

53 QUEEN STREET
DARTMOUTH, NOVA SCOTIA
TRANSPORTATION IMPACT STUDY

JULY 29, 2022



Prepared for:

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TRANS4M TRANSPORTATION

This Transportation Impact Assessment was prepared to evaluate the potential impacts of new or changing development on the existing transportation network. The "Transportation Network" includes roadways, driveways, trails, sidewalks, parking facilities, transit infrastructure, trucks and any other infrastructure associated with moving people from one place to another. This infrastructure connects an unlimited number of different origins and destinations including residential, commercial, industrial, institutional and public land uses.

The users of these networks are many and can include a wide range of private and commercial vehicles, trucks, buses, pedestrians, cyclists and other vulnerable road users.

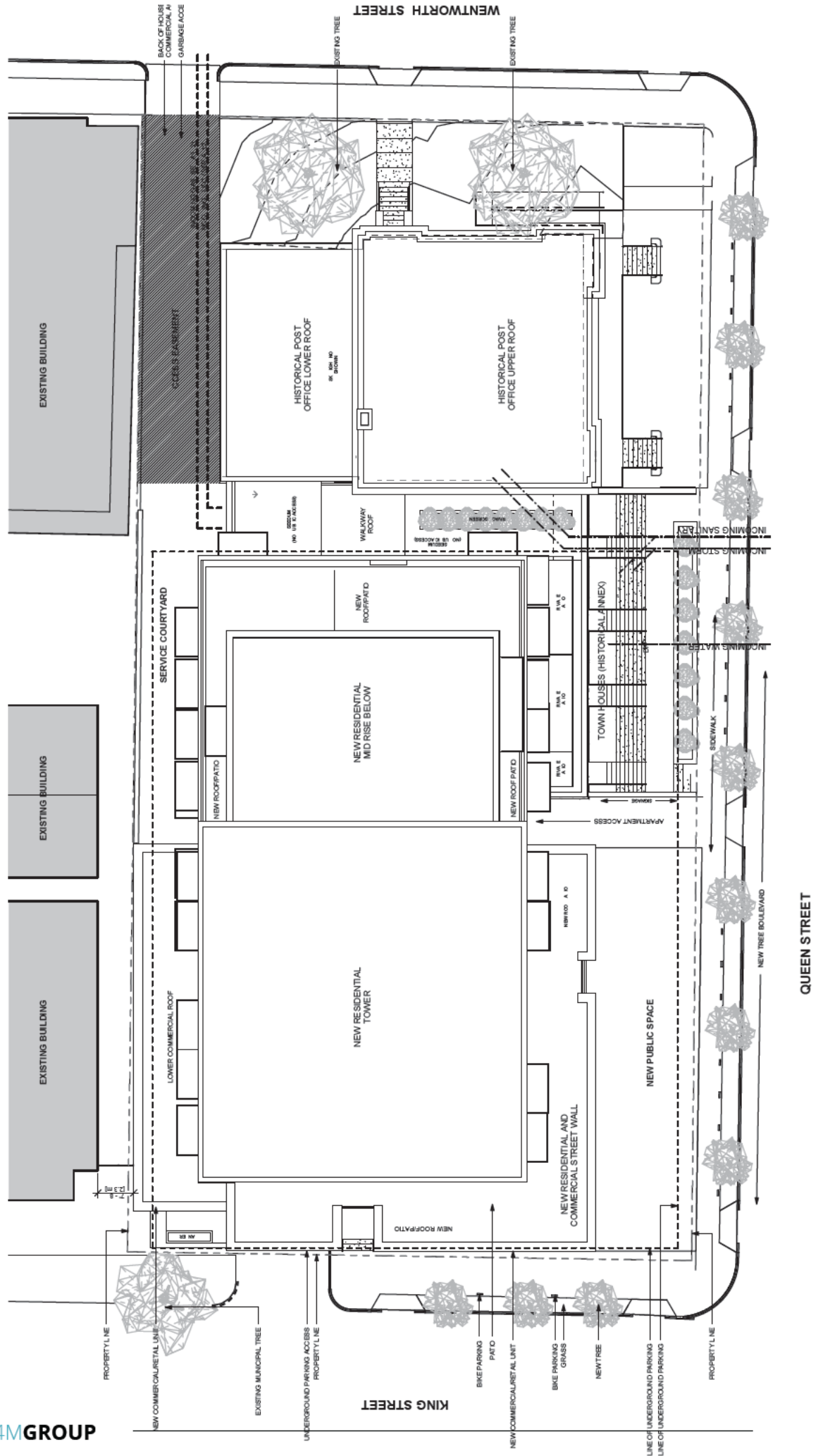
This report was prepared using industry standard guidelines for such studies and utilizes the most recent information that is considered reasonable and practical for the study at the time the study was prepared. Things change with time therefore any recommendations, conclusions or findings contained in this report should be reevaluated as elements of the surrounding environment change.

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EXECUTIVE SUMMARY



The proposed development at 53 Queen Street is expected to have minimal impact on the adjacent road network, which operates well below capacity today, and in the foreseeable future with the development in place.

The Trans4m Development Group is pleased to submit this Transportation Impact Study for the proposed mixed use development located in downtown Dartmouth just east Ochterloney Street. The development is expected to add up to 155 new residential units along with limited commercial and office space. The new building space is integrated with the existing historic post office, which will continue operations as part of the overall development's commercial space.

The development is consistent with many older and recently constructed buildings in the surrounding area and has direct access to the grid based road network surrounding the building through an access driveway to King Street at the south end of the building. This connection provides easy access to major transportation routes in the area including Ochterloney Street, Portland Street and Alderney Drive. The location of the development also provides for direct access to robust transit and active transportation networks immediately adjacent to the development.

The analysis shows that the existing and future intersections operate at less than 50% of their theoretical capacity for most movements, and that the addition of trips related to the development have very limited operational impact on the road network. The highest volumes can be found on Ochterloney Street west of the site, which result in some delay on the minor side roads due to the higher volumes on Ochterloney, though performance measures are still considered to be very good with limited queuing (typically 2 vehicles or less) and very low volume to capacity ratios. Based on the analyses contained within this report, the proposed development does not require any significant upgrades to the sounding road or active transportation networks.

We trust that the contents of this report are informative, clear and provide adequate detail to evaluate this proposed mixed-use expansion. Always feel free to contact us if you have any questions or require clarification on any aspects of this report.

Best regards,


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1. INTRODUCTION

The Trans4m Group was retained by RHAD Architects to prepare a Transportation Impact Study (TIS) for a proposed mixed use development in downtown Dartmouth, Nova Scotia. The development property covers the south-eastern half of the block bounded by Ochterloney Street to the west, Wentworth Street to the north, Queen Street to the east, and King Street to the south as shown in the figure below.

The development is proposed as a modern addition to the existing historic Post Office building fronting onto Queen Street and is expected to include up to 155 new residential units, limited

ground floor commercial space, office space, as well as the continued use of the Post Office space as new commercial space.

Access to the underground parking structure is provided from King Street on the south side of the development with service and garbage/recycling access on the north side of the building to Wentworth Street. As the development is located within the grid based road network of the downtown core of Dartmouth, there is easy access to a variety of connecting roadways as well as transit and active transportation opportunities as discussed in greater detail through this report.



1.1 EXISTING ROADWAYS

Queen Street - facing north

Queen Street is a two-lane undivided roadway extending from Alderney Drive north to Irishtown Road. The 550 meter roadway is about 10 meters wide with short-term metered parking permitted along both sides of the roadway. The roadside is characterized by wider concrete sidewalks separated from the roadway by paver buffer strips. 4-way stop control is present at the Wentworth and King intersections located immediately north and south of the development site respectively.



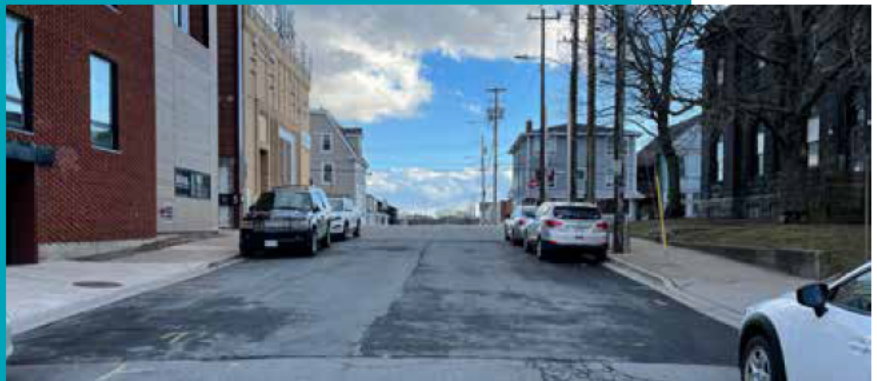
King Street - facing east

King Street is similar to Queen Street with a two-lane undivided urban cross section, though is slightly wider at 11 meters curb-to-curb. It includes wider concrete sidewalks and paved buffer strips fronting onto a variety of commercial buildings and provides access to a number of driveways. There is some limited parking along King Street, which also includes an westbound bus stop, and a number of loading zones. King Street is two-way stop controlled at Ochterloney Street and connects to the above noted 4-way stop at Queen Street.



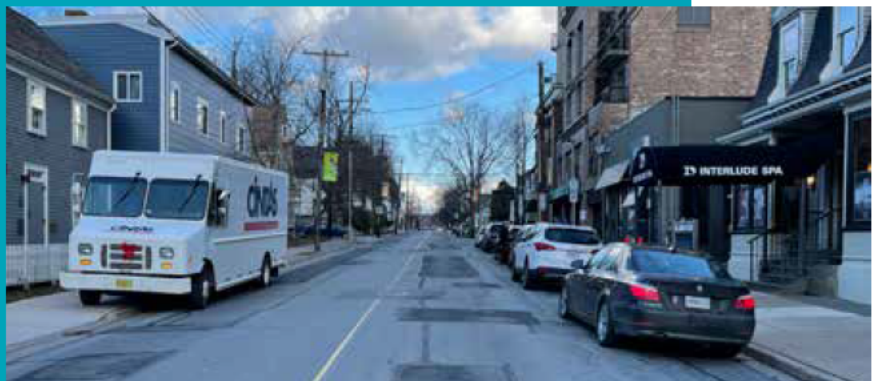
Wentworth Street - facing east

Wentworth Street has a two-lane undivided urban cross section with limited connectivity at its east and west ends, through it provides direct connections between Ochterloney, Queen and Portland Street. Commercial width concrete sidewalks are again present on both sides of the 10 meter wide road and short term metered parking is provided along both sides of the road. Wentworth is stop controlled at Ochterloney Street and connects to the 4-way stop controlled intersection at Wentworth and Queen Street.



Ochterloney Street - facing north

The above noted roads function as local area roadways primarily providing access to area businesses. Conversely, Ochterloney Street is a major collector roadway connecting Alderney Landing and Alderney Drive at its signalized south end, and extends north under a variety of road names to Highway 111 and beyond. In the vicinity of the development, Ochterloney is a 10 meter wide, two-lane undivided roadway with wide concrete sidewalks on both sides of the roadway. Short term metered parking is provided on the east side of the road only.



1.2 EXISTING TRAFFIC

Existing and Historical Traffic Volumes

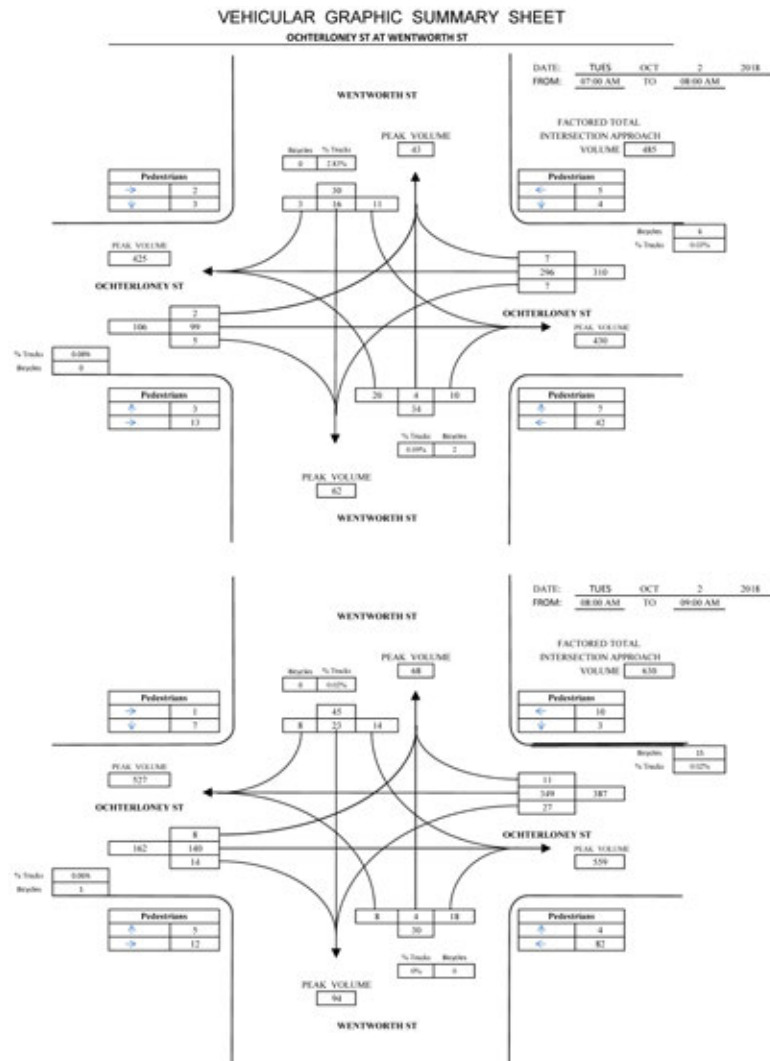
Recent and historical traffic counts were obtained from the Halifax Regional Municipality for intersections in the general vicinity of the development. These included:

- Ochterloney Street at Wentworth Avenue
- Ochterloney Street at King Street
- Ochterloney Street at Victoria Road
- Portland Street at Wentworth Street
- Queen Street at Victoria Road

Based on these counts a baseline traffic model was prepared for the AM and PM peak periods with all volumes being adjusted upward to account for traffic growth between the count date and the 2022 baseline.

Background Traffic Growth

Background traffic growth rates were not clearly defined based on the available traffic data through the intersections, though past studies have commonly used growth rates in the range of 0.5% (Downtown Dartmouth Traffic Study) and 1%. Given the level of potential development in the downtown Dartmouth area and the current demand for new housing, a 2% annual average growth rate was assumed for future anticipated growth.



1.3 PEAK HOURS

The development is located in the core downtown area of Dartmouth and has access to nearby major transportation routes, therefore this area typically experiences the highest roadway volumes during the commuter based AM and PM weekday peak periods. Similarly, the proposed development is expected to generate its highest entry and exit volumes during similar peak periods due to the residential and office components of the building. For these reasons, the weekday AM and PM peaks were selected as the critical analysis periods.

1.4 ACTIVE TRANSPORTATION

The downtown core areas of Dartmouth and Halifax traditionally have high documented use of active transportation modes of travel. As such, there are an abundance of active transportation facilities in the areas surrounding the proposed development site. The figures to the right was extracted from the HRM Active Transportation maps and show the nearby segments of the Trans-Canada trail just east of the site, access to trail networks through Sullivans Pond and areas north, connections to the Dartmouth Waterfront Trail, and access to the Dartmouth Commons to the west, among many other nearby trail segments and active transportation facilities.



In addition, all streets surrounding the development have concrete sidewalks on both sides of all streets, most with commercial grade wide sidewalk sections. Crosswalks are present at all adjacent stop controlled intersections, including mid block crossings of Ochterloney Street at King Street and Wentworth Street.

1.5 TRANSIT

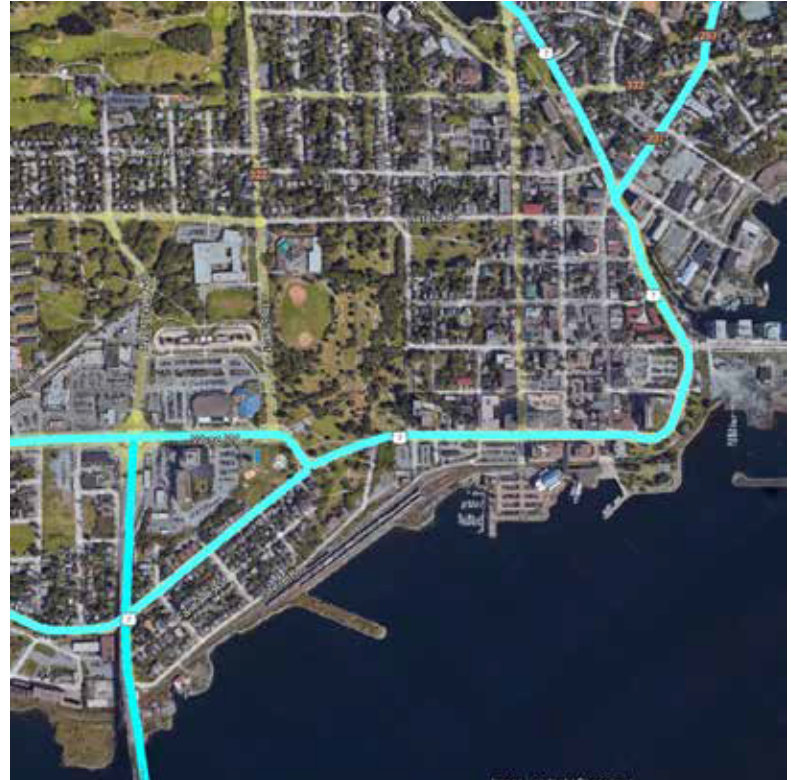
The figure to the right shows a clip from the Halifax Transit map for downtown Dartmouth surrounding the proposed development. It includes nearby access to an abundance of transit routes along Alderney Drive, Ochterloney Street and immediately south of the development on King Street.

The Dartmouth Bridge Terminal is about 600 meters east of the development with access to 22 different bus routes and the Alderney Gate Bus/ Ferry terminal is about 250 meters south providing direct access to downtown Halifax via the Halifax Transit Ferry Services.



1.6 TRUCK TRAFFIC

The figure to the right shows the designated daytime truck routes nearest the development and include routes on Alderney Drive about 230 meters south of the development, as well as Wyse Road, Prince Albert Road and Portland Street. These routes provide convenient access to and from the development as required for deliveries, moving vans and other commercial traffic that may need to access the site.



1.7 ANALYSIS TIME HORIZONS

It is anticipated that this development will be constructed over the next 5-year time horizon, therefore this study addresses a 10-year analysis time horizon (full build-out plus 5 years). The analysis scenarios established for the analysis therefore includes:

- 2022 baseline (existing traffic),
- 2032 future conditions with background traffic only added to the network (no new traffic related to the development), and,
- 2032 future conditions with background traffic and the full development.

