	84	80	75	62	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	91	87	82	67	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		165				
pX, platoon unblocked						
vC, conflicting volume	169				221	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	169				221	128
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				91	100
cM capacity (veh/h)	1409				767	922

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	92	169	68
Volume Left	1	0	67
Volume Right	0	82	1
cSH	1409	1700	769
Volume to Capacity	0.00	0.10	0.09
Queue Length 95th (m)	0.0	0.0	2.2
Control Delay (s)	0.1	0.0	10.1
Lane LOS	A		B
Approach Delay (s)	0.1	0.0	10.1
Approach LOS			B

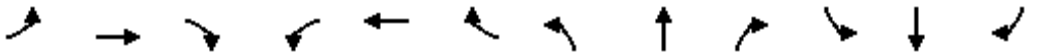
Intersection Summary			
Average Delay		2.1	
Intersection Capacity Utilization		19.0%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	61	84	57	288	279	64
Future Volume (Veh/h)	61	84	57	288	279	64
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	78	108	73	369	358	82
Pedestrians	64			64		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.1			1.1		
Percent Blockage	6			6		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				205	109	
pX, platoon unblocked	0.94	0.89	0.89			
vC, conflicting volume	978	527	504			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	709	412	387			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	77	79	93			
cM capacity (veh/h)	332	508	994			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	186	442	440
Volume Left	78	73	0
Volume Right	108	0	82
cSH	416	994	1700
Volume to Capacity	0.45	0.07	0.26
Queue Length 95th (m)	17.1	1.8	0.0
Control Delay (s)	20.5	2.2	0.0
Lane LOS	C	A	
Approach Delay (s)	20.5	2.2	0.0
Approach LOS	C		

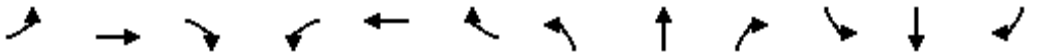
Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	1310	72	58	1236	73	98	373	43	78	311	107
Future Volume (vph)	98	1310	72	58	1236	73	98	373	43	78	311	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98		1.00	0.95	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.89	1.00		0.96	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3533		1805	3535		1612	3379		1731	3191	
Flt Permitted	0.16	1.00		0.16	1.00		0.51	1.00		0.41	1.00	
Satd. Flow (perm)	298	3533		304	3535		858	3379		739	3191	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	99	1323	73	59	1248	74	99	377	43	79	314	108
RTOR Reduction (vph)	0	6	0	0	6	0	0	12	0	0	3	0
Lane Group Flow (vph)	99	1390	0	59	1316	0	99	408	0	79	419	0
Confl. Peds. (#/hr)	46		70	70		46	194		227	227		194
Heavy Vehicles (%)	2%	1%	0%	0%	1%	0%	0%	3%	0%	0%	4%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	25.0	25.0		25.0	25.0		21.9	21.9		30.9	30.9	
Effective Green, g (s)	25.0	25.0		25.0	25.0		21.9	21.9		30.9	30.9	
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.33	0.33		0.47	0.47	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		1.5	3.0	
Lane Grp Cap (vph)	113	1340		115	1341		285	1122		421	1496	
v/s Ratio Prot		c0.39			0.37			c0.12		0.01	c0.13	
v/s Ratio Perm	0.33			0.19			0.12			0.07		
v/c Ratio	0.88	1.04		0.51	0.98		0.35	0.36		0.19	0.28	
Uniform Delay, d1	19.0	20.5		15.8	20.2		16.6	16.7		10.0	10.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	56.1	34.9		15.4	20.5		3.3	0.9		0.1	0.5	
Delay (s)	75.1	55.4		31.2	40.7		19.9	17.6		10.0	11.2	
Level of Service	E	E		C	D		B	B		B	B	
Approach Delay (s)		56.7			40.3			18.1			11.0	
Approach LOS		E			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	39.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	65.9	Sum of lost time (s)	14.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



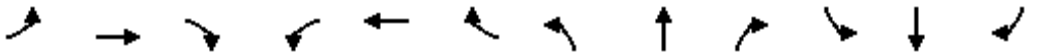
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1153	28	33	1229	68	35	255	87	51	247	75
Future Volume (vph)	44	1153	28	33	1229	68	35	255	87	51	247	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			1.00			0.98			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			0.99	
Frt		1.00			0.99			0.97			0.97	
Flt Protected		1.00			1.00			1.00			0.99	
Satd. Flow (prot)		3555			3563			3385			3390	
Flt Permitted		0.82			0.89			0.89			0.85	
Satd. Flow (perm)		2918			3178			3017			2887	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	46	1201	29	34	1280	71	36	266	91	53	257	78
RTOR Reduction (vph)	0	2	0	0	6	0	0	40	0	0	32	0
Lane Group Flow (vph)	0	1274	0	0	1379	0	0	353	0	0	356	0
Confl. Peds. (#/hr)	29		15	15		29	66		57	57		66
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		40.0			40.0			20.0			20.0	
Effective Green, g (s)		40.0			40.0			20.0			20.0	
Actuated g/C Ratio		0.57			0.57			0.29			0.29	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1667			1816			862			824	
v/s Ratio Prot												
v/s Ratio Perm		c0.44			0.43			0.12			c0.12	
v/c Ratio		0.76			0.76			0.41			0.43	
Uniform Delay, d1		11.4			11.4			20.2			20.4	
Progression Factor		1.00			1.00			1.00			1.44	
Incremental Delay, d2		3.4			3.0			1.4			1.6	
Delay (s)		14.8			14.4			21.7			30.8	
Level of Service		B			B			C			C	
Approach Delay (s)		14.8			14.4			21.7			30.8	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	104.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: Commercial Drive & North Grandview Highway

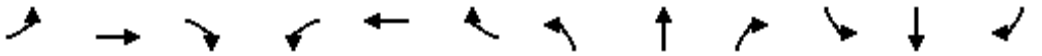
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	2	64	31	301	50	174	468	22	0	367	38
Future Volume (vph)	30	2	64	31	301	50	174	468	22	0	367	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.91			0.99		1.00	0.97			0.98	
Flpb, ped/bikes	0.97	1.00			0.99		0.88	1.00			1.00	
Frt	1.00	0.85			0.98		1.00	0.99			0.99	
Flt Protected	0.95	1.00			1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1539	1300			1615		1382	2884			2917	
Flt Permitted	0.37	1.00			0.97		0.47	1.00			1.00	
Satd. Flow (perm)	602	1300			1578		679	2884			2917	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	35	2	75	36	354	59	205	551	26	0	432	45
RTOR Reduction (vph)	0	48	0	0	7	0	0	4	0	0	10	0
Lane Group Flow (vph)	35	29	0	0	442	0	205	573	0	0	467	0
Confl. Peds. (#/hr)	94		97	97		94	138		425	425		138
Confl. Bikes (#/hr)			1			5			2			2
Heavy Vehicles (%)	2%	0%	2%	0%	2%	1%	3%	5%	95%	0%	7%	8%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Actuated Green, G (s)	27.0	27.0			27.0		38.0	38.0			38.0	
Effective Green, g (s)	27.0	27.0			27.0		38.0	38.0			38.0	
Actuated g/C Ratio	0.36	0.36			0.36		0.51	0.51			0.51	
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0			5.0	
Lane Grp Cap (vph)	216	468			568		344	1461			1477	
v/s Ratio Prot		0.02						0.20			0.16	
v/s Ratio Perm	0.06				c0.28		c0.30					
v/c Ratio	0.16	0.06			0.78		0.60	0.39			0.32	
Uniform Delay, d1	16.3	15.7			21.3		13.1	11.4			10.9	
Progression Factor	1.00	1.00			1.13		1.00	1.00			1.00	
Incremental Delay, d2	1.6	0.3			8.2		7.4	0.8			0.6	
Delay (s)	17.9	16.0			32.4		20.5	12.2			11.4	
Level of Service	B	B			C		C	B			B	
Approach Delay (s)		16.6			32.4			14.4			11.4	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	1018	48	97	1396	73	131	546	141	62	270	129
Future Volume (vph)	57	1018	48	97	1396	73	131	546	141	62	270	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00		0.95	1.00		0.91	
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.64		1.00	0.63		0.93	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00		0.98	1.00		0.98	
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1337	4796		1647	3374	1006		3393	1004		4327	
Flt Permitted	0.16	1.00		0.15	1.00	1.00		0.75	1.00		0.78	
Satd. Flow (perm)	226	4796		264	3374	1006		2563	1004		3382	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	59	1049	49	100	1439	75	135	563	145	64	278	133
RTOR Reduction (vph)	0	7	0	0	0	47	0	0	91	0	84	0
Lane Group Flow (vph)	59	1091	0	100	1439	28	0	698	54	0	391	0
Confl. Peds. (#/hr)	500		402	402		500	261		740	740		261
Confl. Bikes (#/hr)						1			1			1
Heavy Vehicles (%)	35%	6%	2%	9%	7%	3%	3%	3%	1%	2%	7%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2		2	4		4	8		
Actuated Green, G (s)	29.5	24.9		33.3	26.8	26.8		26.2	26.2		26.2	
Effective Green, g (s)	29.5	24.9		33.3	26.8	26.8		26.2	26.2		26.2	
Actuated g/C Ratio	0.41	0.35		0.47	0.37	0.37		0.37	0.37		0.37	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	164	1667		248	1262	376		937	367		1237	
v/s Ratio Prot	0.02	0.23		c0.04	c0.43							
v/s Ratio Perm	0.12			0.15		0.03		c0.27	0.05		0.12	
v/c Ratio	0.36	0.65		0.40	1.14	0.07		0.74	0.15		0.32	
Uniform Delay, d1	16.1	19.7		11.9	22.4	14.4		19.8	15.2		16.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	1.4	2.0		1.1	73.1	0.4		5.4	0.8		0.7	
Delay (s)	17.5	21.7		13.0	95.5	14.8		25.1	16.0		16.9	
Level of Service	B	C		B	F	B		C	B		B	
Approach Delay (s)		21.5			86.7			23.6			16.9	
Approach LOS		C			F			C			B	