2. FUTURE CONDITIONS

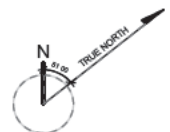
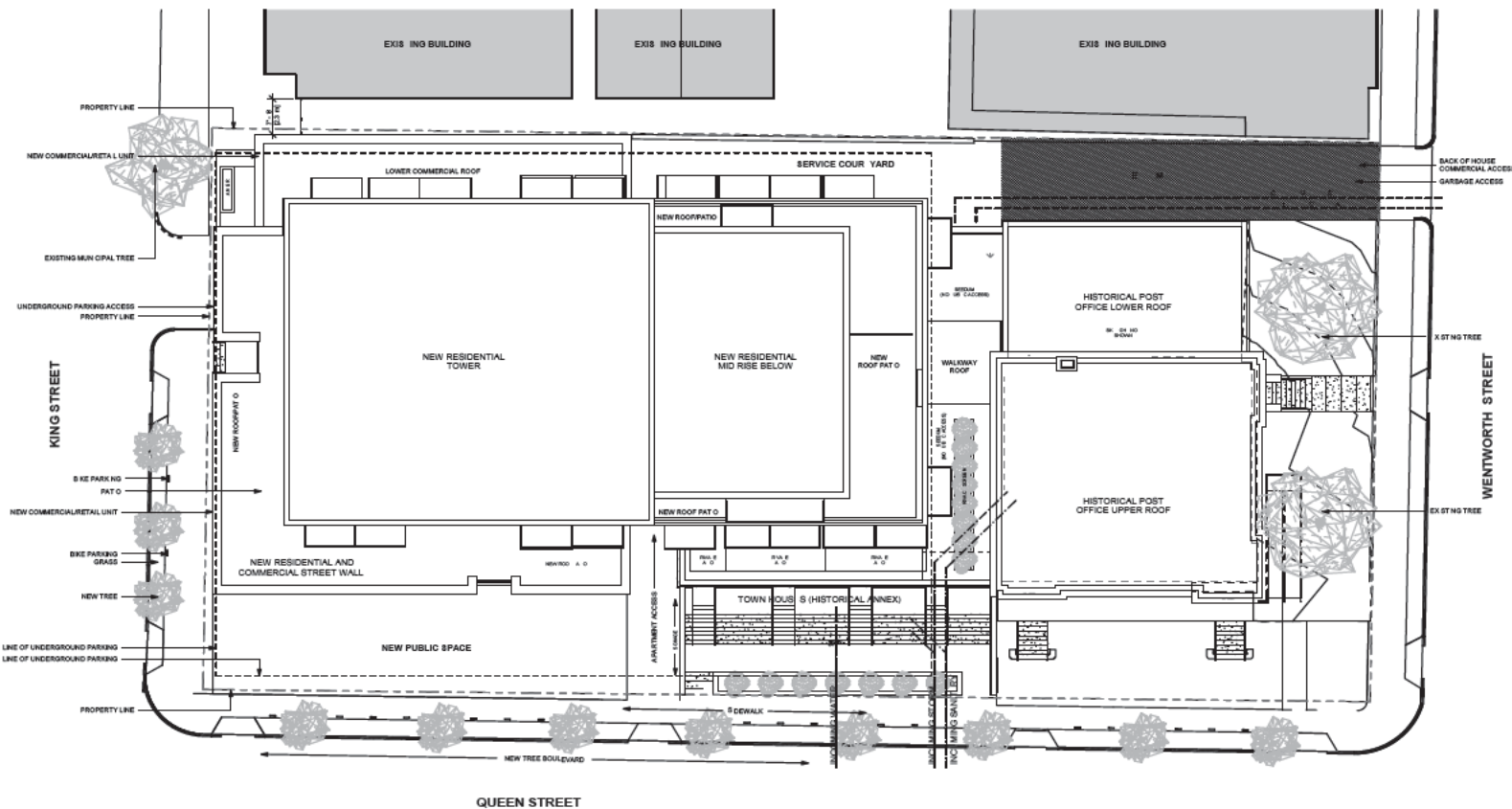
2.1 THE PROPOSED DEVELOPMENT

The proposed development is expected to consist of up to 155 new residential units within a multi-story building. The former post office space is expected to convert to new commercial space (about 7,500 ft²) and some limited office space will be added. Overall, the development is expected to add about 6,700 ft² of office space, and about 4,200 ft² of additional commercial space in addition to the former post office space.

The main access to the development's underground parking structure is provided off the south side of the building to King Street. Garbage / recycling and

service access being provided on the north end of the building to Wentworth Street. The parking structure is expected to include about 64 parking spaces.

There is a substantial amount of short-term, on-street parking, as well as longer term parking lots available in the vicinity of the development. It is expected that the short term parking options will be used regularly by commercial and office visitors to the site, and the longer term lot options may be used by employees or office staff.



① SITE PLAN NEW
3/32" = 1'-0"

2.2 TRIP GENERATION

The Institute of Transportation Engineers (ITE) Trip Generation Guide (10th edition) was used to estimate future traffic volumes to and from the proposed development. Calculations were performed using the TripGen application provided as part of the Synchro Studio software package. Based on the land uses present, adjustments have been made for internal capture of trips (i.e. residents that use the commercial/office uses) and pass-by trips (i.e. vehicles already on the roadway who now stop at this site).

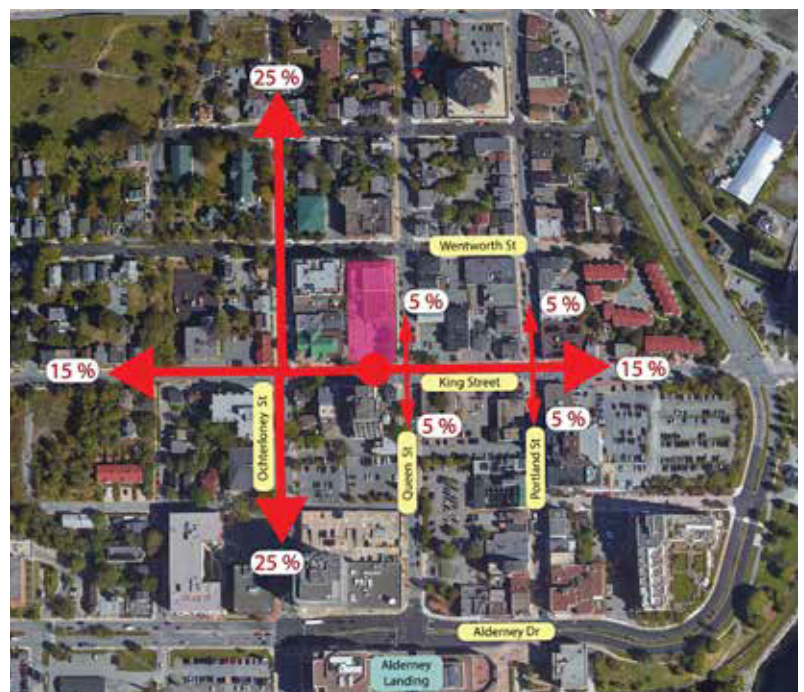
Land Use	Trip Code	# Units	Variable	AM Peak			PM Peak		
				Enter	Exit	TOTAL	Enter	Exit	TOTAL
Residentia - High Rise	222	155	Units	13	43	56	37	24	61
Office Space	712	6.0	/1000 ft ²	10	2	12	5	10	15
Commercial Space	820	4.0	/1000 ft ²	2	2	4	7	8	15
Internal Capture	-	-	-	-1	-1	-2	-5	-5	-10
Pass-By	-	-	-	0	0	0	-2	-2	-4
Total New Trips to Network				24	46	70	42	35	77

In today's pandemic / post-pandemic work environment, it is possible that a greater percentage of workers may have the opportunity to work from home, or travel outside of the typical peak hours. This may result in lower trip generation rates than indicated in the table above, though to keep the analysis conservative, no trip reduction factors were applied for this study.

There is also a high probability that some of residents of this development, as well as those occupying and visiting the office and commercial land uses, will elect to use the robust transit and active transportation networks surrounding the development. Again, to keep the analysis conservative, no further trip reduction adjustments have been made to account for modal shifts to transit or AT.

2.3 TRIP DISTRIBUTION

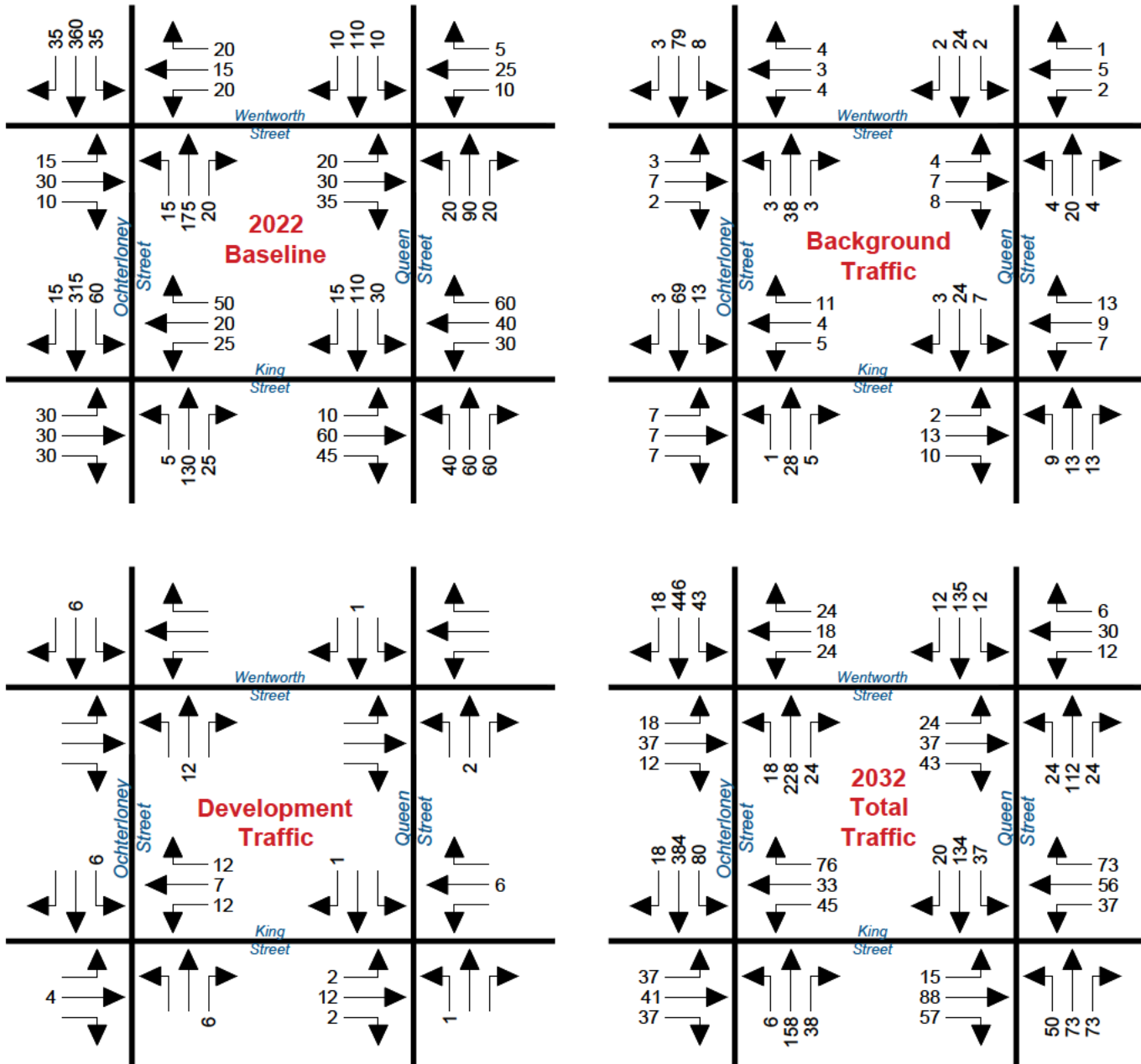
Residents and patrons of the proposed development will have a wide variety of route options to select from when coming to or leaving the site. Ochterloney Street is expected to be used frequently as a main access option and provides direct access north to Highway 111 (Circumferential Highway) and south to Alderney Drive. Vehicles are also commonly expected to use King Street to access Alderney Drive near Kings Wharf. Beyond this, there are numerous local road connections to get to and from the development through downtown Dartmouth depending on where drivers are destined to and from, and whether they have other trip requirements in the Downtown core area. The figure to the right shows the trip distribution assumptions used for this analysis.



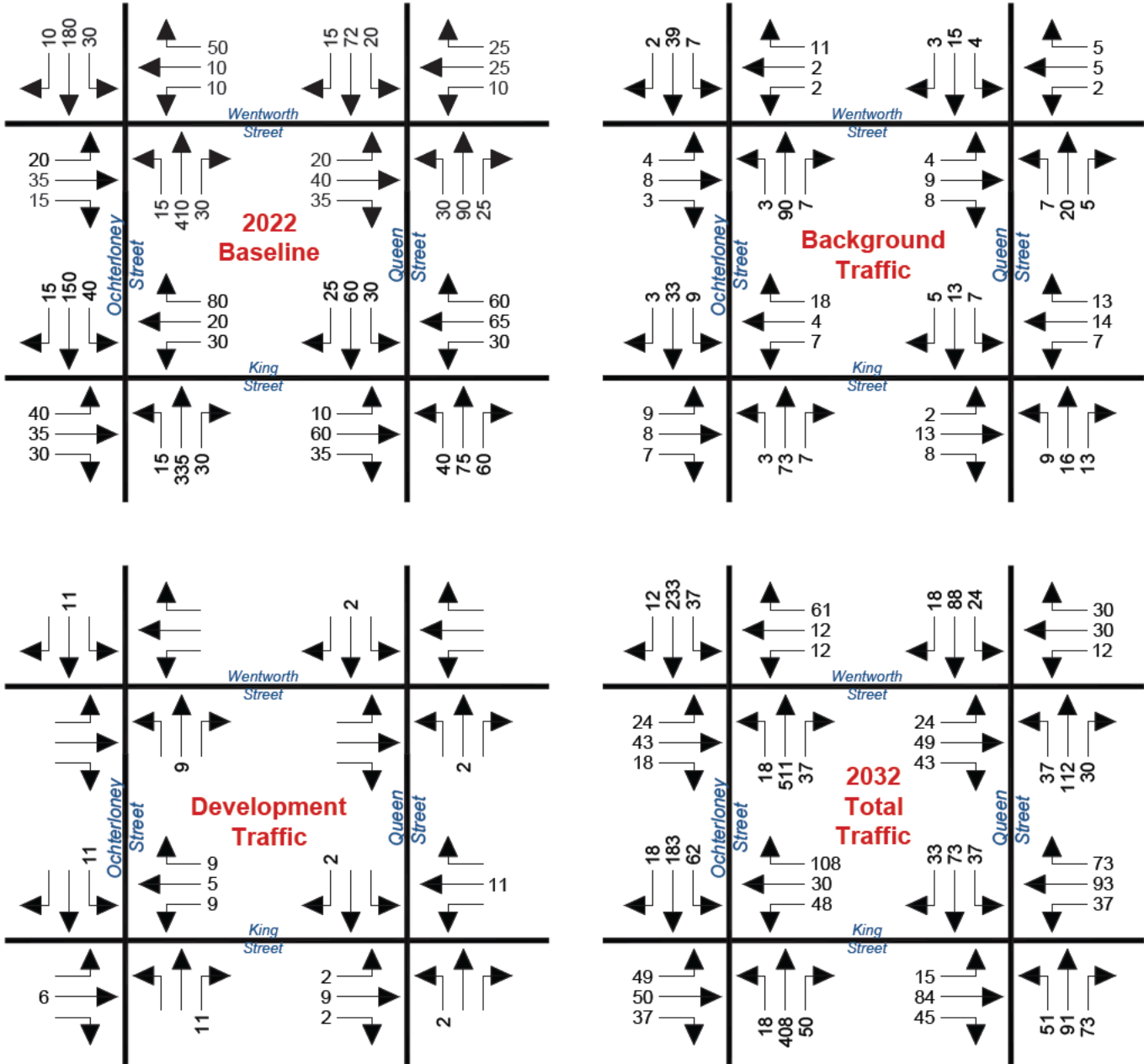
2.4 TRIP ASSIGNMENT

The following figures show the traffic volumes at the 4 major intersections surrounding the development. The figures include the existing (2022 baseline) and total 2032 traffic volumes, as well as the volumes added due to background traffic growth and those directly related to the development.

M Peak Hour



PM Peak Hour



3. ANALYSIS

3.1 TRANSPORTATION MODELLING

A macroscopic traffic model was prepared using the Synchro/SimTraffic suite of tools to carry out the analysis of the AM and PM peak hours of traffic under various scenarios. Detailed output reports for each of the scenarios is provided in Appendix D of this report and are summarized in the figures and tables on the following pages. The analysis results and discussion address the main driveway to the development and the 4 intersections directly impacted by the development:

- Queen Street at King Street
- Queen Street at Wentworth Street
- Ochterloney Street and King Street
- Ochterloney Street and Wentworth Street



The primary information and measures of performance that are summarized on the following pages for each intersection include:

- Volumes (vehicles per hour);
- Vehicle Control Delay (average seconds per vehicle);
- Volume to Capacity (V/C) ratio ($V/C = 1.0 = \text{full of } 100\% \text{ capacity}$);
- Queueing (95% queue lengths in # of vehicles).

The results of all analyses are presented in tabular form along with an aerial view of the intersection for reference. Additional discussions are also provided under each analysis section to address existing and future anticipated operations at each intersection. As the new volumes added to the road network related to the development are relatively low, there is little difference between the results for the 2032 Background Only scenario, and the 2032 Background with Development traffic. Therefore, the following section only present results for the 2022 Baseline and the 2032 Background with Development traffic scenarios only. For reference, the 2032 Background Only Synchro results reports are included in Appendix D of this report.

3.2 DRIVEWAY AND KING STREET



King Street is a relatively low volume roadway with just over 100 through vehicles in each direction during the AM and PM peak hours. With driveway background traffic growth and development volumes added to the intersection for 2032 conditions, the intersection operates at a very good level of service with average delays being at or less than 10 seconds per vehicle for the driveway movements. Traffic on King Street experiences little to no delay or queuing under any of the scenarios.

The proposed driveway is expected to be constructed east of the west property line as shown in the figure to the left. This results in separation of about 30 meters from Queen Street (~24 meters from the east property line), and results in better separation than current conditions. Driveway separation from Ochterloney Street will be about 50 meters though some

coordination may be required with an existing driveway immediately west (towards Ochterloney Street). Design coordination will also be required with an existing mature tree currently located within the King Street Boulevard.

Based on the low volumes entering and exiting the development, the driveway can be constructed with a basic two-lane cross section (single enter and exit lanes) and should be stop-controlled on the southbound approach to King Street.

The set back of adjacent buildings to the west combined with slow local roadway speeds show that all stopping sight and intersection sight distances can be met. Care should be taken in the design of the building to ensure that sight distances are not compromised in the eastbound direction (i.e. facing east from the driveway exit lane). These sight distance requirements should account for both vehicle and pedestrian traffic past the driveway and should be confirmed during the detailed design stage of the project.

AM PEAK		King St. EB		King St. WB		Driveway - SB	
		Left	Thru	Thru	Right	Left	Right
2022 Baseline	Vol <i>veh/hr</i>	0	115	95	0	0	0
	V/C Ratio	0.00		0.06		0.00	
	Delay <i>sec/veh</i>	-		-		-	
	LOS	A		A		A	
	95% Q <i>m</i>	-		-		-	
2032 Full Development	Vol <i>veh/hr</i>	20	140	116	10	20	38
	V/C Ratio	0.02		0.08		0.08	
	Delay <i>sec/veh</i>	1.1		0.0		9.8	
	LOS	A		A		A	
	95% Q <i>m</i>	0.4		0.0		2.0	

PM PEAK		King St. EB		King St. WB		Driveway - SB	
		Left	Thru	Thru	Right	Left	Right
2022 Baseline	Vol <i>veh/hr</i>	0	105	130	0	0	0
	V/C Ratio	0.00		0.08		0.00	
	Delay <i>sec/veh</i>	-		-		-	
	LOS	A		A		A	
	95% Q <i>m</i>	-		-		-	
2032 Full Development	Vol <i>veh/hr</i>	34	128	158	18	16	28
	V/C Ratio	0.03		0.11		0.06	
	Delay <i>sec/veh</i>	1.8		0.0		10.2	
	LOS	A		A		B	
	95% Q <i>m</i>	0.7		0.0		1.6	

3.3 QUEEN STREET AND KING STREET



The table immediately below shows the modelling results for the 4-way stop controlled intersection at King Street with Queen Street. Both streets serve to help distribute trips throughout downtown Dartmouth rather than as significant traffic thoroughfares resulting in lower volumes through and turn movements on each leg of the intersection.

Based on the relatively low volumes of traffic through the intersection, all movements operate with delays close to or less than 10 seconds on all stop-controlled legs, with queues seldom exceeding more than one vehicle. Volume to capacity ratios during the AM peak periods remain under 0.30 (30% capacity utilization) and are just slightly above 0.30 during the PM peak. This suggests that there is ample capacity for future traffic growth at this intersection without compromising high levels service for both vehicles and pedestrians.

AM Peak Hour		King Street - EB			King Street - WB			Queen Street - NB			Queen Street - SB		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2022 Baseline	Vol <i>veh/hr</i>	10	60	45	30	40	60	40	60	60	30	110	15
	V/C Ratio	0.16			0.18			0.22			0.22		
	Delay <i>sec/veh</i>	8.6			8.7			8.9			9.1		
	LOS	A			A			A			A		
	95% Q <i>m</i>	4.8			5.6			6.4			6.4		
2032 Full Development	Vol <i>veh/hr</i>	15	88	57	37	56	73	50	73	73	37	134	20
	V/C Ratio	0.24			0.25			0.29			0.29		
	Delay <i>sec/veh</i>	9.7			9.7			10.0			10.2		
	LOS	A			A			A			B		
	95% Q <i>m</i>	8			8			9.6			9.6		

PM Peak Hour		King Street - EB			King Street - WB			Queen Street - NB			Queen Street - SB		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2022 Baseline	Vol <i>veh/hr</i>	10	60	35	30	65	60	40	75	60	30	60	25
	V/C Ratio	0.15			0.22			0.24			0.16		
	Delay <i>sec/veh</i>	8.5			8.9			9.0			8.7		
	LOS	A			A			A			A		
	95% Q <i>m</i>	4.0			6.4			7.2			4.8		
2032 Full Development	Vol <i>veh/hr</i>	15	84	45	37	93	73	51	91	73	37	73	33
	V/C Ratio	0.22			0.30			0.32			0.22		
	Delay <i>sec/veh</i>	9.5			10.1			10.2			9.5		
	LOS	A			B			B			A		
	95% Q <i>m</i>	6.4			9.6			11.2			6.4		

3.4 OCHTERLONEY STREET AND KING STREET



The tables immediately below show the modelling results for the AM and PM peak hour operations at the King Street intersection with Ochterloney Street. The result shows that free flow operations on Ochterloney Street operate at high levels of service under all scenarios, including left turn movements from Ochterloney to King Street in each direction. The width of Ochterloney Street may allow, a through vehicle to “sneak” past a left turning vehicle in some cases, though this is not required in order to maintain high levels of service.

Side road volumes from King Street show slightly higher levels of delay and queuing due to the higher volumes of through traffic on Ochterloney Street. The tables below show that delays and queues marginally increase during both peak periods, though most of this increase can be attributed to the background traffic growth rate (2% per year over 10 years) as is shown in the trips assignment figures in the previous section of the report.

While there is some increase, delay values remain in the 25 to 30 second range for the peak hours only, which is considered quite reasonable within the downtown core area of Dartmouth during the peak hours of traffic.

AM Peak Hour		King Street - EB			King Street - WB			Ochterloney St. NB			Ochterloney St. NB		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2022 Baseline	Vol veh/hr	30	30	30	25	20	50	5	130	25	60	315	15
	V/C Ratio	0.25			0.21			0.00			0.05		
	Delay sec/veh	16.8			14.1			0.3			1.6		
	LOS	C			B			A			A		
	95% Q m	7.6			6.2			0.1			1.1		
2032 Full Development	Vol veh/hr	37	41	37	45	33	76	6	158	38	80	384	18
	V/C Ratio	0.42			0.45			0.01			0.06		
	Delay sec/veh	25.6			22.3			0.3			1.9		
	LOS	D			C			A			A		
	95% Q m	15.9			18.0			0.1			1.6		

PM Peak Hour		King Street - EB			King Street - WB			Ochterloney St. NB			Ochterloney St. NB		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2022 Baseline	Vol veh/hr	40	35	30	30	20	80	15	335	30	40	150	15
	V/C Ratio	0.29			0.29			0.01			0.04		
	Delay sec/veh	18.0			15.4			0.4			1.9		
	LOS	C			C			A			A		
	95% Q m	9.6			9.6			0.3			0.9		
2032 Full Development	Vol veh/hr	49	50	37	48	30	108	18	408	50	62	183	18
	V/C Ratio	0.54			0.55			0.01			0.06		
	Delay sec/veh	32.4			26.1			0.5			2.5		
	LOS	D			D			A			A		
	95% Q m	23.5			25.3			0.4			1.6		

3.5 QUEEN STREET AND WENTWORTH STREET



Similar to the Queen Street intersection with King Street, the Wentworth intersection is a 4-way stop-controlled intersection at Queen Street and also serves to distribute trips throughout downtown Dartmouth. There are slightly higher through volumes on Queen Street at this intersection though they are not significant enough to negatively impact the high levels of service that are currently experienced at the intersection.

Based on the relatively low volumes of traffic through the intersection, all movements operate with delays of less than 10 seconds on all stop-controlled legs, with queues typically not exceeding one vehicle. Volume to capacity ratios remain less than 0.20 (20% capacity utilization) during both peak periods, again suggesting that there is ample capacity for future traffic growth at this intersection without compromising high levels service for both vehicles and pedestrians.

AM Peak Hour		Wentworth St. EB			Wentworth St. WB			Queen Street - NB			Queen Street - SB		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2022 Baseline	Vol <i>veh/hr</i>	20	30	35	10	25	5	20	90	20	10	110	10
	V/C Ratio	0.11			0.06			0.17			0.17		
	Delay <i>sec/veh</i>	8.0			7.9			8.2			8.2		
	LOS	A			A			A			A		
	95% Q <i>m</i>	3.2			1.6			4.8			4.8		
2032 Full Development	Vol <i>veh/hr</i>	24	37	43	12	30	6	25	112	24	12	135	12
	V/C Ratio	0.14			0.07			0.21			0.21		
	Delay <i>sec/veh</i>	8.3			8.2			8.7			8.7		
	LOS	A			A			A			A		
	95% Q <i>m</i>	4.0			1.6			6.4			6.4		

PM Peak Hour		Wentworth St. EB			Wentworth St. WB			Queen Street - NB			Queen Street - SB		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2022 Baseline	Vol <i>veh/hr</i>	20	40	35	10	25	25	30	90	25	20	70	15
	V/C Ratio	0.13			0.08			0.19			0.14		
	Delay <i>sec/veh</i>	8.1			7.8			8.4			8.1		
	LOS	A			A			A			A		
	95% Q <i>m</i>	3.2			2.4			5.6			4.0		
2032 Full Development	Vol <i>veh/hr</i>	24	49	43	12	30	30	37	112	30	24	88	18
	V/C Ratio	0.16			0.10			0.24			0.18		
	Delay <i>sec/veh</i>	8.5			8.2			9.0			8.6		
	LOS	A			A			A			A		
	95% Q <i>m</i>	4.8			2.4			7.2			4.8		

3.6 OCHTERLONEY AND WENTWORTH STREET



Similar to the King Street intersection with Ochterloney Street, the Wentworth and Ochterloney intersection sees higher volumes of through movements on Ochterloney that results in slightly higher levels of delay for side street movements on Wentworth Street. Nonetheless, delays generally remain below 25 seconds on these side street movements with low capacity utilization and minimal queuing.

Similar to previous analysis, the increases to performance measure levels occur as a result of the changes between the 2022 Baseline conditions, and the 2032 Background traffic growth scenario. The results again show that free flow operations on Ochterloney Street operate at high levels of service under all scenarios, including left turn movements from Ochterloney to Wentworth Street in each direction.

In all cases and at all intersection delays, queues and capacity utilization are considered very good and the existing intersections do not require any upgrades to accommodate additional vehicle or pedestrian traffic from the proposed development.

AM Peak Hour		Wentworth St. EB			Wentworth St. WB			Ochterloney St. NB			Ochterloney St. NB		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2022 Baseline	Vol <i>veh/hr</i>	15	30	10	20	15	20	15	175	20	35	360	15
	V/C Ratio	0.17			0.15			0.01			0.03		
	Delay <i>sec/veh</i>	16.9			15.3			0.7			0.9		
	LOS	C			C			A			A		
	95% Q <i>m</i>	4.7			4.1			0.3			0.7		
2032 Full Development	Vol <i>veh/hr</i>	18	37	12	24	18	24	18	228	24	43	446	18
	V/C Ratio	0.27			0.23			0.02			0.4		
	Delay <i>sec/veh</i>	22.7			20.1			0.7			1.0		
	LOS	C			C			A			A		
	95% Q <i>m</i>	8.3			7.1			0.5			0.9		

PM Peak Hour		Wentworth St. EB			Wentworth St. WB			Ochterloney St. NB			Ochterloney St. NB		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2022 Baseline	Vol <i>veh/hr</i>	20	35	15	10	10	50	15	410	30	30	180	10
	V/C Ratio	0.23			0.17			0.01			0.03		
	Delay <i>sec/veh</i>	18.8			14.4			0.4			1.4		
	LOS	C			B			A			A		
	95% Q <i>m</i>	6.8			4.7			0.3			0.7		
2032 Full Development	Vol <i>veh/hr</i>	24	43	18	12	12	61	18	511	37	37	233	12
	V/C Ratio	0.37			0.25			0.02			0.04		
	Delay <i>sec/veh</i>	27.7			18.2			0.4			1.5		
	LOS	D			C			A			A		
	95% Q <i>m</i>	13.1			7.9			0.4			1.0		

4. CONCLUSIONS

This Transportation Impact Study was prepared to evaluate the anticipated impacts of a proposed multi-unit, multi-use development located in the middle of Downtown Dartmouth. The proposed development is built as an extension to the historic Post Office building located on Queen Street and is expected to add about 155 new residential units along with limited commercial and office space within the development.

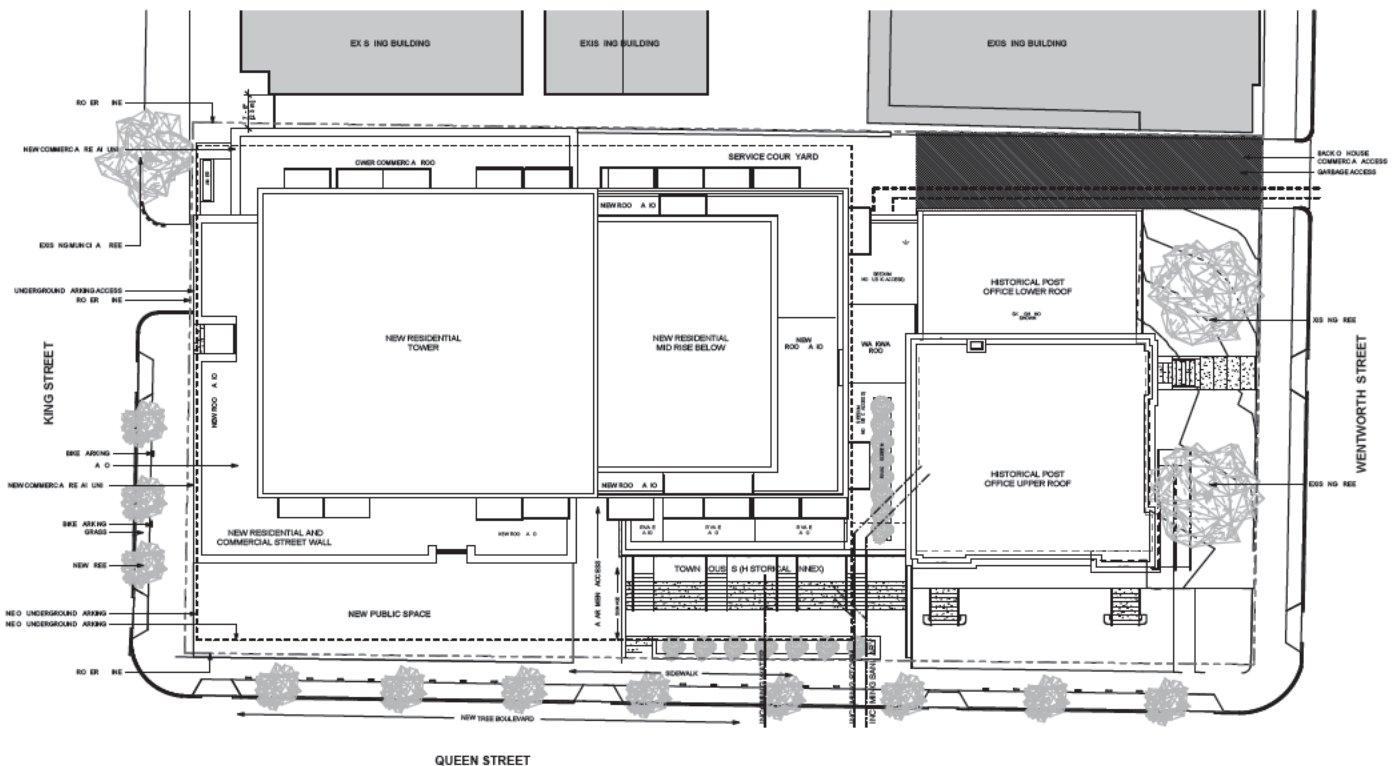
Access to the building's underground parking structure is provided by a new mid-block driveway on King Street along the south side of the development. This driveway provides direct access to and from an interconnected grid-based road network in downtown Dartmouth, which connects provides vehicular traffic to adjoining major transportation corridors including Ochterloney Street and Alderney Drive.

Similarly, residents of the development and people coming to the commercial and office land uses have direct access to robust transit and active transportation networks immediately adjacent to the development. Residents also have direct access to an abundance of shops, restaurants, banks

and other commercial development present in Downtown Dartmouth. This environment is likely to help further reduce automobile trips to and from the downtown area.

The transportation analyses carried out as part of this study show that all intersections operate at a very good level of service presently, as well as in the future with all background traffic and development traffic added to the network. Of these, the growth in background traffic data is expected to have the most significant impact on future operations. The addition of relatively low volumes from the proposed development have very little impact on operations on the surrounding intersections and roadways.

The new driveway to the development is expected to be located towards the west side of the property, which provides adequate and improved spacing from Queen Street. The driveway should include single entry and exit lanes and has adequate sight distance towards Ochterloney Street. As the design for the site proceeds, building location and form should ensure that sight distances at the driveway are not compromised.



APPENDIX A

Appendix A: TRAFFIC COUNTS

MANUAL TRAFFIC COUNTS

INTERSECTION				OCHTERLONEY ST AT VICTORIA RD				WEATHER		FOGGY	
DAY	DATE	MONTH	YEAR					RECORDER		JACOB COSMAN	
TUESDAY	30	JULY	2019								

STREET TIME	VICTORIA RD			VICTORIA RD			OCHTERLONEY ST			OCHTERLONEY ST			TOTAL
	FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			
15 MIN INTERVALS	L	S	R	L	S	R	L	S	R	L	S	R	
07 00 AM	0	32	0	0	0	0	0	32	10	5	9	0	88
07 15 AM	2	51	2	0	0	0	0	66	12	4	17	0	154
07 30 AM	1	45	1	0	0	0	0	65	18	11	18	0	159
07 45 AM	0	35	2	0	0	0	0	71	8	9	28	0	153
TOTAL	3	163	5	0	0	0	0	234	48	29	72	0	554
PEAK	171			0			282			101			
4(15 MIN PEAK)	220			0			332			148			
PEAK HOUR FACTOR	0.78			0			0.85			0.68			AAWT
TWO WAY TOTALS	171			240			359			338			FACTOR
													1.01
													580

DAY	DATE	MONTH	YEAR												
TUESDAY	30	JULY	2019												
STREET TIME	FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			TOTAL		
	L	S	R	L	S	R	L	S	R	L	S	R			
15 MIN INTERVALS	L	S	R	L	S	R	L	S	R	L	S	R			
08 00 AM	1	38	3	0	0	0	0	116	16	5	43	0	222		
08 15 AM	2	45	0	0	0	0	0	101	6	9	32	0	195		
08 30 AM	1	40	3	1	0	0	0	71	14	8	39	0	177		
08 45 AM	3	30	6	0	0	0	0	82	10	4	29	0	164		
TOTAL	7	153	12	1	0	0	0	370	46	26	143	0	758		
PEAK	172			1			416			169					
4(15 MIN PEAK)	188			4			528			192					
PEAK HOUR FACTOR	0.91			0.25			0.79			0.88			AAWT		
TWO WAY TOTALS	172			226			572			546			FACTOR		
													1.01		
													766		

Intersection Peak Hour

08:00 - 09:00		VICTORIA RD			VICTORIA RD			OCHTERLONEY ST			OCHTERLONEY ST			Total
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	Car	6	152	12	1	0	0	0	364	46	25	137	0	743
	Truck	1	1	0	0	0	0	0	6	0	1	6	0	15
	Bicycle	0	1	0	0	0	0	0	11	1	0	2	0	15
	Vehicle Total	7	154	12	1	0	0	0	381	47	26	145	0	773
	Approach Factor	0.92			0.25			0.8			0.89			FACTOR
													1	
													773	

Peak Hour Pedestrians

08:00 - 09:00		NE			NW			SW			SE			Total
		Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
	Pedestrians	28	3	31	15	21	36	9	0	9	0	12	12	88

Car traffic

Interval starts	VICTORIA RD			VICTORIA RD			OCHTERLONEY ST			OCHTERLONEY ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7 00	0	32	0	0	0	0	0	31	10	5	8	0	86
7 15	2	51	2	0	0	0	0	64	12	4	15	0	150
7 30	1	45	1	0	0	0	0	64	18	11	17	0	157
7 45	0	35	2	0	0	0	0	69	8	9	28	0	151
8 00	0	38	3	0	0	0	0	115	16	5	41	0	218
8 15	2	44	0	0	0	0	0	98	6	8	32	0	190
8 30	1	40	3	1	0	0	0	70	14	8	36	0	173
8 45	3	30	6	0	0	0	0	81	10	4	28	0	162
TOTAL	9	315	17	1	0	0	0	592	94	54	205	0	1287

Truck traffic

Interval starts	VICTORIA RD			VICTORIA RD			OCHTERLONEY ST			OCHTERLONEY ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7 00	0	0	0	0	0	0	0	1	0	0	1	0	2
7 15	0	0	0	0	0	0	0	2	0	0	2	0	4
7 30	0	0	0	0	0	0	0	1	0	0	1	0	2
7 45	0	0	0	0	0	0	0	2	0	0	0	0	2
8 00	1	0	0	0	0	0	0	1	0	0	2	0	4
8 15	0	1	0	0	0	0	0	3	0	1	0	0	5
8 30	0	0	0	0	0	0	0	1	0	0	3	0	4
8 45	0	0	0	0	0	0	0	1	0	0	1	0	2
TOTAL	1	1	0	0	0	0	0	12	0	1	10	0	25

Bicycle traffic

Interval starts	VICTORIA RD			VICTORIA RD			OCHTERLONEY ST			OCHTERLONEY ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7 00	0	0	0	0	0	0	0	1	0	0	0	0	2
7 15	0	3	0	0	0	0	0	3	2	0	0	3	9
7 30	0	0	0	0	0	0	0	7	1	0	0	0	8
7 45	0	0	0	0	0	0	0	4	0	0	0	0	4
8 00	0	0	0	0	0	0	0	1	0	0	0	0	1
8 15	0	0	0	0	0	0	0	5	1	0	1	0	7
8 30	0	1	0	0	0	0	0	2	0	0	0	0	3
8 45	0	0	0	0	0	0	0	3	0	0	1	0	4
TOTAL	0	4	0	0	0	0	0	26	5	0	3	0	38

Pedestrian volumes

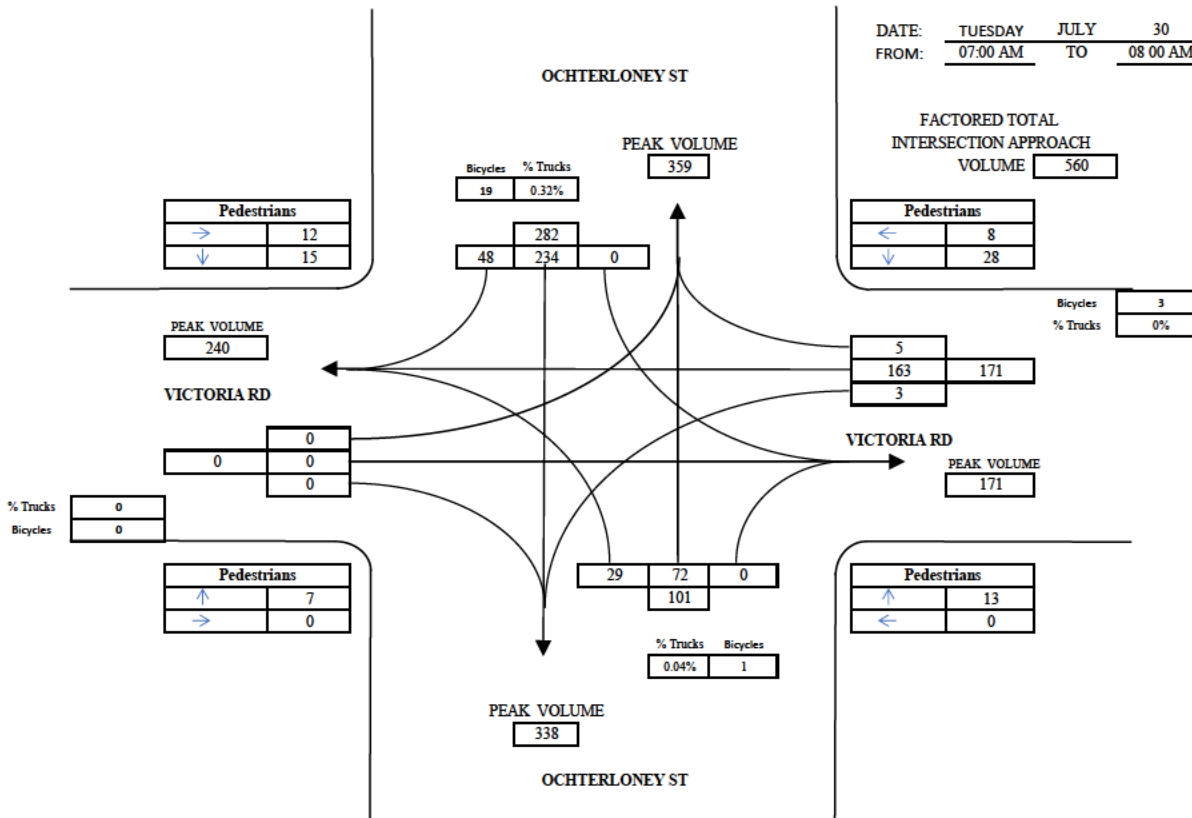
Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
7 00	4	2	6	0	4	4	0	0	0	0	1	1	11
7 15	7	2	9	1	5	6	0	0	0	0	3	3	18
7 30	9	1	10	4	2	6	3	0	3	0	3	3	22
7 45	8	3	11	7	4	11	4	0	4	0	6	6	32
8 00	6	1	7	5	4	9	5	0	5	0	3	3	24
8 15	11	1	12	2	9	11	0	0	0	0	1	1	24
8 30	8	1	9	5	5	10	4	0	4	0	3	3	26
8 45	3	0	3	3	3	6	0	0	0	0	5	5	14
TOTAL	56	11	67	27	36	63	16	0	16	0	25	25	171