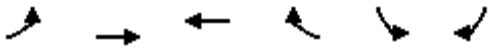
Intersection Summary			
HCM 2000 Control Delay	47.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	71.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	100.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1099	121	130	1438	128	101
Future Volume (vph)	1099	121	130	1438	128	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.91		1.00	0.91	1.00	1.00
Frpb, ped/bikes	0.98		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	0.88	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4912		1802	5085	1590	1615
Flt Permitted	1.00		0.12	1.00	0.95	1.00
Satd. Flow (perm)	4912		226	5085	1590	1615
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1133	125	134	1482	132	104
RTOR Reduction (vph)	17	0	0	0	0	82
Lane Group Flow (vph)	1241	0	134	1482	132	22
Confl. Peds. (#/hr)		100	100		100	
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%
Turn Type	NA		pm+pt	NA	Perm	Over
Protected Phases	4		3	8		3
Permitted Phases			8		2	
Actuated Green, G (s)	29.2		49.0	49.0	13.5	15.3
Effective Green, g (s)	29.2		49.0	49.0	13.5	15.3
Actuated g/C Ratio	0.41		0.69	0.69	0.19	0.21
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2006		492	3484	300	345
v/s Ratio Prot	c0.25		0.06	c0.29		0.01
v/s Ratio Perm			0.13		c0.08	
v/c Ratio	0.62		0.27	0.43	0.44	0.06
Uniform Delay, d1	16.7		6.1	5.0	25.7	22.4
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6		1.4	0.4	1.0	0.4
Delay (s)	17.3		7.4	5.4	26.7	22.8
Level of Service	B		A	A	C	C
Approach Delay (s)	17.3			5.5	25.0	
Approach LOS	B			A	C	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	71.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

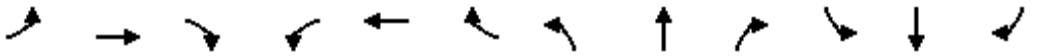
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1200	1551	347	0	17
Future Volume (Veh/h)	0	1200	1551	347	0	17
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	1412	1825	408	0	20
Pedestrians					97	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.1	
Percent Blockage					9	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		98	44			
pX, platoon unblocked	0.70				0.80	0.70
vC, conflicting volume	2330				2597	909
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1416				538	0
tC, single (s)	4.1				6.8	8.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	4.3
p0 queue free %	100				100	96
cM capacity (veh/h)	305				342	535

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	471	471	471	730	730	773	20
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	408	20
cSH	1700	1700	1700	1700	1700	1700	535
Volume to Capacity	0.28	0.28	0.28	0.43	0.43	0.45	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	12.0
Lane LOS							B
Approach Delay (s)	0.0			0.0			12.0
Approach LOS							B

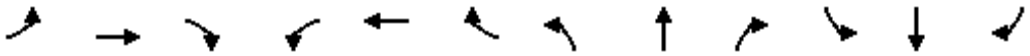
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	1052	96	73	1652	42	148	239	113	86	296	98
Future Volume (vph)	52	1052	96	73	1652	42	148	239	113	86	296	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	1.00		1.00	1.00	0.86	1.00	0.98	
Flpb, ped/bikes	0.99	1.00		0.97	1.00		0.96	1.00	1.00	0.91	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1642	4748		1692	4803		1701	1845	1379	1602	1748	
Flt Permitted	0.11	1.00		0.18	1.00		0.35	1.00	1.00	0.55	1.00	
Satd. Flow (perm)	187	4748		315	4803		628	1845	1379	920	1748	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	55	1107	101	77	1739	44	156	252	119	91	312	103
RTOR Reduction (vph)	0	14	0	0	4	0	0	0	18	0	3	0
Lane Group Flow (vph)	55	1194	0	77	1779	0	156	252	101	91	412	0
Confl. Peds. (#/hr)	91		116	116		92	99		154	154		99
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	9%	6%	2%	3%	7%	10%	2%	3%	1%	3%	2%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	37.0	37.0		37.0	37.0		28.0	28.0	28.0	28.0	28.0	
Effective Green, g (s)	37.0	37.0		37.0	37.0		28.0	28.0	28.0	28.0	28.0	
Actuated g/C Ratio	0.49	0.49		0.49	0.49		0.37	0.37	0.37	0.37	0.37	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Grp Cap (vph)	92	2342		155	2369		234	688	514	343	652	
v/s Ratio Prot		0.25			c0.37			0.14			0.24	
v/s Ratio Perm	0.29			0.24			c0.25		0.07	0.10		
v/c Ratio	0.60	0.51		0.50	0.75		0.67	0.37	0.20	0.27	0.63	
Uniform Delay, d1	13.7	12.9		12.8	15.3		19.6	17.1	15.9	16.3	19.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	0.98	0.96	1.00	1.00	
Incremental Delay, d2	25.5	0.8		10.9	2.2		12.4	1.3	0.7	1.9	4.6	
Delay (s)	39.1	13.7		23.7	17.5		32.1	18.0	16.0	18.2	23.9	
Level of Service	D	B		C	B		C	B	B	B	C	
Approach Delay (s)		14.8			17.8			21.7			22.9	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

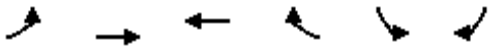
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	15	28	0	39	20	714	16	12	430	17
Future Volume (vph)	10	0	15	28	0	39	20	714	16	12	430	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.92			0.90			0.99			0.99	
Flpb, ped/bikes		0.94			0.82			1.00			1.00	
Frt		0.92			0.92			1.00			0.99	
Flt Protected		0.98			0.98			1.00			1.00	
Satd. Flow (prot)		1461			1253			3472			3468	
Flt Permitted		0.90			0.89			0.93			0.93	
Satd. Flow (perm)		1348			1136			3243			3216	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	12	0	18	33	0	46	24	840	19	14	506	20
RTOR Reduction (vph)	0	22	0	0	32	0	0	2	0	0	4	0
Lane Group Flow (vph)	0	8	0	0	47	0	0	881	0	0	536	0
Confl. Peds. (#/hr)	177		136	1136		177	172		396	396		172
Confl. Bikes (#/hr)			3			2			5			1
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		13.7			13.7			28.2			28.2	
Effective Green, g (s)		13.7			13.7			28.2			28.2	
Actuated g/C Ratio		0.26			0.26			0.54			0.54	
Clearance Time (s)		4.5			4.5			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		352			297			1745			1730	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.04			c0.27			0.17	
v/c Ratio		0.02			0.16			0.50			0.31	
Uniform Delay, d1		14.4			14.9			7.7			6.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.0			0.2			0.2			0.1	
Delay (s)		14.4			15.1			7.9			6.8	
Level of Service		B			B			A			A	
Approach Delay (s)		14.4			15.1			7.9			6.8	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	52.4	Sum of lost time (s)	10.5
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

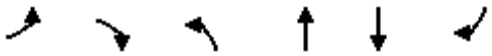
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	28	12	24	30	51	67
Future Volume (Veh/h)	28	12	24	30	51	67
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	13	26	33	55	73
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		140				
pX, platoon unblocked						
vC, conflicting volume	59				116	42
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	59				116	42
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				94	93
cM capacity (veh/h)	1545				864	1028

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	43	59	128
Volume Left	30	0	55
Volume Right	0	33	73
cSH	1545	1700	950
Volume to Capacity	0.02	0.03	0.13
Queue Length 95th (m)	0.5	0.0	3.5
Control Delay (s)	5.2	0.0	9.4
Lane LOS	A		A
Approach Delay (s)	5.2	0.0	9.4
Approach LOS			A

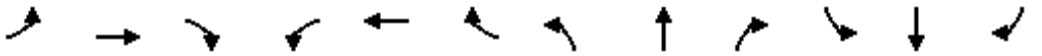
Intersection Summary			
Average Delay		6.2	
Intersection Capacity Utilization		22.5%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	32	53	42	501	402	18
Future Volume (Veh/h)	32	53	42	501	402	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	36	60	48	569	457	20
Pedestrians	144			144		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.1			1.1		
Percent Blockage	14			14		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				205	109	
pX, platoon unblocked	0.92	0.85	0.85			
vC, conflicting volume	1276	755	621			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	910	622	464			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	84	81	94			
cM capacity (veh/h)	229	310	811			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	96	617	477
Volume Left	36	48	0
Volume Right	60	0	20
cSH	274	811	1700
Volume to Capacity	0.35	0.06	0.28
Queue Length 95th (m)	11.5	1.4	0.0
Control Delay (s)	25.1	1.6	0.0
Lane LOS	D	A	
Approach Delay (s)	25.1	1.6	0.0
Approach LOS	D		

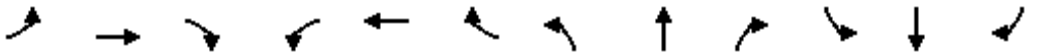
Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	1400	51	62	1427	82	110	589	59	58	243	107
Future Volume (vph)	115	1400	51	62	1427	82	110	589	59	58	243	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98		1.00	0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.93	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3511		1770	3503		1651	3418		1750	3253	
Flt Permitted	0.12	1.00		0.12	1.00		0.54	1.00		0.22	1.00	
Satd. Flow (perm)	218	3511		218	3503		935	3418		404	3253	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	117	1429	52	63	1456	84	112	601	60	59	248	109
RTOR Reduction (vph)	0	3	0	0	5	0	0	10	0	0	7	0
Lane Group Flow (vph)	117	1478	0	63	1535	0	112	651	0	59	350	0
Confl. Peds. (#/hr)	25		59	59		25	101		203	203		101
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.2	34.2		34.2	34.2		21.1	21.1		28.5	28.5	
Effective Green, g (s)	34.2	34.2		34.2	34.2		21.1	21.1		28.5	28.5	
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.29	0.29		0.39	0.39	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		1.5	3.0	
Lane Grp Cap (vph)	102	1651		102	1647		271	992		221	1275	
v/s Ratio Prot		0.42			0.44			c0.19		0.01	c0.11	
v/s Ratio Perm	c0.54			0.29			0.12			0.09		
v/c Ratio	1.15	0.90		0.62	0.93		0.41	0.66		0.27	0.27	
Uniform Delay, d1	19.2	17.6		14.4	18.2		20.8	22.6		14.9	15.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	134.1	8.0		24.9	11.0		4.6	3.4		0.2	0.5	
Delay (s)	153.4	25.6		39.3	29.1		25.4	26.0		15.1	15.6	
Level of Service	F	C		D	C		C	C		B	B	
Approach Delay (s)		34.9			29.5			25.9			15.5	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	72.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



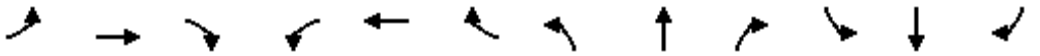
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	1398	16	0	1503	152	22	331	88	106	311	64
Future Volume (vph)	32	1398	16	0	1503	152	22	331	88	106	311	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.97			0.98	
Flt Protected		1.00			1.00			1.00			0.99	
Satd. Flow (prot)		3559			3536			3392			3437	
Flt Permitted		0.78			1.00			0.91			0.70	
Satd. Flow (perm)		2766			3536			3107			2421	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	33	1456	17	0	1566	158	23	345	92	110	324	67
RTOR Reduction (vph)	0	1	0	0	10	0	0	23	0	0	16	0
Lane Group Flow (vph)	0	1505	0	0	1714	0	0	437	0	0	485	0
Confl. Peds. (#/hr)	20		22	22		20	31		19	19		31
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	3%	1%	6%	0%	0%	1%	0%	2%	3%	0%	1%	1%
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		43.0			43.0			22.0			22.0	
Effective Green, g (s)		43.0			43.0			22.0			22.0	
Actuated g/C Ratio		0.57			0.57			0.29			0.29	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1585			2027			911			710	
v/s Ratio Prot					0.48							
v/s Ratio Perm		c0.54						0.14			c0.20	
v/c Ratio		0.95			0.85			0.48			0.68	
Uniform Delay, d1		15.0			13.2			21.8			23.4	
Progression Factor		1.00			1.00			1.00			0.91	
Incremental Delay, d2		13.4			4.6			1.8			4.6	
Delay (s)		28.4			17.8			23.6			25.9	
Level of Service		C			B			C			C	
Approach Delay (s)		28.4			17.8			23.6			25.9	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	102.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: Commercial Drive & North Grandview Highway

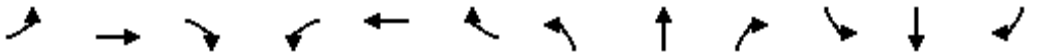
10/12/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1	10	6	188	73	82	427	24	0	666	5
Future Volume (vph)	10	1	10	6	188	73	82	427	24	0	666	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.82			0.93		1.00	0.96			1.00	
Flpb, ped/bikes	0.85	1.00			1.00		0.82	1.00			1.00	
Frt	1.00	0.86			0.96		1.00	0.99			1.00	
Flt Protected	0.95	1.00			1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1354	1215			1514		1317	2915			3139	
Flt Permitted	0.52	1.00			1.00		0.31	1.00			1.00	
Satd. Flow (perm)	738	1215			1511		427	2915			3139	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	11	1	11	7	207	80	90	469	26	0	732	5
RTOR Reduction (vph)	0	4	0	0	1	0	0	5	0	0	1	0
Lane Group Flow (vph)	11	8	0	0	293	0	90	490	0	0	736	0
Confl. Peds. (#/hr)	282		199	199		282	516		979	979		516
Confl. Bikes (#/hr)			1			4			2			
Heavy Vehicles (%)	2%	0%	0%	0%	0%	1%	1%	2%	79%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Actuated Green, G (s)	32.0	32.0			32.0		38.0	38.0			38.0	
Effective Green, g (s)	32.0	32.0			32.0		38.0	38.0			38.0	
Actuated g/C Ratio	0.40	0.40			0.40		0.48	0.48			0.48	
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0			5.0	
Lane Grp Cap (vph)	295	486			604		202	1384			1491	
v/s Ratio Prot		0.01						0.17			c0.23	
v/s Ratio Perm	0.01				c0.19		0.21					
v/c Ratio	0.04	0.02			0.49		0.45	0.35			0.49	
Uniform Delay, d1	14.6	14.5			17.9		14.0	13.3			14.4	
Progression Factor	1.00	1.00			0.69		1.00	1.00			1.00	
Incremental Delay, d2	0.2	0.1			2.2		7.0	0.7			1.2	
Delay (s)	14.9	14.6			14.6		21.0	14.0			15.6	
Level of Service	B	B			B		C	B			B	
Approach Delay (s)		14.7			14.6			15.0			15.6	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	1571	139	154	1238	33	55	376	131	84	507	119
Future Volume (vph)	102	1571	139	154	1238	33	55	376	131	84	507	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00		0.95	1.00		0.91	
Frpb, ped/bikes	1.00	0.97		1.00	1.00	0.65		1.00	0.56		0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		0.99	1.00		0.97	
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1543	4812		1787	3471	1042		3479	898		4524	
Flt Permitted	0.13	1.00		0.13	1.00	1.00		0.77	1.00		0.80	
Satd. Flow (perm)	218	4812		237	3471	1042		2681	898		3644	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	109	1671	148	164	1317	35	59	400	139	89	539	127
RTOR Reduction (vph)	0	12	0	0	0	21	0	0	93	0	38	0
Lane Group Flow (vph)	109	1807	0	164	1317	14	0	459	46	0	717	0
Confl. Peds. (#/hr)	441		710	710		441	450		1030	1030		450
Heavy Vehicles (%)	17%	3%	1%	1%	4%	0%	0%	2%	1%	1%	3%	0%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2		2	4		4	8		
Actuated Green, G (s)	36.8	29.8		40.8	31.8	31.8		26.0	26.0		26.0	
Effective Green, g (s)	36.8	29.8		40.8	31.8	31.8		26.0	26.0		26.0	
Actuated g/C Ratio	0.47	0.38		0.52	0.40	0.40		0.33	0.33		0.33	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	219	1819		299	1400	420		884	296		1202	
v/s Ratio Prot	0.04	0.38		c0.06	c0.38							
v/s Ratio Perm	0.19			0.22		0.01		0.17	0.05		c0.20	
v/c Ratio	0.50	0.99		0.55	0.94	0.03		0.52	0.15		0.60	
Uniform Delay, d1	15.7	24.4		14.9	22.6	14.2		21.3	18.6		22.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	1.8	19.5		2.1	13.5	0.1		2.2	1.1		2.2	
Delay (s)	17.5	43.9		17.0	36.1	14.4		23.5	19.8		24.2	
Level of Service	B	D		B	D	B		C	B		C	
Approach Delay (s)		42.4			33.6			22.6			24.2	
Approach LOS		D			C			C			C	