VEHICULAR GRAPHIC SUMMARY SHEET

OCHTERLONEY ST AT VICTORIA RD

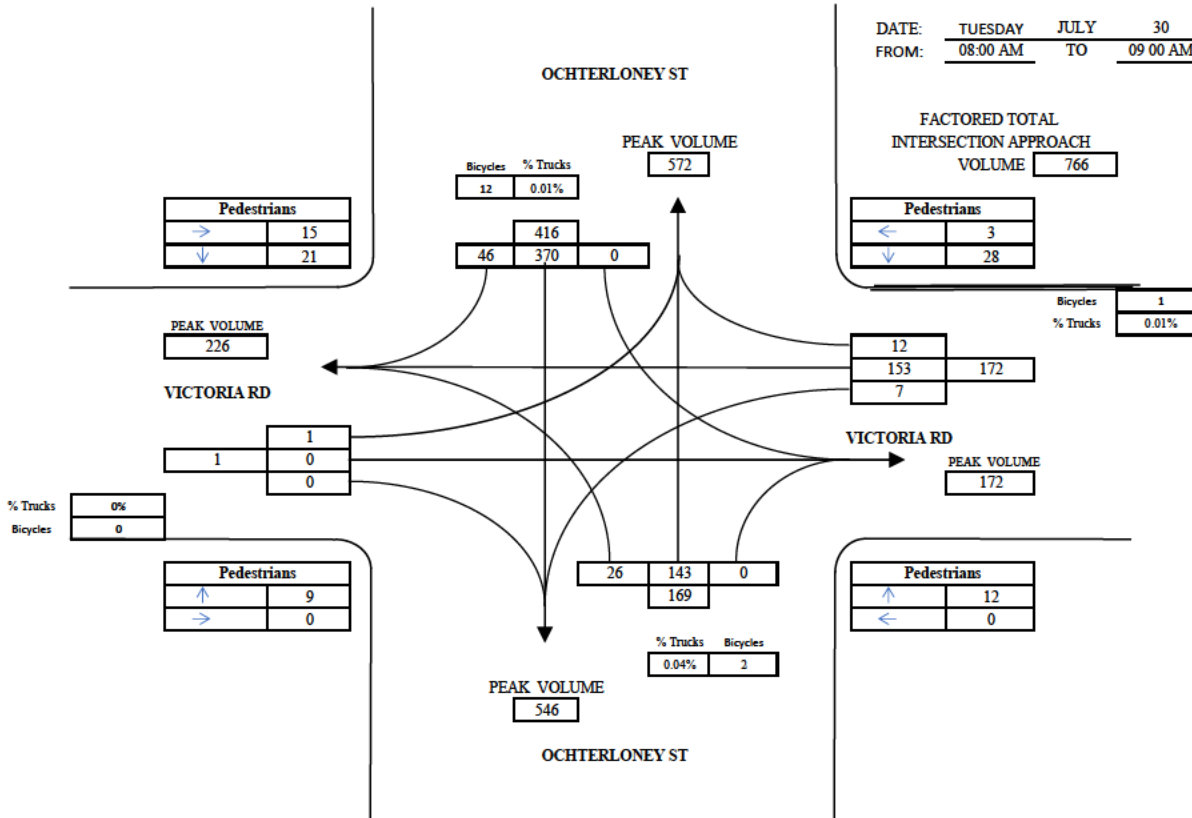
DATE: TUESDAY JULY 30 2019
 FROM: 07:00 AM TO 08:00 AM

FACTORED TOTAL
 INTERSECTION APPROACH
 VOLUME **560**



DATE: TUESDAY JULY 30 2019
 FROM: 08:00 AM TO 09:00 AM

FACTORED TOTAL
 INTERSECTION APPROACH
 VOLUME **766**



MANUAL TRAFFIC COUNTS

INTERSECTION

OCTHERLONEY ST AT VICTORIA RD

WEATHER
RECORDER

SUNNY
JACOB COSMAN

DAY DATE MONTH YEAR
TUESDAY 30 JULY 2019

STREET TIME	VICTORIA RD			VICTORIA RD			OCTHERLONEY ST			OCTHERLONEY ST			TOTAL
	FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			
15 MIN INTERVALS	L	S	R	L	S	R	L	S	R	L	S	R	
04 00 00 PM	0	33	9	0	0	0	0	62	9	9	97	0	219
04 15 00 PM	0	37	9	0	0	0	0	77	9	18	122	0	272
04 30 00 PM	1	34	8	0	0	0	0	44	11	14	131	0	243
04 45 00 PM	0	35	3	0	0	0	0	64	7	11	99	0	219

TOTAL	1	139	29	0	0	0	0	247	36	52	449	0	953
PEAK		169						283			501		
4(15 MIN PEAK)		184						344			580		
PEAK HOUR FACTOR		0.92						0.82			0.86		
TWO WAY TOTALS		169			227			761			749		
AAWT FACTOR													1.01
													963

DAY DATE MONTH YEAR
TUESDAY 30 JULY 2019

STREET TIME	FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			TOTAL
	L	S	R	L	S	R	L	S	R	L	S	R	
05 00 00 PM	0	24	5	0	0	0	0	56	5	11	93	0	194
05 15 00 PM	0	29	4	0	0	0	0	58	11	4	100	0	206
05 30 00 PM	1	24	4	0	0	0	0	48	2	11	93	0	183
05 45 00 PM	1	23	3	0	0	0	0	52	11	6	62	0	158

TOTAL	2	100	16	0	0	0	0	214	29	32	348	0	741
PEAK		118						243			380		
4(15 MIN PEAK)		132						276			416		
PEAK HOUR FACTOR		0.89						0.88			0.91		
TWO WAY TOTALS		118			161			607			596		
AAWT FACTOR													1.01
													748

Intersection Peak Hour

16:00 - 17:00		VICTORIA RD			VICTORIA RD			OCTHERLONEY ST			OCTHERLONEY ST			Total
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	Car	1	139	29	0	0	0	0	244	36	52	444	0	945
	Truck	0	0	0	0	0	0	0	3	0	0	5	0	8
	Bicycle	0	1	0	0	0	0	0	4	0	0	14	0	19
	Vehicle Total	1	140	29	0	0	0	0	251	36	52	463	0	972
	Approach Factor	0.92			0			0.82			0.87			FACTOR
														1
														972

Peak Hour Pedestrians

16:00 - 17:00		NE			NW			SW			SE			Total
		Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
	Pedestrians	18	21	39	5	14	19	26	0	26	2	38	40	124

Car traffic

Interval starts	VICTORIA RD			VICTORIA RD			OCTHERLONEY ST			OCTHERLONEY ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16 00	0	33	9	0	0	0	0	62	9	9	95	0	217
16 15	0	37	9	0	0	0	0	77	9	18	122	0	272
16 30	1	34	8	0	0	0	0	42	11	14	129	0	239
16 45	0	35	3	0	0	0	0	63	7	11	98	0	217
17 00	0	24	5	0	0	0	0	54	5	11	90	0	189
17 15	0	29	4	0	0	0	0	57	11	4	100	0	205
17 30	1	24	4	0	0	0	0	46	2	11	91	0	179
17 45	1	23	3	0	0	0	0	52	11	6	62	0	158
TOTAL	3	239	45	0	0	0	0	453	65	84	787	0	1676

Truck traffic

Interval starts	VICTORIA RD			VICTORIA RD			OCTHERLONEY ST			OCTHERLONEY ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16 00	0	0	0	0	0	0	0	0	0	0	2	0	2
16 15	0	0	0	0	0	0	0	0	0	0	0	0	0
16 30	0	0	0	0	0	0	0	2	0	0	2	0	4
16 45	0	0	0	0	0	0	0	1	0	0	1	0	2
17 00	0	0	0	0	0	0	0	2	0	0	3	0	5
17 15	0	0	0	0	0	0	0	1	0	0	0	0	1
17 30	0	0	0	0	0	0	0	2	0	0	2	0	4
17 45	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	8	0	0	10	0	18

Bicycle traffic

Interval starts	VICTORIA RD			VICTORIA RD			OCTHERLONEY ST			OCTHERLONEY ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16 00	0	0	0	0	0	0	0	0	0	0	3	0	3
16 15	0	0	0	0	0	0	0	1	0	0	5	0	6
16 30	0	0	0	0	0	0	0	1	0	0	3	0	4
16 45	0	1	0	0	0	0	0	2	0	0	3	0	6
17 00	0	0	0	0	0	0	0	1	0	0	6	0	7
17 15	0	1	0	0	0	0	0	1	0	0	5	0	7
17 30	0	0	0	1	0	0	0	1	0	0	1	0	3
17 45	0	0	0	0	0	0	0	2	0	0	1	0	3
TOTAL	0	2	0	1	0	0	0	9	0	0	27	0	39

Pedestrian volumes

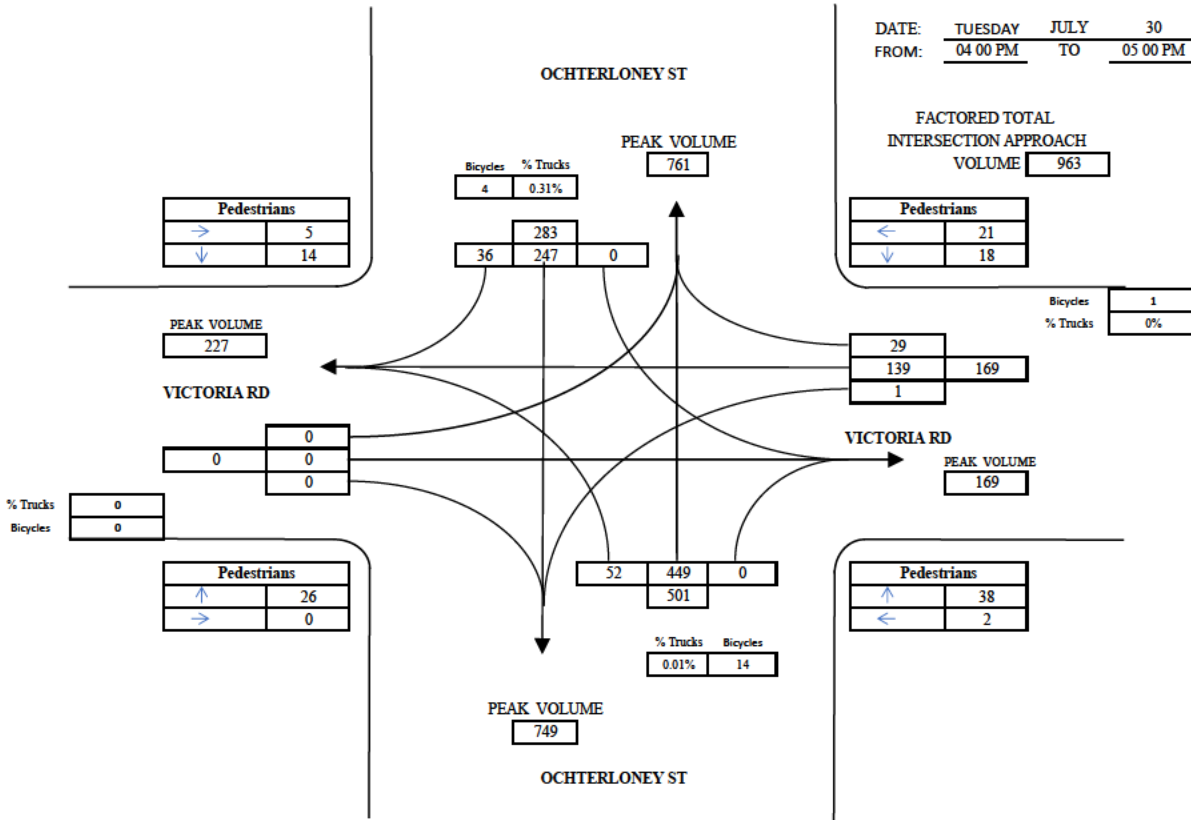
Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
16 00	6	1	7	1	1	2	7	0	7	0	11	11	27
16 15	0	5	5	0	7	7	11	0	11	0	11	11	24
16 30	6	8	14	3	4	7	9	0	9	0	10	10	40
16 45	6	7	13	1	2	3	9	0	9	2	6	8	33
17 00	4	11	15	2	5	7	7	0	7	0	8	8	37
17 15	0	5	5	1	11	12	8	0	8	1	7	8	33
17 30	3	5	8	0	5	5	7	0	7	0	5	5	25
17 45	6	2	8	2	2	4	3	0	3	0	3	3	18
TOTAL	31	44	75	10	37	47	51	0	51	3	61	64	237

VEHICULAR GRAPHIC SUMMARY SHEET

OCHTERLONEY ST AT VICTORIA RD

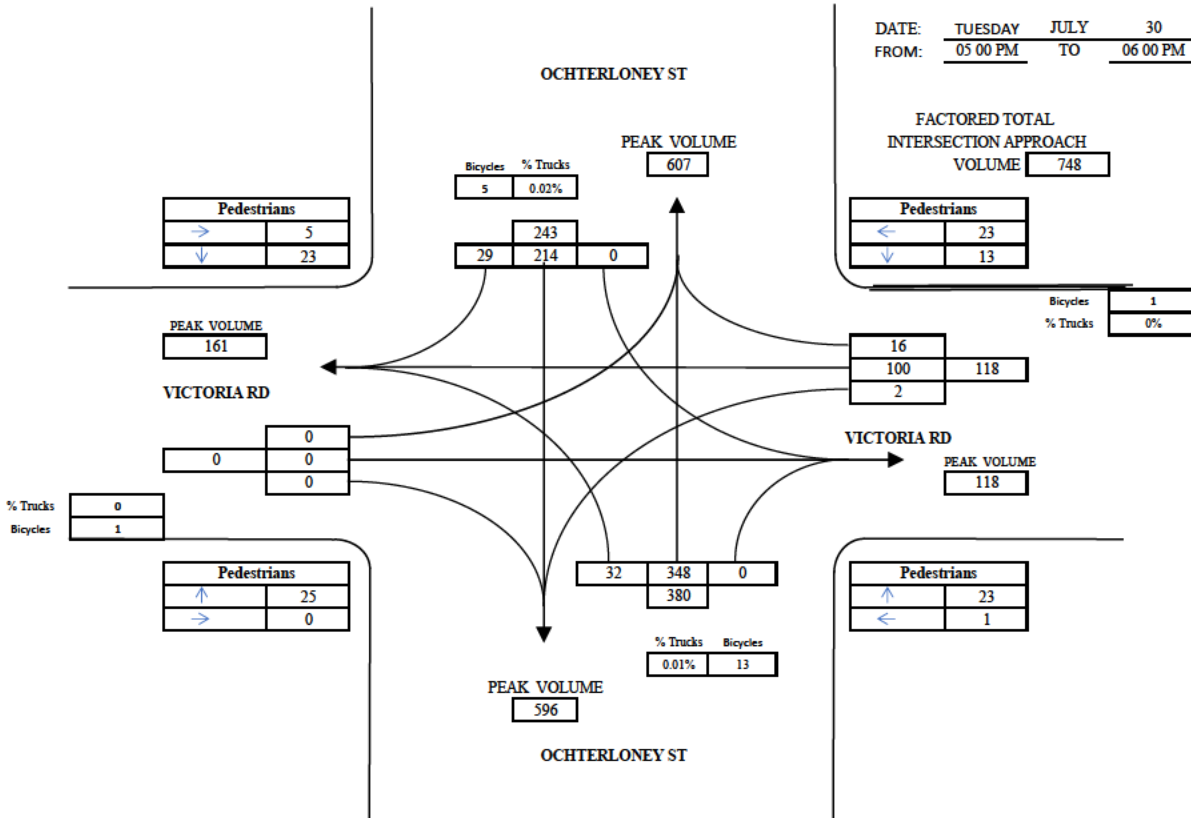
DATE: TUESDAY JULY 30 2019
 FROM: 04 00 PM TO 05 00 PM

FACTORED TOTAL
 INTERSECTION APPROACH
 VOLUME **963**



DATE: TUESDAY JULY 30 2019
 FROM: 05 00 PM TO 06 00 PM

FACTORED TOTAL
 INTERSECTION APPROACH
 VOLUME **748**



MANUAL TRAFFIC COUNTS

INTERSECTION				KING STREET AT OCHTERLONEY STREET				WEATHER				CLEAR	
DAY	DATE	MONTH	YEAR					RECORDER				LIAM	
TUES.	2	OCT.	2018										

TIME	KING STREET			KING STREET			OCHTERLONEY STREET			OCHTERLONEY STREET			TOTAL
	FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			
15 MIN INTERVALS	L	S	R	L	S	R	L	S	R	L	S	R	
07 00 00 AM - 07 15 00 AM	2	4	4	0	2	3	4	54	1	0	12	0	86
07 15 00 AM - 07 30 00 AM	3	4	4	2	6	2	5	62	1	2	17	2	110
07 30 00 AM - 07 45 00 AM	8	4	6	2	4	2	6	85	2	1	26	3	149
07 45 00 AM - 08 00 00 AM	10	6	9	2	7	6	15	90	1	2	20	2	170

TOTAL	23	18	23	6	19	13	30	291	5	5	75	7	515
PEAK	64			38			326			87			
4(15 MIN PEAK)	100			60			424			120			
PEAK HOUR FACTOR	0.64			0.63			0.77			0.73			AAWT
TWO WAY TOTALS	120			66			430			414			FACTOR
													1.01
													520

DAY	DATE	MONTH	YEAR
TUES.	2	OCT.	2018

TIME	FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			TOTAL
	L	S	R	L	S	R	L	S	R	L	S	R	
08 00 00 AM - 08 15 00 AM	5	2	9	2	5	7	12	83	0	1	30	3	159
08 15 00 AM - 08 30 00 AM	5	3	6	2	5	3	18	81	6	0	28	6	163
08 30 00 AM - 08 45 00 AM	6	3	6	5	6	11	15	81	2	0	38	2	175
08 45 00 AM - 09 00 00 AM	6	1	7	1	10	9	9	48	3	1	24	7	126

TOTAL	22	9	28	10	26	30	54	293	11	2	120	18	623
PEAK	59			66			358			140			
4(15 MIN PEAK)	64			88			420			160			
PEAK HOUR FACTOR	0.92			0.75			0.85			0.88			AAWT
TWO WAY TOTALS	157			88			516			485			FACTOR
													1.01
													629

Intersection Peak Hour

7:45 8:45	KING STREET			KING STREET			OCHTERLONEY STREET			OCHTERLONEY STREET			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	26	13	24	11	23	26	57	332	8	3	113	12	648
Truck	0	1	6	0	0	1	3	3	1	0	3	1	19
Bicycle	0	3	0	0	0	1	3	6	0	0	0	0	13
Vehicle Total	26	17	30	11	23	28	63	341	9	3	116	13	680
Approach Factor	0.73			0.7			0.95			0.82			FACTOR
													1
													680