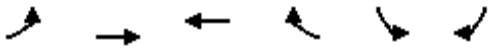
Intersection Summary			
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	78.8	Sum of lost time (s)	14.0
Intersection Capacity Utilization	100.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1625	160	155	1259	167	162
Future Volume (vph)	1625	160	155	1259	167	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.91		1.00	0.91	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	5026		1805	5085	1805	1615
Flt Permitted	1.00		0.10	1.00	0.95	1.00
Satd. Flow (perm)	5026		190	5085	1805	1615
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1693	167	161	1311	174	169
RTOR Reduction (vph)	13	0	0	0	0	140
Lane Group Flow (vph)	1847	0	161	1311	174	29
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%
Turn Type	NA		pm+pt	NA	Perm	Perm
Protected Phases	4		3	8		
Permitted Phases			8		2	2
Actuated Green, G (s)	35.4		48.1	48.1	12.0	12.0
Effective Green, g (s)	35.4		48.1	48.1	12.0	12.0
Actuated g/C Ratio	0.51		0.70	0.70	0.17	0.17
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2574		323	3539	313	280
v/s Ratio Prot	c0.37		c0.06	0.26		
v/s Ratio Perm			0.29		c0.10	0.02
v/c Ratio	0.72		0.50	0.37	0.56	0.10
Uniform Delay, d1	13.0		8.7	4.3	26.1	24.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0		1.2	0.1	2.1	0.2
Delay (s)	14.0		9.9	4.4	28.2	24.2
Level of Service	B		A	A	C	C
Approach Delay (s)	14.0			5.0	26.3	
Approach LOS	B			A	C	

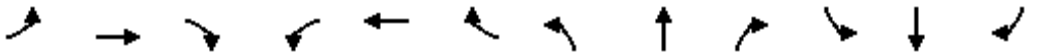
Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	69.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	64.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1787	1393	269	0	21
Future Volume (Veh/h)	0	1787	1393	269	0	21
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	1881	1466	283	0	22
Pedestrians			15			
Lane Width (m)			3.6			
Walking Speed (m/s)			1.1			
Percent Blockage			1			
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		105	44			
pX, platoon unblocked	0.76				0.84	0.76
vC, conflicting volume	1749				2250	630
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	878				0	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	97
cM capacity (veh/h)	581				851	824

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	627	627	627	586	586	576	22
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	283	22
cSH	1700	1700	1700	1700	1700	1700	824
Volume to Capacity	0.37	0.37	0.37	0.34	0.34	0.34	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.5
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.5
Approach LOS							A

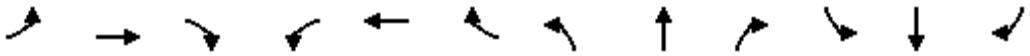
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	1626	80	47	1589	53	12	226	102	170	386	60
Future Volume (vph)	82	1626	80	47	1589	53	12	226	102	170	386	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	0.82	1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.97	1.00	1.00	0.88	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1762	4942		1765	5016		1746	1900	1304	1521	1818	
Flt Permitted	0.10	1.00		0.10	1.00		0.27	1.00	1.00	0.55	1.00	
Satd. Flow (perm)	177	4942		177	5016		495	1900	1304	886	1818	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	85	1676	82	48	1638	55	12	233	105	175	398	62
RTOR Reduction (vph)	0	7	0	0	4	0	0	0	18	0	5	0
Lane Group Flow (vph)	85	1751	0	48	1689	0	12	233	87	175	455	0
Confl. Peds. (#/hr)	117		117	117		117	92		189	189		92
Confl. Bikes (#/hr)						1						1
Heavy Vehicles (%)	1%	3%	2%	1%	2%	3%	0%	0%	2%	5%	1%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	42.0	42.0		42.0	42.0		28.0	28.0	28.0	28.0	28.0	
Effective Green, g (s)	42.0	42.0		42.0	42.0		28.0	28.0	28.0	28.0	28.0	
Actuated g/C Ratio	0.52	0.52		0.52	0.52		0.35	0.35	0.35	0.35	0.35	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Grp Cap (vph)	92	2594		92	2633		173	665	456	310	636	
v/s Ratio Prot		0.35			0.34			0.12			c0.25	
v/s Ratio Perm	c0.48			0.27			0.02		0.07	0.20		
v/c Ratio	0.92	0.68		0.52	0.64		0.07	0.35	0.19	0.56	0.72	
Uniform Delay, d1	17.5	14.0		12.4	13.6		17.3	19.3	18.1	21.1	22.5	
Progression Factor	1.00	1.00		1.00	1.00		1.84	1.78	2.04	1.00	1.00	
Incremental Delay, d2	74.7	1.4		19.6	1.2		0.7	1.2	0.8	7.3	6.7	
Delay (s)	92.2	15.4		32.0	14.8		32.6	35.6	37.7	28.3	29.3	
Level of Service	F	B		C	B		C	D	D	C	C	
Approach Delay (s)		19.0			15.3			36.1			29.0	
Approach LOS		B			B			D			C	

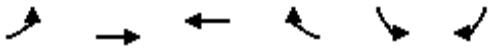
Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1	39	12	0	10	9	486	12	13	683	20
Future Volume (vph)	16	1	39	12	0	10	9	486	12	13	683	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.84			0.92			0.99			0.99	
Flpb, ped/bikes		0.96			0.89			1.00			1.00	
Frt		0.91			0.94			1.00			1.00	
Flt Protected		0.99			0.97			1.00			1.00	
Satd. Flow (prot)		1358			1420			3473			3457	
Flt Permitted		0.94			0.90			0.94			0.94	
Satd. Flow (perm)		1300			1311			3269			3264	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	16	1	40	12	0	10	9	501	12	13	704	21
RTOR Reduction (vph)	0	27	0	0	15	0	0	3	0	0	4	0
Lane Group Flow (vph)	0	30	0	0	7	0	0	519	0	0	734	0
Confl. Peds. (#/hr)	179		241	241		179	330		406	406		330
Confl. Bikes (#/hr)			3			2			5			1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.2			18.2			26.5			26.5	
Effective Green, g (s)		18.2			18.2			26.5			26.5	
Actuated g/C Ratio		0.33			0.33			0.48			0.48	
Clearance Time (s)		4.5			4.5			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		428			432			1569			1566	
v/s Ratio Prot												
v/s Ratio Perm		c0.02			0.01			0.16			c0.23	
v/c Ratio		0.07			0.02			0.33			0.47	
Uniform Delay, d1		12.7			12.5			8.9			9.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			0.0			0.1			0.2	
Delay (s)		12.8			12.5			9.0			9.9	
Level of Service		B			B			A			A	
Approach Delay (s)		12.8			12.5			9.0			9.9	
Approach LOS		B			B			A			A	

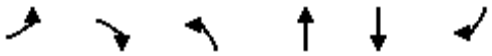
Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	55.2	Sum of lost time (s)	10.5
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	5	1	24	22	23
Future Volume (Veh/h)	25	5	1	24	22	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	5	1	26	24	25
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		132				
pX, platoon unblocked						
vC, conflicting volume	27				73	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	27				73	14
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				97	98
cM capacity (veh/h)	1587				915	1066

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	32	27	49
Volume Left	27	0	24
Volume Right	0	26	25
cSH	1587	1700	986
Volume to Capacity	0.02	0.02	0.05
Queue Length 95th (m)	0.4	0.0	1.2
Control Delay (s)	6.2	0.0	8.8
Lane LOS	A		A
Approach Delay (s)	6.2	0.0	8.8
Approach LOS			A

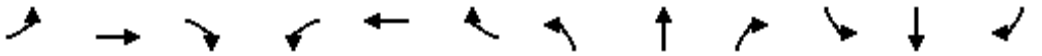
Intersection Summary			
Average Delay		5.8	
Intersection Capacity Utilization		18.3%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	21	46	44	302	476	19
Future Volume (Veh/h)	21	46	44	302	476	19
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	23	49	47	325	512	20
Pedestrians	84			84		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.1			1.1		
Percent Blockage	8			8		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				205	109	
pX, platoon unblocked	0.84	0.79	0.79			
vC, conflicting volume	1025	690	616			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	669	477	384			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	88	95			
cM capacity (veh/h)	309	394	856			

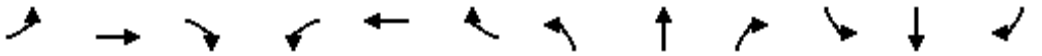
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	72	372	532
Volume Left	23	47	0
Volume Right	49	0	20
cSH	362	856	1700
Volume to Capacity	0.20	0.05	0.31
Queue Length 95th (m)	5.5	1.3	0.0
Control Delay (s)	17.4	1.8	0.0
Lane LOS	C	A	
Approach Delay (s)	17.4	1.8	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	1572	79	59	1326	71	86	294	41	128	586	142
Future Volume (vph)	153	1572	79	59	1326	71	86	294	41	128	586	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.96		1.00	0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.89	1.00		0.93	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3496		1770	3501		1578	3345		1646	3231	
Flt Permitted	0.11	1.00		0.11	1.00		0.37	1.00		0.45	1.00	
Satd. Flow (perm)	213	3496		213	3501		619	3345		785	3231	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	155	1588	80	60	1339	72	87	297	41	129	592	143
RTOR Reduction (vph)	0	5	0	0	5	0	0	12	0	0	7	0
Lane Group Flow (vph)	155	1663	0	60	1406	0	87	326	0	129	728	0
Confl. Peds. (#/hr)	43		80	80		43	252		256	256		252
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	35.0	35.0		35.0	35.0		25.3	25.3		35.8	35.8	
Effective Green, g (s)	35.0	35.0		35.0	35.0		25.3	25.3		35.8	35.8	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.31	0.31		0.44	0.44	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		1.5	3.0	
Lane Grp Cap (vph)	92	1514		92	1516		193	1047		417	1431	
v/s Ratio Prot		0.48			0.40			0.10		0.02	c0.23	
v/s Ratio Perm	c0.73			0.28			0.14			0.11		
v/c Ratio	1.68	1.10		0.65	0.93		0.45	0.31		0.31	0.51	
Uniform Delay, d1	22.9	22.9		18.1	21.7		22.2	21.1		13.8	16.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	350.5	55.1		30.7	11.3		7.4	0.8		0.2	1.3	
Delay (s)	373.4	78.0		48.8	33.0		29.6	21.9		13.9	17.5	
Level of Service	F	E		D	C		C	C		B	B	
Approach Delay (s)		103.1			33.6			23.5			16.9	
Approach LOS		F			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	57.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	80.8	Sum of lost time (s)	14.0
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

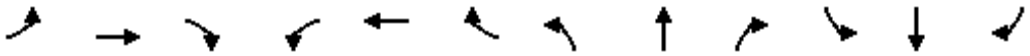


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1588	23	25	1434	110	25	285	62	139	425	16
Future Volume (vph)	1	1588	23	25	1434	110	25	285	62	139	425	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			1.00			0.99			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			0.99	
Frt		1.00			0.99			0.97			1.00	
Flt Protected		1.00			1.00			1.00			0.99	
Satd. Flow (prot)		3529			3482			3388			3444	
Flt Permitted		0.95			0.82			0.89			0.73	
Satd. Flow (perm)		3368			2840			3025			2529	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1	1654	24	26	1494	115	26	297	65	145	443	17
RTOR Reduction (vph)	0	1	0	0	7	0	0	12	0	0	3	0
Lane Group Flow (vph)	0	1678	0	0	1628	0	0	376	0	0	602	0
Confl. Peds. (#/hr)	20		27	27		20	38		47	47		38
Confl. Bikes (#/hr)												1
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		45.0			45.0			25.0			25.0	
Effective Green, g (s)		45.0			45.0			25.0			25.0	
Actuated g/C Ratio		0.56			0.56			0.31			0.31	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1894			1597			945			790	
v/s Ratio Prot												
v/s Ratio Perm		0.50			c0.57			0.12			c0.24	
v/c Ratio		0.89			1.02			0.40			0.76	
Uniform Delay, d1		15.3			17.5			21.6			24.8	
Progression Factor		1.00			1.00			1.00			1.17	
Incremental Delay, d2		6.5			27.5			1.3			5.7	
Delay (s)		21.8			45.0			22.8			34.7	
Level of Service		C			D			C			C	
Approach Delay (s)		21.8			45.0			22.8			34.7	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	103.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
1: Commercial Drive & North Grandview Highway

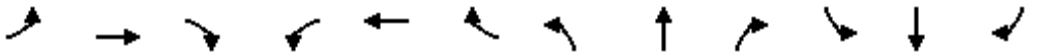
10/12/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	2	12	3	111	52	62	532	18	0	671	5
Future Volume (vph)	10	2	12	3	111	52	62	532	18	0	671	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.92			0.96		1.00	0.98			1.00	
Flpb, ped/bikes	0.92	1.00			1.00		0.84	1.00			1.00	
Frt	1.00	0.87			0.96		1.00	1.00			1.00	
Flt Protected	0.95	1.00			1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1499	1367			1565		1368	3027			3141	
Flt Permitted	0.65	1.00			1.00		0.31	1.00			1.00	
Satd. Flow (perm)	1029	1367			1563		448	3027			3141	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	11	2	13	3	122	57	68	585	20	0	737	5
RTOR Reduction (vph)	0	8	0	0	2	0	0	4	0	0	1	0
Lane Group Flow (vph)	11	7	0	0	180	0	68	601	0	0	741	0
Confl. Peds. (#/hr)	130		102	102		130	315		719	719		315
Confl. Bikes (#/hr)			1			2						3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	2%	78%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Actuated Green, G (s)	27.0	27.0			27.0		33.0	33.0			33.0	
Effective Green, g (s)	27.0	27.0			27.0		33.0	33.0			33.0	
Actuated g/C Ratio	0.39	0.39			0.39		0.47	0.47			0.47	
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0			5.0	
Lane Grp Cap (vph)	396	527			602		211	1427			1480	
v/s Ratio Prot		0.01						0.20			c0.24	
v/s Ratio Perm	0.01				c0.12		0.15					
v/c Ratio	0.03	0.01			0.30		0.32	0.42			0.50	
Uniform Delay, d1	13.4	13.3			14.9		11.5	12.2			12.8	
Progression Factor	1.00	1.00			0.95		1.00	1.00			1.00	
Incremental Delay, d2	0.1	0.0			1.1		4.0	0.9			1.2	
Delay (s)	13.5	13.3			15.3		15.5	13.1			14.0	
Level of Service	B	B			B		B	B			B	
Approach Delay (s)		13.4			15.3			13.4			14.0	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	900	68	99	1055	43	75	415	123	69	339	97
Future Volume (vph)	93	900	68	99	1055	43	75	415	123	69	339	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		4.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00		0.95	1.00		0.91	
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.69		1.00	0.64		0.94	
Flpb, ped/bikes	0.99	1.00		0.99	1.00	1.00		0.98	1.00		0.98	
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1535	4866		1788	3438	1080		3411	1020		4495	
Flt Permitted	0.20	1.00		0.20	1.00	1.00		0.79	1.00		0.82	
Satd. Flow (perm)	318	4866		373	3438	1080		2715	1020		3691	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	99	957	72	105	1122	46	80	441	131	73	361	103
RTOR Reduction (vph)	0	12	0	0	0	32	0	0	80	0	55	0
Lane Group Flow (vph)	99	1017	0	105	1122	14	0	521	51	0	482	0
Confl. Peds. (#/hr)	311		380	380		311	415		732	732		415
Heavy Vehicles (%)	17%	3%	4%	0%	5%	3%	1%	3%	1%	2%	3%	0%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2		2	4		4	8		
Actuated Green, G (s)	26.7	20.3		26.5	20.2	20.2		26.2	26.2		26.2	
Effective Green, g (s)	26.7	20.3		26.5	20.2	20.2		26.2	26.2		26.2	
Actuated g/C Ratio	0.40	0.30		0.40	0.30	0.30		0.39	0.39		0.39	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	243	1478		281	1039	326		1064	400		1447	
v/s Ratio Prot	c0.04	0.21		0.04	c0.33							
v/s Ratio Perm	0.12			0.11		0.01		c0.19	0.05		0.13	
v/c Ratio	0.41	0.69		0.37	1.08	0.04		0.49	0.13		0.33	
Uniform Delay, d1	15.0	20.5		13.4	23.3	16.5		15.3	13.0		14.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	1.1	2.6		0.8	52.1	0.2		1.6	0.7		0.6	
Delay (s)	16.1	23.1		14.2	75.4	16.7		16.9	13.7		14.8	
Level of Service	B	C		B	E	B		B	B		B	
Approach Delay (s)		22.5			68.2			16.2			14.8	
Approach LOS		C			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	36.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	66.8	Sum of lost time (s)	14.0
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		

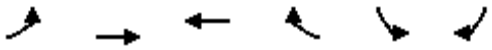
c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	970	118	110	1077	120	109
Future Volume (vph)	970	118	110	1077	120	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.91		1.00	0.91	1.00	1.00
Frpb, ped/bikes	0.98		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	0.90	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4911		1763	5187	1618	1615
Flt Permitted	1.00		0.18	1.00	0.95	1.00
Satd. Flow (perm)	4911		341	5187	1618	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1021	124	116	1134	126	115
RTOR Reduction (vph)	15	0	0	0	0	99
Lane Group Flow (vph)	1130	0	116	1134	126	16
Confl. Peds. (#/hr)		100	100		100	
Heavy Vehicles (%)	2%	0%	2%	0%	0%	0%
Turn Type	NA		pm+pt	NA	Perm	Perm
Protected Phases	4		3	8		
Permitted Phases			8		2	2
Actuated Green, G (s)	34.2		44.5	44.5	8.7	8.7
Effective Green, g (s)	34.2		44.5	44.5	8.7	8.7
Actuated g/C Ratio	0.55		0.72	0.72	0.14	0.14
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2700		376	3710	226	225
v/s Ratio Prot	c0.23		0.03	c0.22		
v/s Ratio Perm			0.19		c0.08	0.01
v/c Ratio	0.42		0.31	0.31	0.56	0.07
Uniform Delay, d1	8.2		3.5	3.2	25.0	23.2
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		0.5	0.2	3.0	0.1
Delay (s)	8.7		4.0	3.4	27.9	23.4
Level of Service	A		A	A	C	C
Approach Delay (s)	8.7			3.5	25.8	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	62.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