Peak Hour Pedestrians

7:45 8:45	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	62	2	64	3	13	16	2	8	8	10	5	15	103

Car traffic

Interval starts	KING STREET			KING STREET			OCHTERLONEY STREET			OCHTERLONEY STREET			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	2	4	2	0	2	3	3	53	1	0	12	0	82
7:15	3	4	4	2	4	2	4	59	1	2	16	2	103
7:30	8	4	4	2	4	2	5	85	2	0	24	2	142
7:45	10	6	8	2	7	6	15	89	1	2	20	1	167
8:00	5	2	6	2	5	7	11	82	0	1	28	3	152
8:15	5	3	6	2	5	3	18	80	6	0	28	6	162
8:30	6	2	4	5	6	10	13	81	1	0	37	2	167
8:45	5	1	7	1	9	9	9	47	3	1	24	7	123
TOTAL	44	26	41	16	42	42	78	576	15	6	189	23	1098

Truck traffic

Interval starts	KING STREET			KING STREET			OCHTERLONEY STREET			OCHTERLONEY STREET			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	0	2	0	0	0	1	1	0	0	0	0	4
7:15	0	0	0	0	2	0	1	3	0	0	1	0	7
7:30	0	0	0	0	0	0	1	0	0	1	2	1	7
7:45	0	0	1	0	0	0	0	1	0	0	0	1	3
8:00	0	0	3	0	0	0	1	1	0	0	2	0	7
8:15	0	0	0	0	0	0	0	1	0	0	0	0	1
8:30	0	1	2	0	0	1	2	0	1	0	1	0	8
8:45	1	0	0	0	1	0	0	1	0	0	0	0	3
TOTAL	1	1	10	0	3	1	6	8	1	1	6	2	40

Bicycle traffic

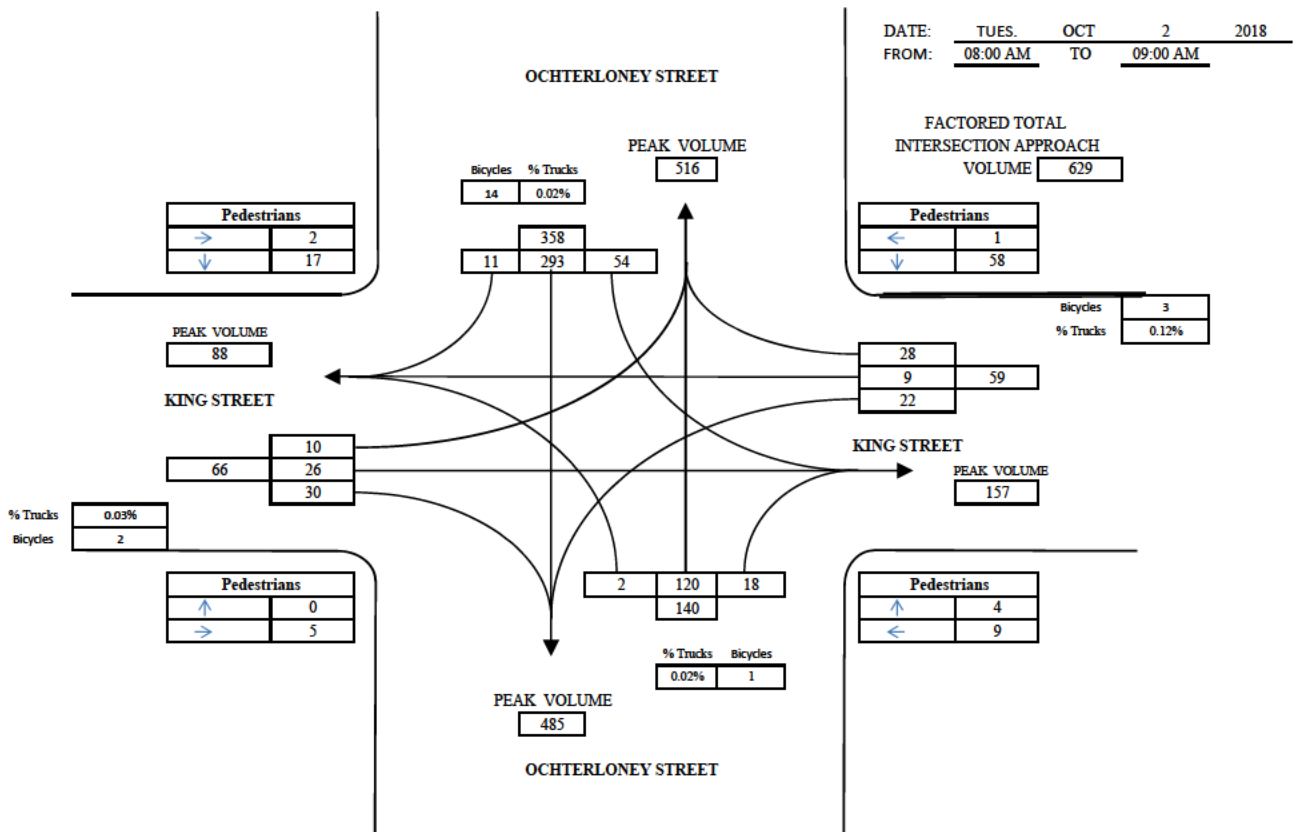
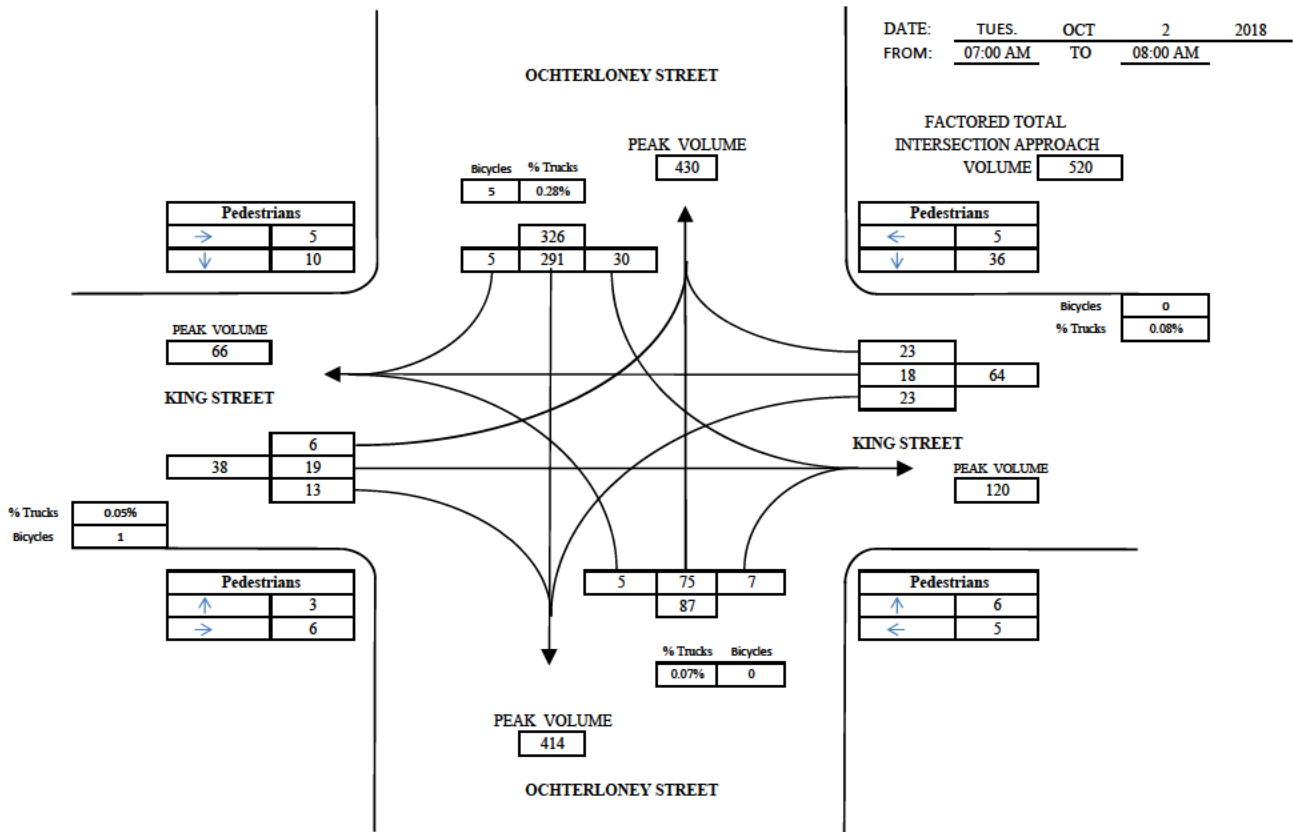
Interval starts	KING STREET			KING STREET			OCHTERLONEY STREET			OCHTERLONEY STREET			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	0	0	0	0	0	0	1	0	0	0	0	1
7:15	0	0	0	0	0	0	0	2	0	0	0	0	2
7:30	0	0	0	0	1	0	0	1	0	0	0	0	2
7:45	0	0	0	0	0	0	1	0	0	0	0	0	1
8:00	0	2	0	0	0	0	0	3	0	0	0	0	5
8:15	0	0	0	0	0	1	1	3	0	0	0	0	5
8:30	0	1	0	0	0	0	1	0	0	0	0	0	2
8:45	0	0	0	0	0	1	0	6	0	0	1	0	8
TOTAL	0	3	0	0	1	2	3	16	0	0	1	0	26

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
7:00	7	3	10	1	2	3	0	0	0	1	2	3	16
7:15	10	0	10	2	1	3	1	1	2	0	1	1	16
7:30	6	1	7	1	4	5	0	2	2	1	0	1	15
7:45	13	1	14	1	3	4	2	3	5	3	3	6	29
8:00	17	0	17	0	5	5	0	0	0	2	1	3	25
8:15	20	1	21	1	4	5	0	2	2	3	1	4	32
8:30	12	0	12	1	1	2	0	1	1	2	0	2	17
8:45	9	0	9	0	7	7	0	2	2	2	2	4	22
TOTAL	94	6	100	7	27	34	3	11	14	14	10	24	172

VEHICULAR GRAPHIC SUMMARY SHEET

KING STREET AT OCHTERLONEY STREET



MANUAL TRAFFIC COUNTS

INTERSECTION				KING STREET AT OCHTERLONEY STREET				WEATHER				RAIN	
DAY	DATE	MONTH	YEAR					RECORDER				LIAM	
TUES.	2	OCT.	2018										

TIME	KING STREET			KING STREET			OCHTERLONEY STREET			OCHTERLONEY STREET			TOTAL
	FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			
15 MIN INTERVALS	L	S	R	L	S	R	L	S	R	L	S	R	
04 00 00 PM	5	4	17	13	8	5	10	26	1	3	72	6	170
04 15 00 PM	7	3	9	10	10	4	5	23	1	0	53	12	137
04 30 00 PM	6	6	24	5	6	10	8	32	3	1	89	3	193
04 45 00 PM	9	5	24	6	8	7	12	39	1	7	69	4	191
TOTAL	27	18	74	34	32	26	35	120	6	11	283	25	691
PEAK	119			92			161			319			
4(15 MIN PEAK)	152			104			208			372			
PEAK HOUR FACTOR	0.78			0.88			0.77			0.86			AAWT
TWO WAY TOTALS	211			127			552			492			FACTOR
													1.01
													698

DAY	DATE	MONTH	YEAR												
TUES.	2	OCT.	2018												

TIME	FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			TOTAL
	L	S	R	L	S	R	L	S	R	L	S	R	
05 00 00 PM	4	6	19	3	5	5	13	38	1	2	79	8	183
05 15 00 PM	4	5	13	2	10	6	12	42	2	1	62	9	168
05 30 00 PM	6	5	12	2	8	6	13	26	1	1	65	4	149
05 45 00 PM	2	5	14	5	9	5	8	29	1	0	57	2	137
TOTAL	16	21	58	12	32	22	46	135	5	4	263	23	637
PEAK	95			66			186			290			
4(15 MIN PEAK)	116			76			224			356			
PEAK HOUR FACTOR	0.82			0.87			0.83			0.81			AAWT
TWO WAY TOTALS	196			96			519			463			FACTOR
													1.01
													643

Intersection Peak Hour

Time	Mode	KING STREET			KING STREET			OCHTERLONEY STREET			OCHTERLONEY STREET			Total
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:30	Car	23	22	76	16	28	28	43	146	7	11	299	24	723
	Truck	0	0	4	0	1	0	2	5	0	0	0	0	12
	Bicycle	0	0	0	1	0	0	0	1	0	0	5	0	7
	Vehicle Total	23	22	80	17	29	28	45	152	7	11	304	24	742
	Approach Factor	0.82			0.88			0.89			0.9			FACTOR
														1
														742

Peak Hour Pedestrians

Time	Mode	NE			NW			SW			SE			Total
		Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
16:30	Pedestrians	8	5	13	2	27	29	19	8	27	10	33	43	112

Car traffic

Interval starts	KING STREET			KING STREET			OCHTERLONEY STREET			OCHTERLONEY STREET			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16 00	5	4	13	13	8	5	9	25	1	3	72	5	163
16 15	7	3	9	9	10	4	5	22	1	0	53	12	135
16 30	6	6	22	5	6	10	7	29	3	1	89	3	187
16 45	9	5	24	6	7	7	12	38	1	7	69	4	189
17 00	4	6	17	3	5	5	12	38	1	2	79	8	180
17 15	4	5	13	2	10	6	12	41	2	1	62	9	167
17 30	6	5	10	2	8	6	12	26	1	1	65	4	146
17 45	2	5	14	5	9	5	8	28	1	0	56	2	135
TOTAL	43	39	122	45	63	48	77	247	11	15	545	47	1302

Truck traffic

Interval starts	KING STREET			KING STREET			OCHTERLONEY STREET			OCHTERLONEY STREET			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16 00	0	0	4	0	0	0	1	1	0	0	0	1	7
16 15	0	0	0	1	0	0	0	1	0	0	0	0	2
16 30	0	0	2	0	0	0	1	3	0	0	0	0	6
16 45	0	0	0	0	1	0	0	1	0	0	0	0	2
17 00	0	0	2	0	0	0	1	0	0	0	0	0	3
17 15	0	0	0	0	0	0	0	1	0	0	0	0	1
17 30	0	0	2	0	0	0	1	0	0	0	0	0	3
17 45	0	0	0	0	0	0	0	1	0	0	1	0	2
TOTAL	0	0	10	1	1	0	4	8	0	0	1	1	26

Bicycle traffic

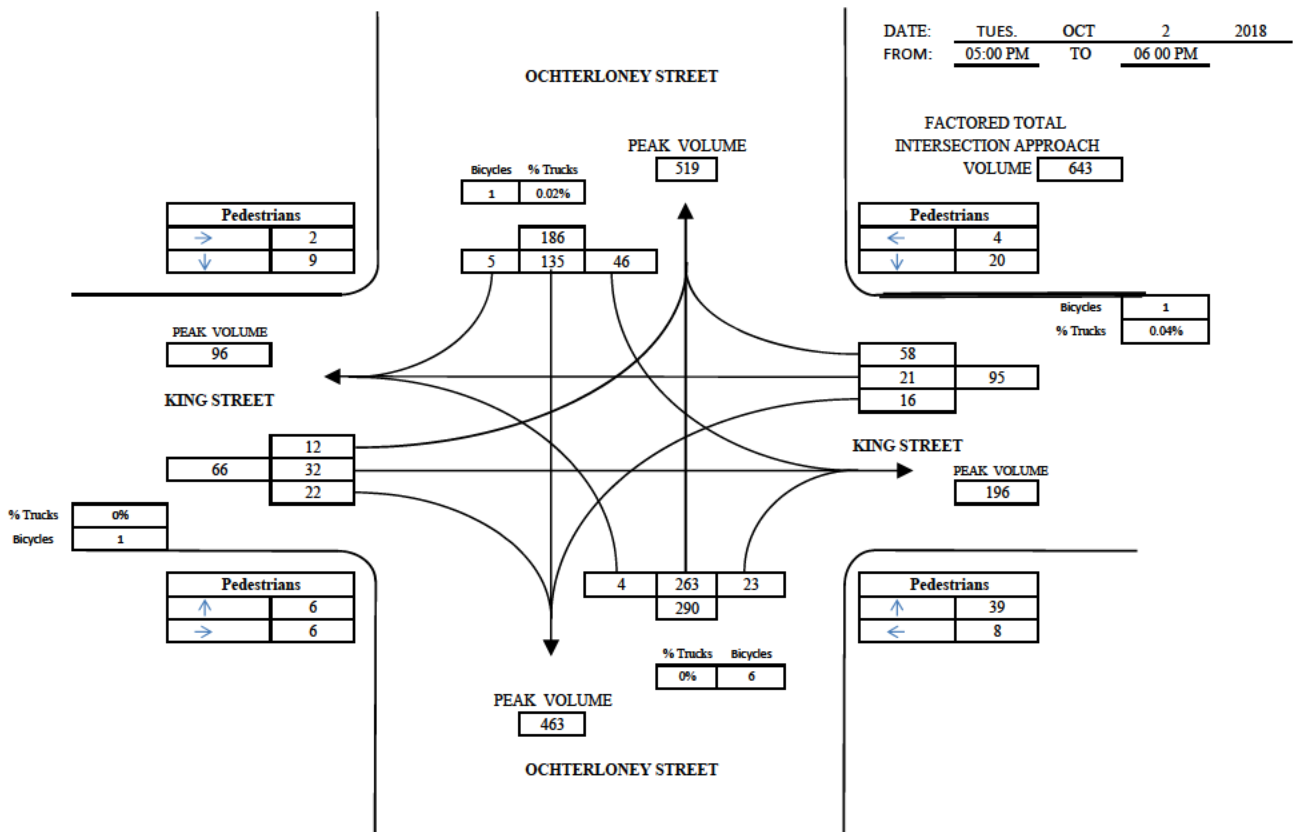
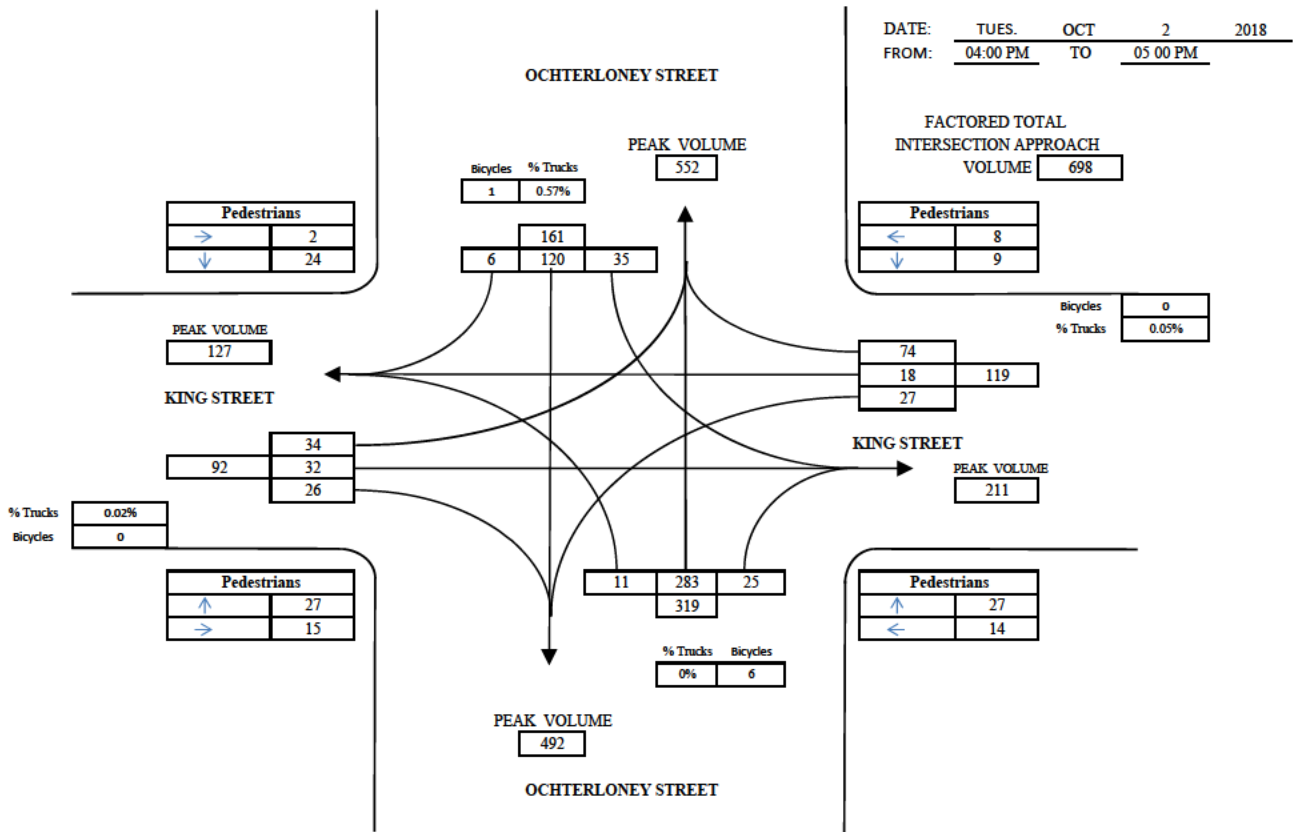
Interval starts	KING STREET			KING STREET			OCHTERLONEY STREET			OCHTERLONEY STREET			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16 00	0	0	0	0	0	0	0	0	1	0	0	1	2
16 15	0	0	0	0	0	0	0	0	0	0	2	0	2
16 30	0	0	0	0	0	0	0	0	0	0	1	0	1
16 45	0	0	0	0	0	0	0	0	0	0	2	0	2
17 00	0	0	0	1	0	0	0	0	0	0	1	0	2
17 15	0	0	0	0	0	0	0	1	0	0	1	0	2
17 30	0	0	1	0	0	0	0	0	0	0	2	0	3
17 45	0	0	0	0	0	0	0	0	0	0	2	0	2
TOTAL	0	0	1	1	0	0	0	1	1	0	11	1	16