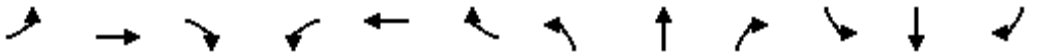
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1080	1173	173	0	15
Future Volume (Veh/h)	0	1080	1173	173	0	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	1137	1235	182	0	16
Pedestrians					92	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.1	
Percent Blockage					9	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		109	44			
pX, platoon unblocked	0.80				0.85	0.80
vC, conflicting volume	1509				1797	595
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	757				473	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	619				405	791

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	379	379	379	494	494	429	16
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	182	16
cSH	1700	1700	1700	1700	1700	1700	791
Volume to Capacity	0.22	0.22	0.22	0.29	0.29	0.25	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.6
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.6
Approach LOS							A

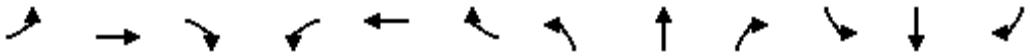
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	934	86	60	1233	80	49	240	87	84	246	64
Future Volume (vph)	60	934	86	60	1233	80	49	240	87	84	246	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00	0.87	1.00	0.98	
Flpb, ped/bikes	0.98	1.00		0.95	1.00		0.95	1.00	1.00	0.92	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1734	4910		1694	4939		1535	1900	1398	1646	1773	
Flt Permitted	0.13	1.00		0.21	1.00		0.48	1.00	1.00	0.57	1.00	
Satd. Flow (perm)	238	4910		380	4939		777	1900	1398	980	1773	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	62	973	90	62	1284	83	51	250	91	88	256	67
RTOR Reduction (vph)	0	16	0	0	10	0	0	0	19	0	8	0
Lane Group Flow (vph)	63	1047	0	63	1357	0	51	250	72	88	315	0
Confl. Peds. (#/hr)	98		144	144		98	120		149	149		120
Heavy Vehicles (%)	2%	2%	0%	1%	3%	0%	0%	0%	1%	1%	1%	4%
Parking (#/hr)							0					
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	32.0	32.0		32.0	32.0		28.0	28.0	28.0	28.0	28.0	
Effective Green, g (s)	32.0	32.0		32.0	32.0		28.0	28.0	28.0	28.0	28.0	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.40	0.40	0.40	0.40	0.40	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Grp Cap (vph)	108	2244		173	2257		310	760	559	392	709	
v/s Ratio Prot		0.21			c0.27			0.13			c0.18	
v/s Ratio Perm	0.26			0.17			0.07		0.05	0.09		
v/c Ratio	0.58	0.47		0.36	0.60		0.16	0.33	0.13	0.22	0.44	
Uniform Delay, d1	14.1	13.1		12.4	14.2		13.5	14.5	13.3	13.8	15.3	
Progression Factor	1.00	1.00		1.00	1.00		1.51	1.49	1.72	1.00	1.00	
Incremental Delay, d2	21.0	0.7		5.8	1.2		1.0	1.0	0.4	1.3	2.0	
Delay (s)	35.0	13.8		18.2	15.4		21.4	22.6	23.2	15.2	17.3	
Level of Service	D	B		B	B		C	C	C	B	B	
Approach Delay (s)		15.0			15.5			22.6			16.9	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

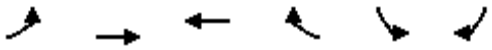
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	0	16	9	0	8	8	531	13	12	496	14
Future Volume (vph)	13	0	16	9	0	8	8	531	13	12	496	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.90			0.90			0.99			0.99	
Flpb, ped/bikes		0.91			0.92			1.00			0.99	
Frt		0.93			0.94			1.00			1.00	
Flt Protected		0.98			0.97			1.00			1.00	
Satd. Flow (prot)		1392			1405			3466			3458	
Flt Permitted		0.92			0.91			0.95			0.94	
Satd. Flow (perm)		1307			1315			3280			3247	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	14	0	17	10	0	9	9	565	14	13	528	15
RTOR Reduction (vph)	0	21	0	0	13	0	0	3	0	0	4	0
Lane Group Flow (vph)	0	10	0	0	6	0	0	585	0	0	552	0
Confl. Peds. (#/hr)	209		176	176		209	284		466	466		284
Confl. Bikes (#/hr)			3			2						1
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.2			18.2			27.9			27.9	
Effective Green, g (s)		18.2			18.2			27.9			27.9	
Actuated g/C Ratio		0.32			0.32			0.49			0.49	
Clearance Time (s)		4.5			4.5			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		420			422			1616			1600	
v/s Ratio Prot												
v/s Ratio Perm		c0.01			0.00			c0.18			0.17	
v/c Ratio		0.02			0.01			0.36			0.35	
Uniform Delay, d1		13.1			13.1			8.9			8.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.0			0.0			0.1			0.1	
Delay (s)		13.1			13.1			9.0			8.9	
Level of Service		B			B			A			A	
Approach Delay (s)		13.1			13.1			9.0			8.9	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	56.6	Sum of lost time (s)	10.5
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

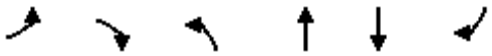
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	6	41	23	15	17
Future Volume (Veh/h)	25	6	41	23	15	17
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	7	45	25	16	18
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		130				
pX, platoon unblocked						
vC, conflicting volume	70				118	58
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	70				118	58
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				98	98
cM capacity (veh/h)	1531				862	1009

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	34	70	34
Volume Left	27	0	16
Volume Right	0	25	18
cSH	1531	1700	934
Volume to Capacity	0.02	0.04	0.04
Queue Length 95th (m)	0.4	0.0	0.9
Control Delay (s)	5.9	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	5.9	0.0	9.0
Approach LOS			A

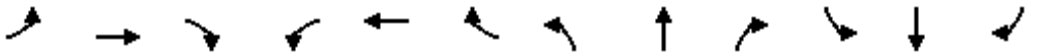
Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	18.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	11	14	341	328	16
Future Volume (Veh/h)	9	11	14	341	328	16
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	12	14	18	437	421	21
Pedestrians	64			64		
Lane Width (m)	3.6			3.6		
Walking Speed (m/s)	1.1			1.1		
Percent Blockage	6			6		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				205	109	
pX, platoon unblocked	0.94	0.90	0.90			
vC, conflicting volume	968	560	506			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	743	456	396			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	97	98			
cM capacity (veh/h)	334	484	992			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	26	455	442
Volume Left	12	18	0
Volume Right	14	0	21
cSH	401	992	1700
Volume to Capacity	0.06	0.02	0.26
Queue Length 95th (m)	1.6	0.4	0.0
Control Delay (s)	14.6	0.5	0.0
Lane LOS	B	A	
Approach Delay (s)	14.6	0.5	0.0
Approach LOS	B		

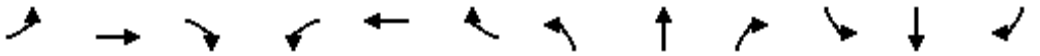
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	1310	72	58	1161	73	98	383	43	78	320	148
Future Volume (vph)	142	1310	72	58	1161	73	98	383	43	78	320	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98		1.00	0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.90	1.00		0.96	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.98		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1762	3533		1805	3533		1625	3382		1734	3127	
Flt Permitted	0.16	1.00		0.16	1.00		0.48	1.00		0.40	1.00	
Satd. Flow (perm)	297	3533		304	3533		824	3382		727	3127	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	143	1323	73	59	1173	74	99	387	43	79	323	149
RTOR Reduction (vph)	0	6	0	0	6	0	0	11	0	0	4	0
Lane Group Flow (vph)	143	1390	0	59	1241	0	99	419	0	79	468	0
Confl. Peds. (#/hr)	46		70	70		46	194		227	227		194
Heavy Vehicles (%)	2%	1%	0%	0%	1%	0%	0%	3%	0%	0%	4%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	25.0	25.0		25.0	25.0		21.9	21.9		30.9	30.9	
Effective Green, g (s)	25.0	25.0		25.0	25.0		21.9	21.9		30.9	30.9	
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.33	0.33		0.47	0.47	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		1.5	3.0	
Lane Grp Cap (vph)	112	1340		115	1340		273	1123		417	1466	
v/s Ratio Prot		0.39			0.35			c0.12		0.01	c0.15	
v/s Ratio Perm	c0.48			0.19			0.12			0.07		
v/c Ratio	1.28	1.04		0.51	0.93		0.36	0.37		0.19	0.32	
Uniform Delay, d1	20.5	20.5		15.8	19.6		16.7	16.8		10.0	10.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	176.8	34.9		15.4	12.3		3.7	0.9		0.1	0.6	
Delay (s)	197.2	55.4		31.2	31.8		20.4	17.7		10.1	11.5	
Level of Service	F	E		C	C		C	B		B	B	
Approach Delay (s)		68.5			31.8			18.2			11.3	
Approach LOS		E			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	41.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	65.9	Sum of lost time (s)	14.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1153	28	33	1229	110	35	224	87	92	257	0
Future Volume (vph)	44	1153	28	33	1229	110	35	224	87	92	257	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			0.98			1.00	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		1.00			0.99			0.96			1.00	
Flt Protected		1.00			1.00			1.00			0.99	
Satd. Flow (prot)		3555			3538			3364			3522	
Flt Permitted		0.81			0.89			0.89			0.74	
Satd. Flow (perm)		2871			3162			2993			2645	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	46	1201	29	34	1280	115	36	233	91	96	268	0
RTOR Reduction (vph)	0	2	0	0	9	0	0	44	0	0	0	0
Lane Group Flow (vph)	0	1274	0	0	1420	0	0	316	0	0	364	0
Confl. Peds. (#/hr)	29		15	15		29	66		57	57		66
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		40.0			40.0			20.0			20.0	
Effective Green, g (s)		40.0			40.0			20.0			20.0	
Actuated g/C Ratio		0.57			0.57			0.29			0.29	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1640			1806			855			755	
v/s Ratio Prot												
v/s Ratio Perm		0.44			c0.45			0.11			c0.14	
v/c Ratio		0.78			0.79			0.37			0.48	
Uniform Delay, d1		11.6			11.7			20.0			20.7	
Progression Factor		1.00			1.00			1.00			1.47	
Incremental Delay, d2		3.7			3.5			1.2			2.1	
Delay (s)		15.2			15.2			21.2			32.5	
Level of Service		B			B			C			C	
Approach Delay (s)		15.2			15.2			21.2			32.5	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	104.1%	ICU Level of Service	G
Analysis Period (min)	15		