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
16 00	2	2	4	1	0	1	4	8	12	4	11	15	32
16 15	1	2	3	0	5	5	9	3	12	4	5	9	29
16 30	1	4	5	1	8	9	11	4	15	6	9	15	44
16 45	5	0	5	0	11	11	3	0	3	0	2	2	21
17 00	1	0	1	1	3	4	5	2	7	4	14	18	30
17 15	1	1	2	0	5	5	0	2	2	0	8	8	17
17 30	9	3	12	0	0	0	0	0	0	2	11	13	25
17 45	9	0	9	1	1	2	1	2	3	2	6	8	22
TOTAL	29	12	41	4	33	37	33	21	54	22	66	88	220

VEHICULAR GRAPHIC SUMMARY SHEET

KING STREET AT OCHTERLONEY STREET



MANUAL TRAFFIC COUNTS

INTERSECTION:				OCHTERLONEY ST AT WENTWORTH ST				WEATHER		FAIR	
						RECORDER		MB			
DAY	DATE	MONTH	YEAR								
TUES	2	OCT	2018								

STREET:	OCHTERLONEY ST			OCHTERLONEY ST			WENTWORTH ST			WENTWORTH ST			TOTAL
	FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			
TIME:	L	S	R	L	S	R	L	S	R	L	S	R	
15 MIN INTERVALS													
07:00:00 AM	0	46	3	0	18	0	2	4	1	4	0	1	79
07:15:00 AM	3	58	1	0	22	2	2	3	1	7	0	1	100
07:30:00 AM	1	94	3	1	30	2	5	3	0	3	1	5	148
07:45:00 AM	3	98	0	1	29	1	2	6	1	6	3	3	153
TOTAL	7	296	7	2	99	5	11	16	3	20	4	10	480
PEAK	310			106			30			34			
4(15 MIN PEAK)	404			132			36			48			
PEAK HOUR FACTOR	0.77			0.8			0.83			0.71			AAWT
TWO WAY TOTALS	430			425			43			62			FACTOR
													1.01
													485

DAY	DATE	MONTH	YEAR										
TUES	2	OCT	2018										
TIME:	FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			TOTAL
15 MIN INTERVALS	L	S	R	L	S	R	L	S	R	L	S	R	
08:00:00 AM	4	95	1	0	34	2	2	5	1	0	0	5	149
08:15:00 AM	6	103	3	2	33	5	3	8	1	4	3	3	174
08:30:00 AM	8	92	2	4	45	2	2	3	1	4	0	6	169
08:45:00 AM	9	59	5	2	28	5	7	7	5	0	1	4	132
TOTAL	27	349	11	8	140	14	14	23	8	8	4	18	624
PEAK	387			162			45			30			
4(15 MIN PEAK)	448			204			76			40			
PEAK HOUR FACTOR	0.86			0.79			0.59			0.75			AAWT
TWO WAY TOTALS	559			527			68			94			FACTOR
													1.01
													630

Intersection Peak Hour

	OCHTERLONEY ST			OCHTERLONEY ST			WENTWORTH ST			WENTWORTH ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:45 - 08:45	21	381	6	7	131	10	9	21	4	14	5	17	626
Car	0	7	0	0	10	0	0	1	0	0	1	0	19
Truck	0	8	0	0	0	0	0	0	0	0	1	0	9
Bicycle	21	396	6	7	141	10	9	22	4	14	7	17	654
Vehicle Total	0.91			0.77			0.73			0.73			FACTOR
Approach Factor													1
													654

Peak Hour Pedestrians

07:45 - 08:45	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	7	6	13	2	6	8	6	18	24	75	5	80	125

Car traffic

Interval starts	OCHTERLONEY ST			OCHTERLONEY ST			WENTWORTH ST			WENTWORTH ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	43	2	0	16	0	2	4	1	3	0	1	72
7:15	3	55	1	0	22	1	2	3	1	6	0	1	95
7:30	1	93	3	1	26	2	5	3	0	3	1	5	143
7:45	3	97	0	1	28	1	2	6	1	6	2	3	150
8:00	4	93	1	0	28	2	2	5	1	0	0	5	141
8:15	6	102	3	2	33	5	3	8	1	4	3	3	173
8:30	8	89	2	4	42	2	2	2	1	4	0	6	162
8:45	9	58	5	2	28	5	7	7	5	0	1	4	131
TOTAL	34	630	17	10	223	18	25	38	11	26	7	28	1067

Truck traffic

Interval starts	OCHTERLONEY ST			OCHTERLONEY ST			WENTWORTH ST			WENTWORTH ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	3	1	0	2	0	0	0	0	1	0	0	7
7:15	0	3	0	0	0	1	0	0	0	1	0	0	5
7:30	0	1	0	0	4	0	0	0	0	0	0	0	5
7:45	0	1	0	0	1	0	0	0	0	0	1	0	3
8:00	0	2	0	0	6	0	0	0	0	0	0	0	8
8:15	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30	0	3	0	0	3	0	0	1	0	0	0	0	7
8:45	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL	0	15	1	0	16	1	0	1	0	2	1	0	37

Bicycle traffic

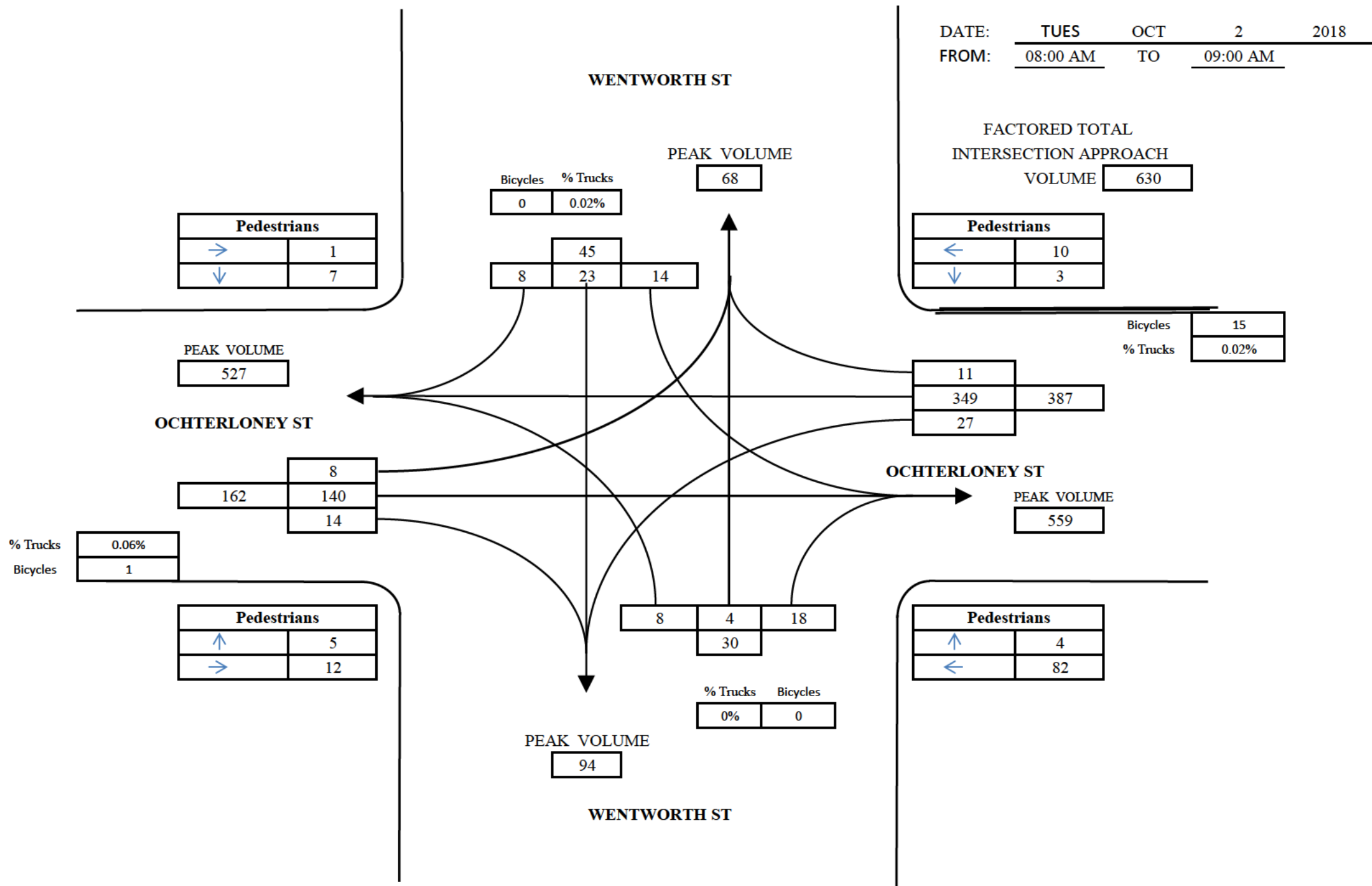
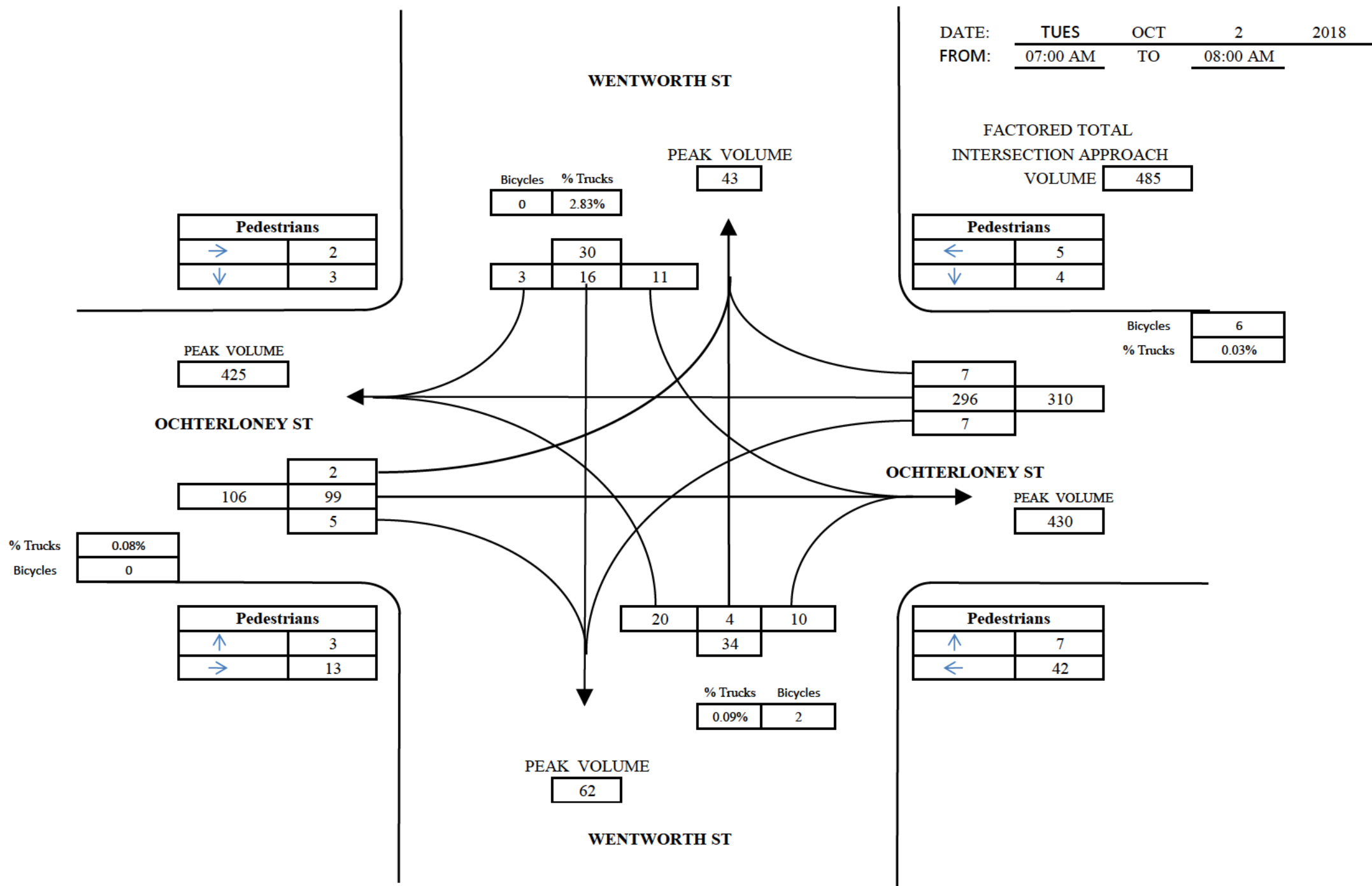
Interval starts	OCHTERLONEY ST			OCHTERLONEY ST			WENTWORTH ST			WENTWORTH ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	1	0	0	0	0	0	0	0	0	1	0	2
7:15	0	2	1	0	0	0	0	0	0	0	0	0	3
7:30	0	2	0	0	0	0	0	0	0	0	0	0	2
7:45	0	0	0	0	0	0	0	0	0	0	1	0	1
8:00	0	3	0	0	0	0	0	0	0	0	0	0	3
8:15	0	4	0	0	0	0	0	0	0	0	0	0	4
8:30	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45	1	6	0	0	1	0	0	0	0	0	0	0	8
TOTAL	1	19	1	0	1	0	0	0	0	0	2	0	24

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
7:00	0	3	3	0	1	1	0	0	0	5	0	5	9
7:15	0	1	1	1	0	1	2	2	4	15	2	17	23
7:30	0	1	1	0	2	2	0	3	3	9	1	10	16
7:45	4	0	4	1	0	1	1	8	9	13	4	17	31
8:00	0	4	4	0	1	1	1	5	6	20	1	21	32
8:15	3	2	5	1	3	4	0	2	2	28	0	28	39
8:30	0	0	0	0	2	2	4	3	7	14	0	14	23
8:45	0	4	4	0	1	1	0	2	2	20	3	23	30
TOTAL	7	15	22	3	10	13	8	25	33	124	11	135	203

VEHICULAR GRAPHIC SUMMARY SHEET

OCHTERLONEY ST AT WENTWORTH ST



MANUAL TRAFFIC COUNTS

INTERSECTION:				OCHTERLONEY ST AT WENTWORTH ST				WEATHER		RAIN	
DAY	DATE	MONTH	YEAR	RECORDER		MB					
TUES	2	OCT	2018								

TIME:	OCHTERLONEY ST FROM THE EAST			OCHTERLONEY ST FROM THE WEST			WENTWORTH ST FROM THE NORTH			WENTWORTH ST FROM THE SOUTH			TOTAL	
	L	S	R	L	S	R	L	S	R	L	S	R		
15 MIN INTERVALS														
04:00:00 PM	04:15:00 PM	6	33	6	1	106	11	5	9	2	1	1	6	187
04:15:00 PM	04:30:00 PM	2	31	1	2	76	5	4	7	2	0	1	2	133
04:30:00 PM	04:45:00 PM	2	37	2	3	125	6	2	8	2	0	2	6	195
04:45:00 PM	05:00:00 PM	5	47	0	5	99	3	0	9	5	6	3	6	188
TOTAL		15	148	9	11	406	25	11	33	11	7	7	20	703
PEAK			172			442			55			34		
4(15 MIN PEAK)			208			536			64			60		
PEAK HOUR FACTOR			0.83			0.82			0.86			0.57		AAWT
TWO WAY TOTALS			609			608			82			107		FACTOR
														1.01
														710

DAY	DATE	MONTH	YEAR												
TUES	2	OCT	2018												
TIME:															
15 MIN INTERVALS	FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			TOTAL		
	L	S	R	L	S	R	L	S	R	L	S	R			
05:00:00 PM	05:15:00 PM	5	44	0	1	84	5	3	4	3	1	1	7	158	
05:15:00 PM	05:30:00 PM	2	49	2	3	74	6	6	8	5	1	2	5	163	
05:30:00 PM	05:45:00 PM	4	38	0	2	74	7	8	10	2	0	4	4	153	
05:45:00 PM	06:00:00 PM	6	41	3	3	65	3	3	7	0	2	1	1	135	
TOTAL		17	172	5	9	297	21	20	29	10	4	8	17	609	
PEAK			194			327			59			29			
4(15 MIN PEAK)			212			360			80			36			
PEAK HOUR FACTOR			0.92			0.91			0.74			0.81		AAWT	
TWO WAY TOTALS			528			513			81			96		FACTOR	
														1.01	
														615	

Intersection Peak Hour

16:30 - 17:30		OCHTERLONEY ST			OCHTERLONEY ST			WENTWORTH ST			WENTWORTH ST			Total
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	Car	14	168	4	12	377	20	11	29	15	8	8	24	690
	Truck	0	9	0	0	5	0	0	0	0	0	0	0	14
	Bicycle	0	1	0	0	6	0	2	0	0	0	0	1	10
	Vehicle Total	14	178	4	12	388	20	13	29	15	8	8	25	714
	Approach Factor	0.91			0.78			0.71			0.68			FACTOR
														1
														714

Peak Hour Pedestrians

16:30 - 17:30		NE			NW			SW			SE			Total
		Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
	Pedestrians	6	11	17	9	14	23	4	48	52	15	13	28	120

Car traffic

Interval starts	OCHTERLONEY ST			OCHTERLONEY ST			WENTWORTH ST			WENTWORTH ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	6	32	6	1	102	11	5	9	2	1	1	6	182
16:15	2	30	1	2	75	5	4	7	2	0	1	2	131
16:30	2	33	2	3	123	6	2	8	2	0	2	6	189
16:45	5	45	0	5	98	3	0	9	5	6	3	6	185
17:00	5	42	0	1	82	5	3	4	3	1	1	7	154
17:15	2	48	2	3	74	6	6	8	5	1	2	5	162
17:30	4	37	0	2	72	7	8	10	2	0	4	4	150
17:45	6	40	3	3	65	2	3	7	0	2	1	1	133
TOTAL	32	307	14	20	691	45	31	62	21	11	15	37	1286

Truck traffic

Interval starts	OCHTERLONEY ST			OCHTERLONEY ST			WENTWORTH ST			WENTWORTH ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	1	0	0	4	0	0	0	0	0	0	0	5
16:15	0	1	0	0	1	0	0	0	0	0	0	0	2
16:30	0	4	0	0	2	0	0	0	0	0	0	0	6
16:45	0	2	0	0	1	0	0	0	0	0	0	0	3
17:00	0	2	0	0	2	0	0	0	0	0	0	0	4
17:15	0	1	0	0	0	0	0	0	0	0	0	0	1
17:30	0	1	0	0	2	0	0	0	0	0	0	0	3
17:45	0	1	0	0	0	1	0	0	0	0	0	0	2
TOTAL	0	13	0	0	12	1	0	0	0	0	0	0	26

Bicycle traffic

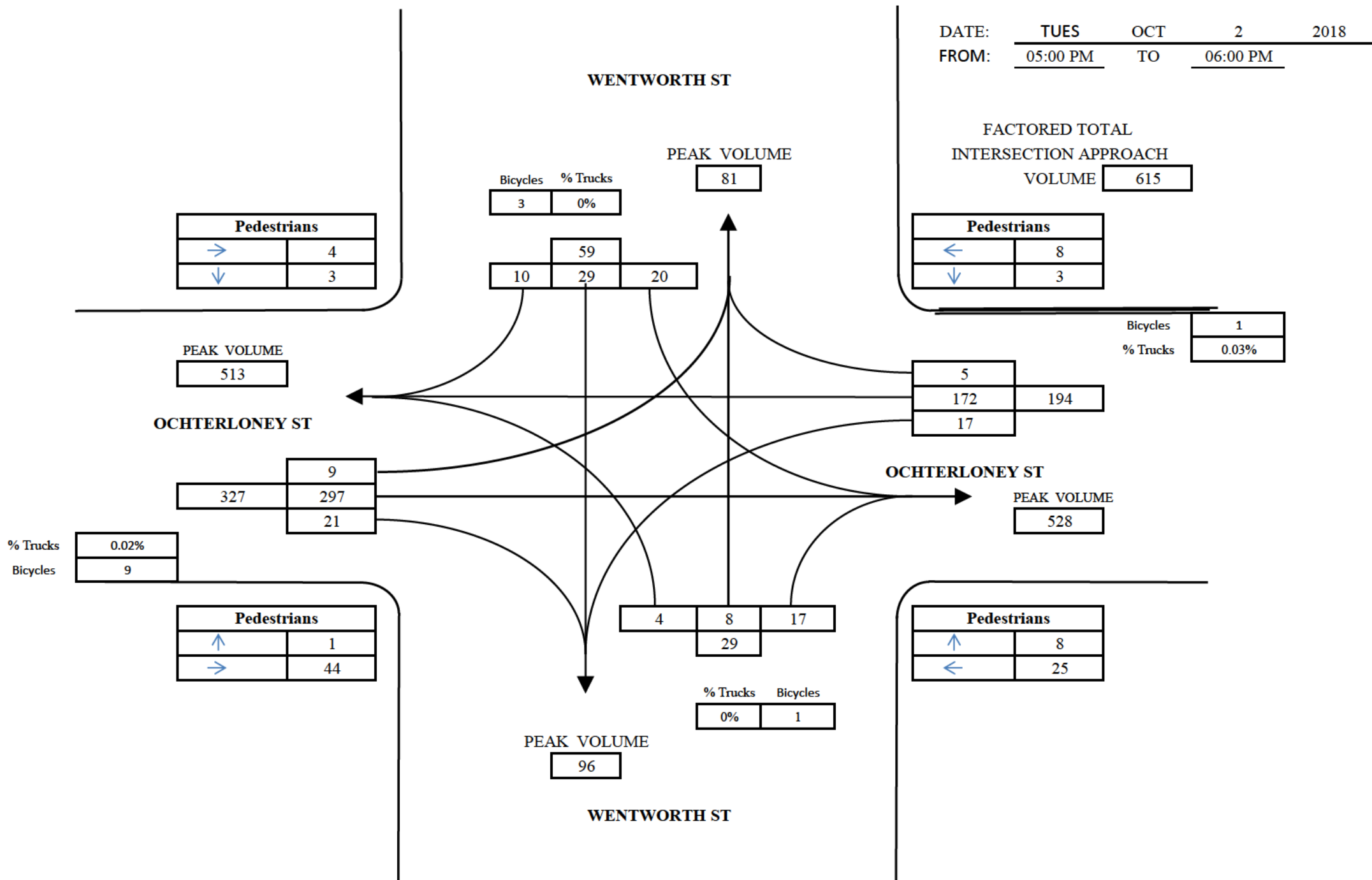
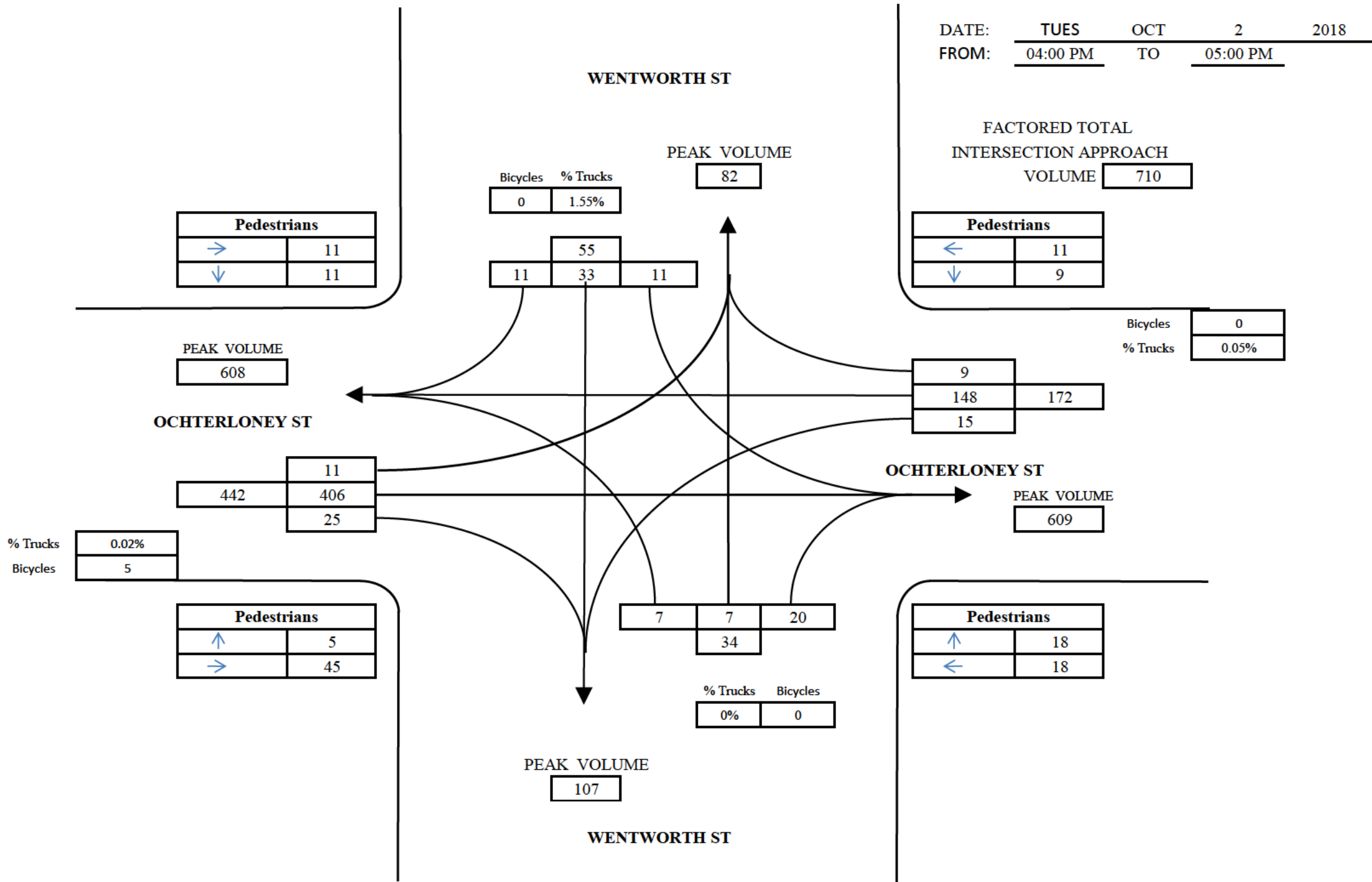
Interval starts	OCHTERLONEY ST			OCHTERLONEY ST			WENTWORTH ST			WENTWORTH ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	2	1	0	0	0	0	0	0	3
16:30	0	0	0	0	1	0	0	0	0	0	0	0	1
16:45	0	0	0	0	1	0	0	0	0	0	0	0	1
17:00	0	0	0	0	3	0	1	0	0	0	0	1	5
17:15	0	1	0	0	1	0	1	0	0	0	0	0	3
17:30	0	0	0	0	3	0	1	0	0	0	0	0	4
17:45	0	0	0	0	2	0	0	0	0	0	0	0	2
TOTAL	0	1	0	0	13	1	3	0	0	0	0	1	19

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
16:00	5	0	5	5	0	5	1	15	16	6	4	10	36
16:15	1	4	5	0	0	0	0	6	6	5	4	9	20
16:30	2	6	8	4	7	11	4	15	19	5	8	13	51
16:45	1	1	2	2	4	6	0	9	9	2	2	4	21
17:00	0	4	4	2	3	5	0	16	16	3	3	6	31
17:15	3	0	3	1	0	1	0	8	8	5	0	5	17
17:30	0	4	4	0	0	0	1	12	13	9	3	12	29
17:45	0	0	0	1	0	1	0	8	8	8	2	10	19
TOTAL	12	19	31	15	14	29	6	89	95	43	26	69	224

VEHICULAR GRAPHIC SUMMARY SHEET

OCHTERLONEY ST AT WENTWORTH ST



MANUAL TRAFFIC COUNTS

INTERSECTION: PORTLAND STREET AT WENTWORTH STREET

DAY	DATE	MONTH	YEAR	WEATHER	SUNNY & CLEAR
THURSDAY	25	MAY	2017	RECORDER	AA

TIME: 15 MIN INTERVALS		PORTLAND STREET FROM THE EAST			PORTLAND STREET FROM THE WEST			WENTWORTH STREET FROM THE NORTH			WENTWORTH STREET FROM THE SOUTH			TOTAL
		L	S	R	L	S	R	L	S	R	L	S	R	
07:00:00 AM	07:15:00 AM	1	9	0	1	31	2	0	1	0	1	0	1	47
07:15:00 AM	07:30:00 AM	0	7	1	0	21	2	0	1	0	1	1	1	35
07:30:00 AM	07:45:00 AM	0	15	0	1	36	1	0	2	3	0	0	2	60
07:45:00 AM	08:00:00 AM	1	18	1	0	31	2	0	1	0	3	0	2	59

TOTAL	2	49	2	2	119	7	0	5	3	5	1	6	201
PEAK	53			128			8			12			
15 MIN PEAK	80			152			20			20			
PEAK HOUR FACTOR	0.66			0.84			0.4			0.6			
TWO WAY TOTALS	178			185			13			26			FACTOR
													0.96
													193

DAY: THURSDAY DATE: 25 MONTH: MAY YEAR: 2017

TIME: 15 MIN INTERVALS		FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			TOTAL
		L	S	R	L	S	R	L	S	R	L	S	R	
08:00:00 AM	08:15:00 AM	0	20	4	2	50	5	1	0	3	6	0	2	93
08:15:00 AM	08:30:00 AM	0	16	0	0	41	4	2	1	1	4	1	3	73
08:30:00 AM	08:45:00 AM	2	19	4	1	35	5	2	2	1	2	2	2	77
08:45:00 AM	09:00:00 AM	1	19	1	2	43	6	1	0	1	5	3	2	84

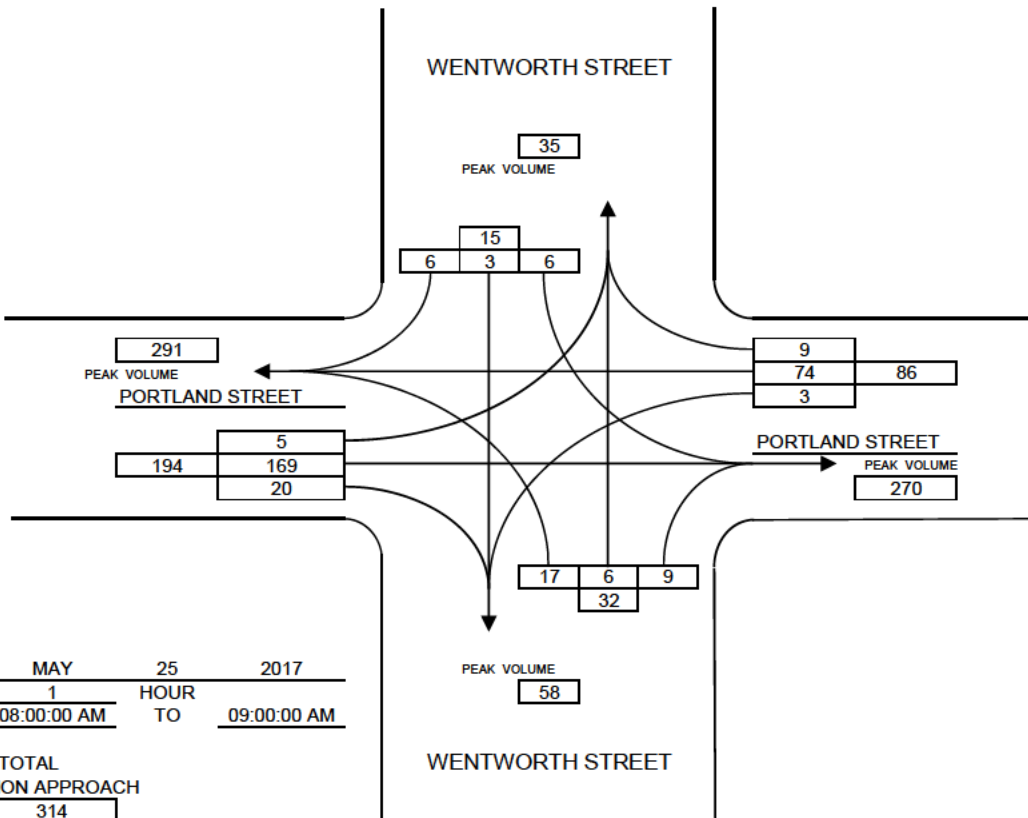
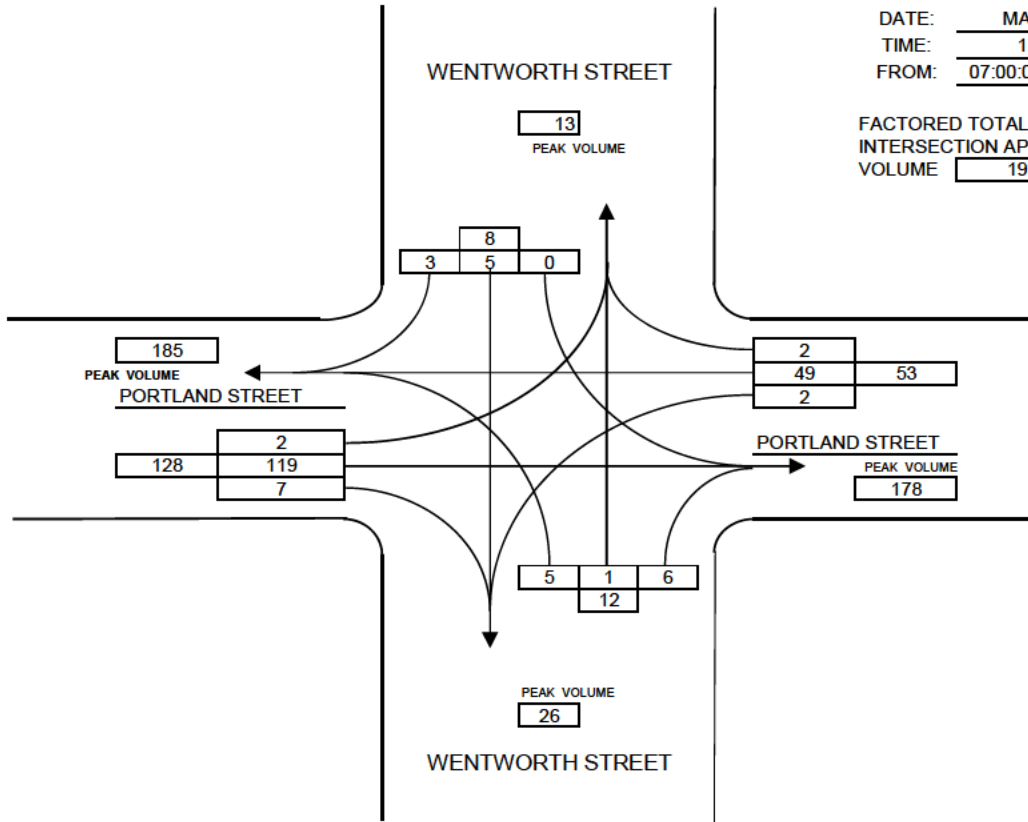
TOTAL	3	74	9	5	169	20	6	3	6	17	6	9	327
PEAK	86			194			15			32			
15 MIN PEAK	100			228			20			40			
PEAK HOUR FACTOR	0.86			0.85			0.75			0.8			
TWO WAY TOTALS	270			291			35			58			FACTOR
													0.96
													314

VEHICULAR GRAPHIC SUMMARY SHEET
 PORTLAND STREET AT WENTWORTH STREET

INTERSECTION :

DATE: MAY 25 2017
 TIME: 1 HOUR
 FROM: 07:00:00 AM TO 08:00:00 AM

FACTORED TOTAL
 INTERSECTION APPROACH
 VOLUME 193



DATE: MAY 25 2017
 TIME: 1 HOUR
 FROM: 08:00:00 AM TO 09:00:00 AM

FACTORED TOTAL
 INTERSECTION APPROACH
 VOLUME 314

MANUAL TRAFFIC COUNTS

INTERSECTION: PORTLAND STREET AT WENTWORTH STREET

				WEATHER	SUNNY & CLEAR
DAY	DATE	MONTH	YEAR	RECORDER	AA
THURSDAY	25	MAY	2017		

STREET: TIME:		PORTLAND STREET			PORTLAND STREET			WENTWORTH STREET			WENTWORTH STREET			TOTAL
		FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			
15 MIN INTERVALS		L	S	R	L	S	R	L	S	R	L	S	R	
04:00:00 PM	04:15:00 PM	2	17	0	0	37	0	1	0	0	3	0	3	63
04:15:00 PM	04:30:00 PM	0	14	1	0	27	4	0	0	1	1	0	0	48
04:30:00 PM	04:45:00 PM	1	6	2	1	37	5	2	3	2	3	0	2	64
04:45:00 PM	05:00:00 PM	0	6	0	2	35	4	0	1	0	5	2	2	57

TOTAL	3	43	3	3	136	13	3	4	3	12	2	7	232
PEAK	49			152			10			21			
15 MIN PEAK	76			172			28			36			
PEAK HOUR FACTOR	0.64			0.88			0.36			0.58			
TWO WAY TOTALS	195			210			18			41			FACTOR
													0.96
													223