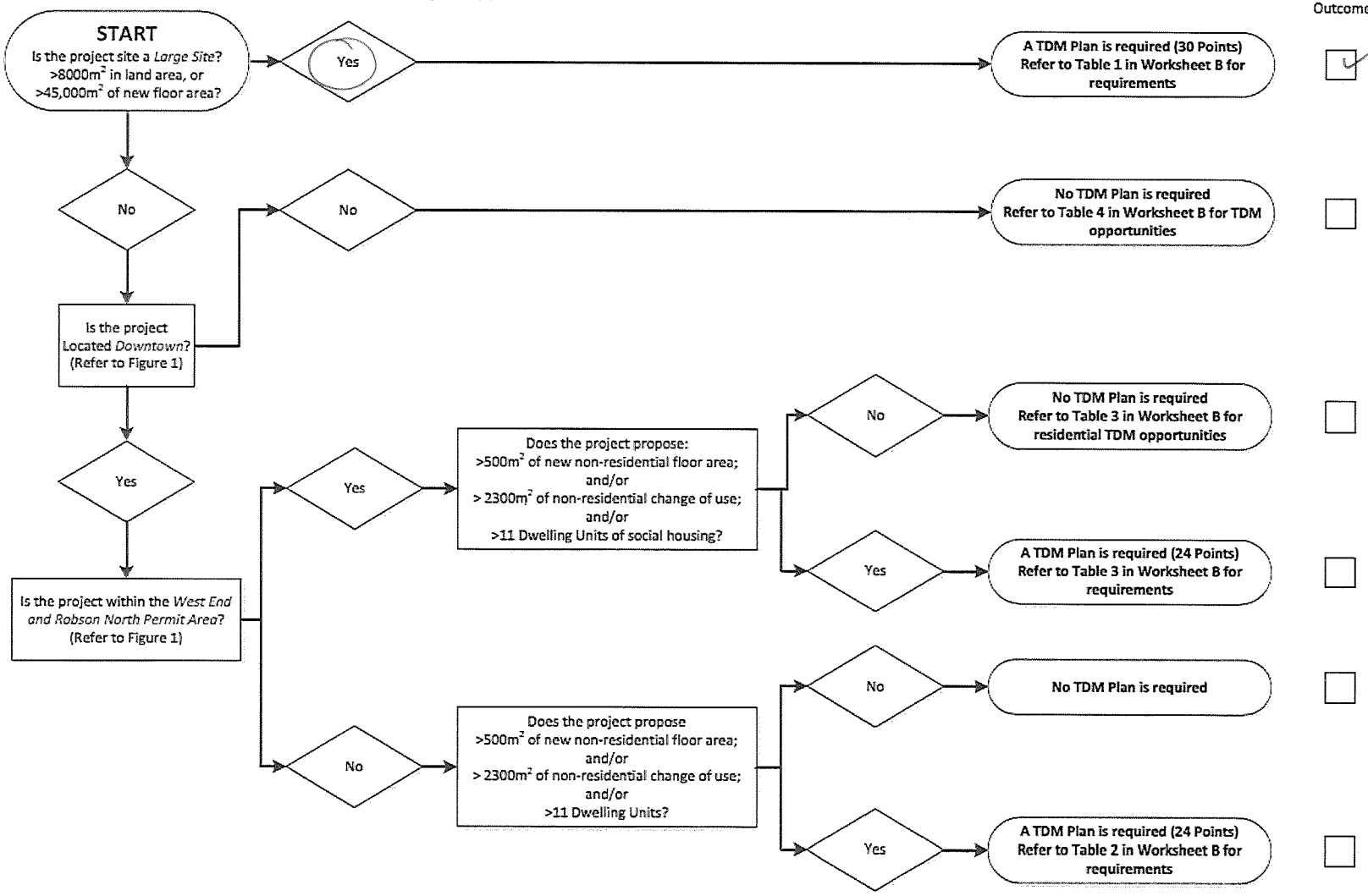
c Critical Lane Group

APPENDIX F

TDM Worksheets

WORKSHEET A: TDM Requirements Flow Chart

Use this flow chart to determine the appropriate TDM Point Requirements Table for the project. Select the appropriate outcome and include this worksheet with your application.



WORKSHEET B: TDM Point Requirements

Refer to Worksheet A to determine the appropriate Table for the project.

Table 1 - TDM Point Targets for Large Sites

The following requirements apply to large sites with >8000m^2 in land area, or >45,000m^2 of new development floor area.

Select the appropriate target for each development land use. Minimum targets for each land use must be met individually; however TDM measures available to multiple land uses may count towards the requirements of all those land uses.

Note that for large sites, at least eight (8) of the required points must come from shared vehicles.

Development	Required Points
Residential	
Residential - Social housing	☐ Fewer than 12 dwelling units, no TDM requirement ☐ For 12 dwelling units or more, a minimum of 18 points.
Residential – Strata	☐ Fewer than 12 dwelling units, no TDM requirement ☐ For 12 to 24 dwelling units, a minimum of one (1) point per dwelling unit; ☑ For 25 or more dwelling units, a minimum of 30 points;
Residential – Rental	☐ Fewer than 12 dwelling units, no TDM requirement ☐ For 12 to 24 dwelling units, a minimum of one (1) point per dwelling unit; ☑ For 25 or more dwelling units, a minimum of 30 points;
Commercial	
Commercial - Office	☐ Less than 500 m^2, no TDM requirement ☐ For 500 to 1,000 m^2 a minimum of 0.024 points per m^2; ☑ For greater than 1,000 m^2 a minimum of 30 points;
Commercial - Retail/Service	☐ Less than 500 m^2, no TDM requirement ☐ For 500 to 1,000 m^2 a minimum of 0.024 points per m^2; ☑ For greater than 1,000 m^2 a minimum of 30 points;
Other	
All other land uses	☐ Up to 30 points, to be determined on a case-by-case basis by the Director of Planning in consultation with the General Manager of Engineering Services.
Change of Use	
Change of use, all land uses	☐ For 2,300 m^2 or more, 30 points, to be determined by the Director of Planning in consultation with the General Manager of Engineering Services.

WORKSHEET C: Transit Accessibility Parking Reductions

A project may be eligible for minimum parking reduction based on high levels of Transit Accessibility. Refer to the table below to determine the parking requirement reduction available to each land use in the proposed development.

Transit accessibility parking reductions are in addition to parking reductions achieved through the provision of TDM measures.

Accessibility Levels

☑ **Level A** Within:
- 100 m walking distance of any one (1) existing FTN route, including B-Line stops only, or
- 200 m walking distance of any intersection of two (2) existing FTN routes, including B-Line stops only, or
- 400 m walking distance of a SkyTrain station

☐ **Level B** Within:
- 101 m to 200 m walking distance of any one (1) existing FTN route, including B-Line stops only, or
- 201 m to 400 m walking distance of any intersection of two (2) existing FTN routes, including B-Line stops only, or
- 401 m to 800 m walking distance of a SkyTrain station

☐ **Level C** Greater than:
- 200 m walking distance of any one (1) existing FTN route, including B-Line stops only, or
- 400 m walking distance of any intersection of two (2) existing FTN routes, including B-Line stops only, or
- 800 m walking distance of a SkyTrain station

FTN is the Frequent Transit Network, as defined by TransLink.

Table 5 - Parking Requirement Reduction by Land Use and Transit Accessibility

Land Use	Transit Accessibility		
	Level A	Level B	Level C
Residential – Social Housing Residential – Rental (except social housing)	20%	10%	0%
Residential – Strata Commercial – Office Commercial – Retail / Service Other	10%	5%	0%

WORKSHEET D: TDM Plan Summary – TDM Measures

The TDM Plan Summary List includes the various measures the project may select in order to meet the required point target. Select measures appropriate for the development until the minimum point target has been met for each land use.

Checkbox (❒) TDM Measures indicate that additional details are needed. If these TDM measures are selected a more detailed TDM Plan is required.

Not all TDM measures are applicable to each land use category or appropriate for every development. A single TDM measure may count towards multiple land uses if it is usable by each land use. TDM plan targets and applicable measures for land uses not defined in the table will be determined on a case-by-case basis.

For detailed applicability and compliance information, refer to the Fact Sheet for each measure in Schedule B of the Administrative Bulletin: Transportation Demand Management for Developments in Vancouver.

TDM Measure	(Maximum Points) Points Achieved					
	Residential			Office	Retail/ Service	Other
	Strata	Rental	Social			
Financial Incentives						
FIN-01: Car Share Membership ❒ Provide a two-way car share membership to remain associated with each unit, for a minimum of 20 years. ❒ 2 points for two-way car share memberships to residents at least semi-annually for at least 20 years. ❒ 2 points for including $200 annual driving credits per dwelling unit	(2)	(4)	(4)			
FIN-02: Public Transit Passes ❒ Offer monthly subsidies toward TransLink Compass Cards (stored value or monthly pass) to residents for a minimum of 10 years equivalent to: • $100 for Residential – Rental land uses, and/or • $50 for Non-Residential land uses. May receive partial points for reduced contributions.		(16)	(16)	(16)	(6)	
Active Transportation						
ACT-01: Additional Class A Bicycle Parking Add 5 more class A bicycle spaces for Retail Up to 40% above minimum requirements May receive points for fewer additional spaces.	(8)	(8)	(8)	(8)	(3) 3	

TDM Measure	(Maximum Points) Points Achieved					
	Residential			Office	Retail/ Service	Other
	Strata	Rental	Social			
ACT-02: Improved Access to Class A Bicycle Parking (•) 2 points, bicycle access ramp fully separated from the vehicle parking ramp • 2 points, minimum 40% Class A parking at-grade, or • 4 points, 100% of Class A parking at-grade, or ☐ 4 points, for providing 60% fully-automated bicycle parking with no user fees ☐ Up to 2 points, for providing excellent design of lighting, finishes, grades, convenience, etc.	(8) 2	(8) 2	(8)	(8) 2	(3) 2	
ACT-03: Enhanced Class B Bicycle Parking ☐ Provide enhanced visitor Class B bicycle parking, consisting of well-lit, secure, indoor facilities, excellent design of lighting, finishes, grades, convenience etc.	(2)	(2)	(2)	(2)	(2)	
ACT-04: Secure Public Bicycle Parking ☐ Provide secure bicycle parking spaces available to the public, available to users not associated with the building. This may require a membership.				(2)	(2)	
ACT-05: Bicycle Maintenance Facilities Provide bicycle maintenance facilities and workspace	(2) 2	(2) 2	(2)	(2) 2	(2) 2	
ACT-06: Improved End-of-trip Amenities ☑ 2 points, for providing improved facilities • Up to 4 points, for providing additional end-of-trip facilities up to 50% above the minimum requirements				(6) 6	(2) 2	
ACT-07: Public Bicycle Share Space Where the City requires space and SRW for on-site Public Bicycle Share (PBS) station. Up to eight (8) points shall be available to projects meeting the PBS size and siting requirements as determined by the City.	(8) 8	(8) 8	(8)	(8) 8	(8) 8	
ACT-08: Shared Bicycle Fleet ☐ Provide fleet of bicycles for residents, employees, and/or guests to use (private bicycle share) for 20 years to encourage all types of cycling. • One (1) cycle for each 10 dwelling units for Residential – Rental land uses • One (1) cycle for each 3,000 m^2 gross floor area for Commercial – Office and Commercial Retail land At minimum, six (6) cycles shall be provided. Development projects may receive points commensurate with the fleet size provided.		(4)*	(4)*	(4)*	(2)*	
	*May round a fractional number of cycles up for a proportional number of points above the maximum for this measure.					
ACT-09: Walking Improvements Up to 4 points for a secured public pedestrian connection through a site. ☑ Up to 6 points for pedestrian connections linking building entrances with the surrounding pedestrian network, transit stops, and key destinations, other than connections along the site frontage. the project is providing a public plaza with a pedestrian linkage to the Skytrain Station from the site	(6) 6	(6) 6	(6)	(6) 6	(6) 6	

TDM Measure	(Maximum Points) Points Achieved					
	Residential			Office	Retail/ Service	Other
	Strata	Rental	Social			
Alternative Commute Services						
COM-01: Car Share Spaces Provide dedicated publicly available parking spaces for car share vehicles (one-way or two-way), up to the following ratios: • Residential - Strata: 1 car share parking space for every 20 Dwelling Units; • Residential - Rental: 1 car share parking space for every 10 Dwelling Units; • Commercial - Office: 1 car share parking space for each 2,300 m^2 of gross floor area; • Commercial - Retail: 1 car share parking space for each 930 m^2 of gross floor area. Projects may receive partial points for fewer spaces.	(8)*	(16)*	(16)*	(8)*	(8)*	
	*May round a fractional number of spaces up for a proportional number of points above the maximum for this measure.					
COM-02: Car Share Vehicles and Spaces The property owner shall provide publicly accessible two-way car share vehicle(s) and space(s) on-site for at least 3 years, up to the following ratios: • Residential - Strata: 1 car share vehicle and space for every 50 Dwelling Units; • Residential - Rental: 1 car share vehicle and space for every 25 Dwelling Units; • Commercial - Office: 1 car share vehicle and space for each 4,600 m^2 of gross floor area; • Commercial - Retail: 1 car share vehicle and space for each 4,600 m^2 of gross floor area. Projects may receive partial points for fewer vehicles.	(8)* 7	(16)* 16	(16)*	(8)* 8	(3)* 3	
	* May round a fractional number of vehicles up for a proportional number of points above the maximum for this measure.					
COM-03: Additional Pick-Up/Drop-Off Spaces Provide additional short-term pick-up/drop-off passenger spaces. • 2 points, for providing one (1) Class A passenger space, or • 4 points, for providing two (2) Class A passenger spaces, and/or • 4 points, for providing one (1) Class B passenger space.	(8)	(8)	(8)	(8)	(8)	
COM-04: Shuttle Bus Service ☐ Provide free local shuttle bus services to between the development site and regional transit hubs, commercial centres, and residential areas for customers, employees, and visitors for 20 years. Up to 14 points, for depending on level of service frequency				(14)	(14)	
COM-05: Vanpool/Carpool Service ☐ For development projects with at least 25 employees, the property owner shall implement an employer or building manager-sponsored Vanpool or Carpool service for 20 years. Preferential parking spaces for carpool/vanpool vehicles should also be provided to accommodate 5% of employees carpooling.				(4)	(2)	
Support, Promotion, Information						
SUP-01: Transportation Marketing Services ☐ The property owner shall provide individualized, tailored marketing and communication campaigns, including incentives to encourage the use of sustainable transportation modes.		(2)	(2)	(2)	(2)	
SUP-02: Real-Time Information ☐ Provide real-time sustainable transportation information for 20 years on displays in prominent locations on the project site.		(2)	(2)	(2)	(2)	
SUP-03: Multimodal Wayfinding Signage ☑ Provide directional signage to major destinations and public amenities.	(2) N/A	(2) 2	(2)	(2) 2	(2) 2	

10 car-share vehicles & spaces

TDM Measure		(Maximum Points) Points Achieved					
		Residential			Office	Retail/ Service	Other
		Strata	Rental	Social			
Parking Management							
PKG-01: Parking Pricing ☐ Implement paid parking for all users, including employees, customers, visitors. A parking rate or pass beyond one day is not to be provided. Only applicable to sites outside the Downtown.					(4)	(4)	
PKG-02: Parking Supply Provide no more than the minimum vehicle parking provisions for all land uses on site. Outside Downtown, this measure is only applicable to large developments.		(2) 2	(2) 2	(2)	(2) 0	(2) 0	
Other							
OTH-01: Innovative Strategies ☐ Other innovative developer-proposed strategies, with acceptable rationale and implementation plan. ① Unbundling Parking → 1pt for strata only ② On-site Daycare facility		(16) 3	(16) 2	(16)	(16) 2	(16) 2	
LINE 1	**TOTAL POINTS ACHIEVED**	30	40		36	30	
LINE 2	**POINT TARGET (Refer to Worksheet B)**	(30)	(30)	( )	(30)	(30)	( )
For developments seeking parking reductions:							
LINE 3	**Parking Reduction for Transit Accessibility (Refer to Worksheet C)**	10%	20%		10%	10%	
LINE 4	**Maximum Parking Reduction with achieving TDM Plan Point Targets**	20%	40%	40%	20%	20%	20%
LINE 5	**Available Parking Reduction with Points Achieved** = (LINE 1 / LINE 2) x LINE 4 Cannot exceed LINE 4	20%	40%		20%	20%	
LINE 6	**Total Allowable Parking Reduction (Transit plus TDM)** = LINE 3 + LINE 5	30%	60%		30%	30%	