DAY	DATE	MONTH	YEAR
THURSDAY	25	MAY	2017

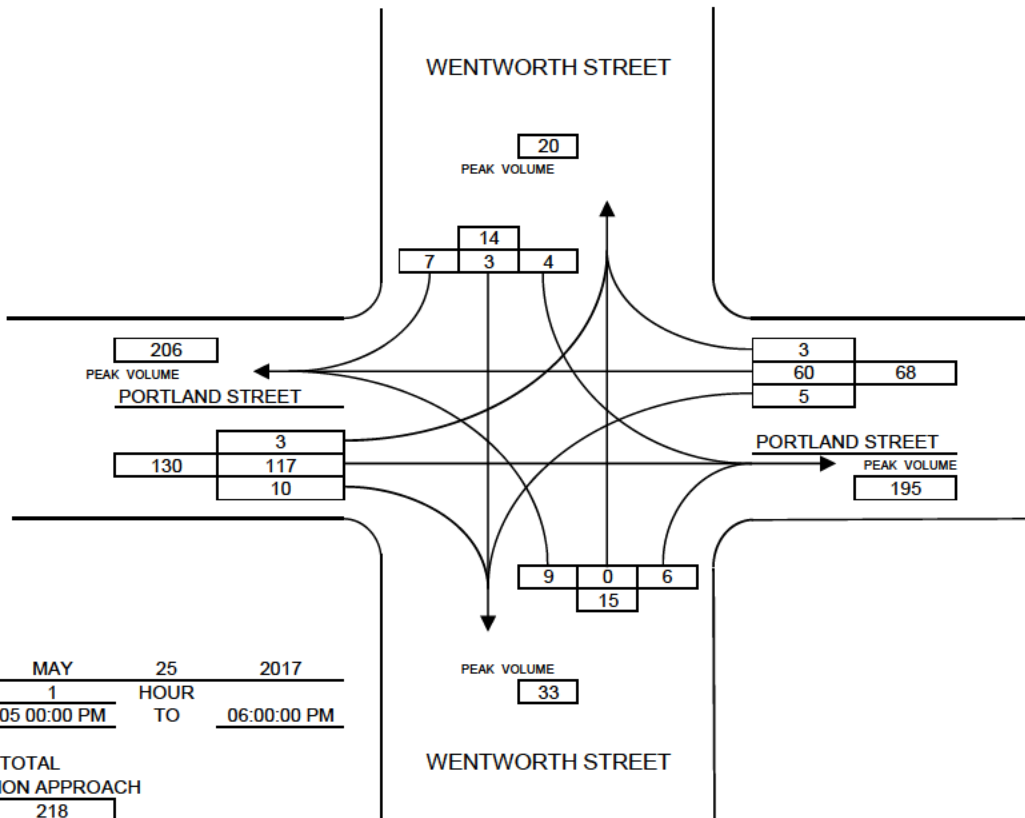
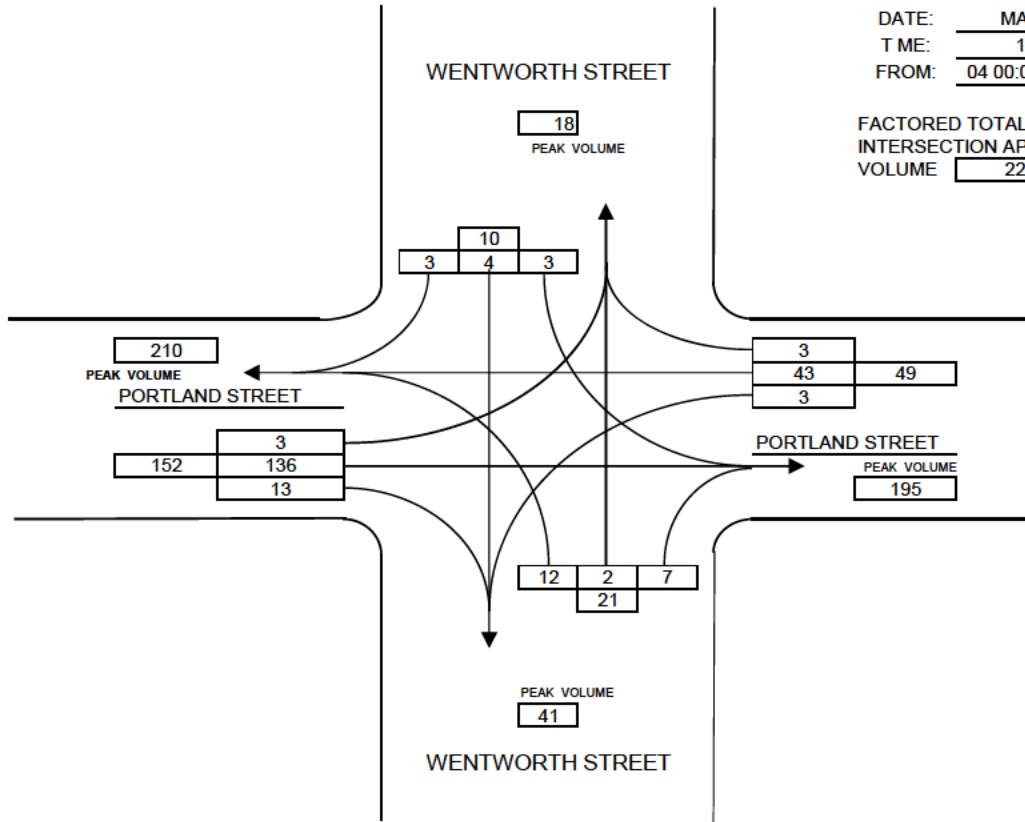
TIME: 15 MIN INTERVALS		FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			TOTAL
		L	S	R	L	S	R	L	S	R	L	S	R	
05:00:00 PM	05:15:00 PM	4	24	1	0	35	4	0	0	1	2	0	0	71
05:15:00 PM	05:30:00 PM	0	14	2	2	26	0	3	2	2	2	0	1	54
05:30:00 PM	05:45:00 PM	0	16	0	0	34	5	0	1	2	3	0	4	65
05:45:00 PM	06:00:00 PM	1	6	0	1	22	1	1	0	2	2	0	1	37

TOTAL	5	60	3	3	117	10	4	3	7	9	0	6	227
PEAK	68			130			14			15			
15 MIN PEAK	116			156			28			28			
PEAK HOUR FACTOR	0.59			0.83			0.5			0.54			
TWO WAY TOTALS	195			206			20			33			FACTOR
													0.96
													218

VEHICULAR GRAPHIC SUMMARY SHEET

PORTLAND STREET AT WENTWORTH STREET

INTERSECTION :



MANUAL TRAFFIC COUNTS

INTERSECTION

QUEENS ST @ VICTORIA RD

WEATHER
RECORDER

SUNNY
MICHAEL SMITH

DAY DATE MONTH YEAR
WEDNESDAY 26 JUNE 2019

STREET TIME	VICTORIA RD			VICTORIA RD			QUEEN ST			QUEEN ST			TOTAL
	FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			
15 MIN INTERVALS	L	S	R	L	S	R	L	S	R	L	S	R	
07:30 AM - 07:45 AM	1	13	0	0	0	0	0	21	34	0	4	0	73
07:45 AM - 08:00 AM	1	18	0	0	0	0	0	44	30	0	2	0	95
08:00 AM - 08:15 AM	0	22	1	0	0	0	0	30	23	2	2	0	80
08:15 AM - 08:30 AM	3	19	0	0	0	0	0	29	22	0	9	0	82

TOTAL	5	72	1	0	0	0	0	124	109	2	17	0	330
PEAK		78			0			233			19		
4(15 MIN PEAK)		92			0			296			36		
PEAK HOUR FACTOR		0.85			0			0.79			0.53		AAWT FACTOR
TWO WAY TOTALS		78			183			251			148		0.97
													320

DAY DATE MONTH YEAR
WEDNESDAY 26 JUNE 2019

STREET TIME	FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			TOTAL
	L	S	R	L	S	R	L	S	R	L	S	R	
08:30 AM - 08:45 AM	2	22	0	0	0	0	0	17	27	1	6	0	75
08:45 AM - 09:00 AM	2	22	3	0	0	0	0	25	34	1	1	0	88
09:00 AM - 09:15 AM	1	23	2	0	0	0	0	18	31	3	4	0	82
09:15 AM - 09:30 AM	2	30	1	0	0	0	0	13	11	2	5	0	64

TOTAL	7	97	6	0	0	0	0	73	103	7	16	0	309
PEAK		110			0			176			23		
4(15 MIN PEAK)		132			0			236			28		
PEAK HOUR FACTOR		0.83			0			0.75			0.82		AAWT FACTOR
TWO WAY TOTALS		110			207			198			103		0.97
													300

Intersection Peak Hour

07:45 - 08:45	VICTORIA RD			VICTORIA RD			QUEEN ST			QUEEN ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	6	79	1	0	0	0	0	119	100	3	19	0	327
Truck	0	2	0	0	0	0	0	1	2	0	0	0	5
Bicycle	0	0	0	0	0	0	0	2	2	0	0	0	4
Vehicle Total	6	81	1	0	0	0	0	122	104	3	19	0	336
Approach Factor	0.92			0			0.75			0.61			FACTOR
													1
													336

Peak Hour Pedestrians

07:45 - 08:45	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	8	2	10	8	6	14	3	2	5	4	1	5	34

Car traffic

Interval starts	VICTORIA RD			VICTORIA RD			QUEEN ST			QUEEN ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:30	1	13	0	0	0	0	0	21	34	0	4	0	73
7:45	1	18	0	0	0	0	0	44	29	0	2	0	94
8:00	0	22	1	0	0	0	0	29	23	2	2	0	79
8:15	3	18	0	0	0	0	0	29	22	0	9	0	81
8:30	2	21	0	0	0	0	0	17	26	1	6	0	73
8:45	2	21	3	0	0	0	0	25	34	1	1	0	87
9:00	1	23	2	0	0	0	0	17	31	3	3	0	80
9:15	2	27	1	0	0	0	0	13	11	2	5	0	61
TOTAL	12	163	7	0	0	0	0	195	210	9	32	0	628

Truck traffic

Interval starts	VICTORIA RD			VICTORIA RD			QUEEN ST			QUEEN ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	1	0	0	0	1
8:00	0	0	0	0	0	0	0	1	0	0	0	0	1
8:15	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30	0	1	0	0	0	0	0	0	1	0	0	0	2
8:45	0	1	0	0	0	0	0	0	0	0	0	0	1
9:00	0	0	0	0	0	0	0	1	0	0	1	0	2
9:15	0	3	0	0	0	0	0	0	0	0	0	0	3
TOTAL	0	6	0	0	0	0	0	2	2	0	1	0	11

Bicycle traffic

Interval starts	VICTORIA RD			VICTORIA RD			QUEEN ST			QUEEN ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:30	0	1	0	0	0	0	0	0	0	0	0	0	1
7:45	0	0	0	0	0	0	0	0	1	0	0	0	1
8:00	0	0	0	0	0	0	0	1	0	0	0	0	1
8:15	0	0	0	0	0	0	0	1	0	0	0	0	1
8:30	0	0	0	0	0	0	0	0	1	0	0	0	1
8:45	0	0	0	0	0	0	0	0	1	0	0	0	1
9:00	0	0	0	0	0	0	0	1	1	0	0	0	2
9:15	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	1	0	0	0	0	0	3	4	0	0	0	8

Pedestrian volumes

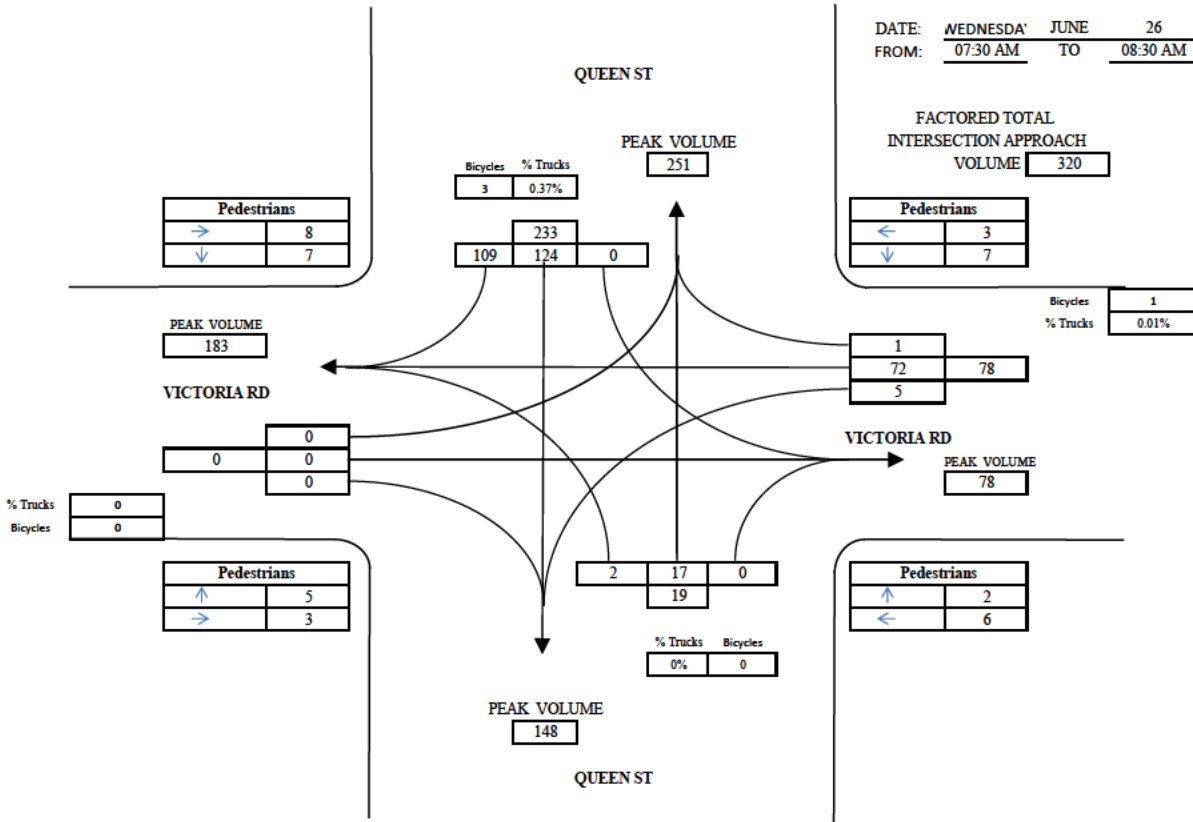
Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
7:30	1	1	2	1	2	3	2	1	3	2	1	3	11
7:45	1	0	1	0	0	0	0	0	0	1	0	0	1
8:00	3	0	3	2	2	4	2	1	3	0	1	1	11
8:15	2	2	4	5	3	8	1	1	2	4	0	4	18
8:30	2	0	2	1	1	2	0	0	0	0	0	0	4
8:45	0	1	1	0	2	2	0	1	1	0	1	1	5
9:00	0	1	1	2	1	3	0	0	0	0	0	0	4
9:15	0	0	0	1	2	3	0	0	0	0	0	0	3
TOTAL	9	5	14	12	13	25	5	4	9	6	3	9	57

VEHICULAR GRAPHIC SUMMARY SHEET

QUEENS ST @ VICTORIA RD

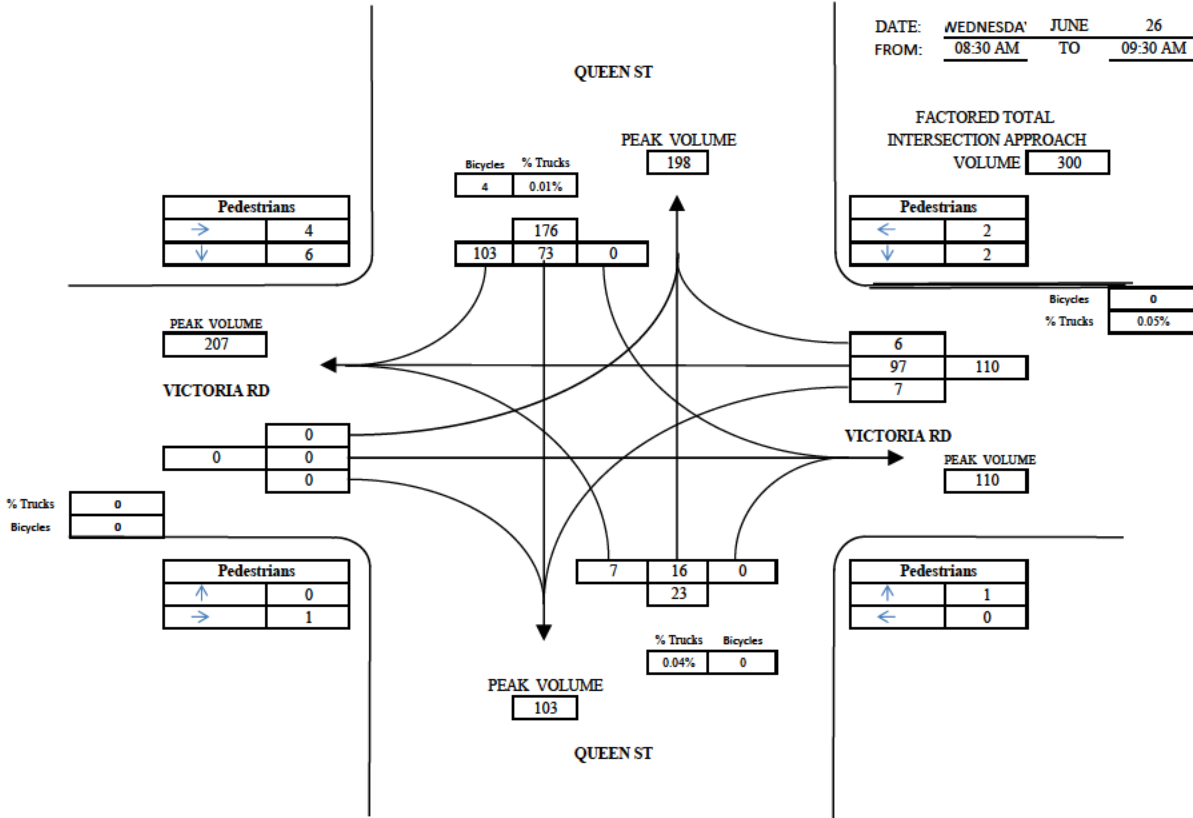
DATE: WEDNESDAY JUNE 26 2019
 FROM: 07:30 AM TO 08:30 AM

FACTORED TOTAL INTERSECTION APPROACH
 VOLUME 320



DATE: WEDNESDAY JUNE 26 2019
 FROM: 08:30 AM TO 09:30 AM

FACTORED TOTAL INTERSECTION APPROACH
 VOLUME 300



MANUAL TRAFFIC COUNTS

INTERSECTION

QUEENS ST @ VICTORIA RD

WEATHER
RECORDER

SUNNY
MICHAEL SMITH

DAY DATE MONTH YEAR
WEDNESDAY 26 JUNE 2019

STREET TIME	VICTORIA RD			VICTORIA RD			QUEEN ST			QUEEN ST			TOTAL
	FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			
15 MIN INTERVALS	L	S	R	L	S	R	L	S	R	L	S	R	
04 00 PM - 04 15 PM	1	32	1	0	0	0	0	6	17	3	22	0	82
04 15 PM - 04 30 PM	2	23	4	0	0	0	0	10	13	2	10	0	64
04 30 PM - 04 45 PM	5	22	3	0	0	0	0	12	13	4	12	0	71
04 45 PM - 05 00 PM	2	24	1	0	0	0	0	16	19	3	11	0	76

TOTAL	10	101	9	0	0	0	0	44	62	12	55	0	293
PEAK		120						106			67		
4(15 MIN PEAK)		136						140			100		
PEAK HOUR FACTOR		0.88						0.76			0.67		
TWO WAY TOTALS		120			175			170			121		
													AAWT FACTOR
													0.97
													284

DAY DATE MONTH YEAR
WEDNESDAY 26 JUNE 2019

TIME	FROM THE EAST			FROM THE WEST			FROM THE NORTH			FROM THE SOUTH			TOTAL
	L	S	R	L	S	R	L	S	R	L	S	R	
15 MIN INTERVALS													
05 00 PM - 05 15 PM	4	31	3	0	0	0	0	24	18	3	13	0	96
05 15 PM - 05 30 PM	2	22	4	0	0	0	0	7	20	2	13	0	70
05 30 PM - 05 45 PM	1	16	2	0	0	0	0	15	17	2	6	0	59
05 45 PM - 06 00 PM	0	25	0	0	0	0	0	4	15	1	2	0	47

TOTAL	7	94	9	0	0	0	0	50	70	8	34	0	272
PEAK		110						120			42		
4(15 MIN PEAK)		152						168			64		
PEAK HOUR FACTOR		0.72						0.71			0.66		
TWO WAY TOTALS		110			172			163			99		
													AAWT FACTOR
													0.97
													264

Intersection Peak Hour

16:30 - 17:30		VICTORIA RD			VICTORIA RD			QUEEN ST			QUEEN ST			Total
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	Car	13	99	11	0	0	0	0	59	70	12	49	0	313
	Truck	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bicycle	0	1	0	0	0	0	0	0	0	1	0	0	2
	Vehicle Total	13	100	11	0	0	0	0	59	70	12	50	0	315
	Approach Factor	0.79			0			0.77			0.97			FACTOR
														1
														315

Peak Hour Pedestrians

16:30 - 17:30		NE			NW			SW			SE			Total
		Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
	Pedestrians	1	10	11	3	1	4	4	0	4	5	4	9	28

Car traffic

Interval starts	VICTORIA RD			VICTORIA RD			QUEEN ST			QUEEN ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16 00	1	32	1	0	0	0	0	6	17	3	22	0	82
16 15	2	23	4	0	0	0	0	10	13	2	10	0	64
16 30	5	22	3	0	0	0	0	12	13	4	12	0	71
16 45	2	24	1	0	0	0	0	16	19	3	11	0	76
17 00	4	31	3	0	0	0	0	24	18	3	13	0	96
17 15	2	22	4	0	0	0	0	7	20	2	13	0	70
17 30	1	16	2	0	0	0	0	15	17	2	6	0	59
17 45	0	25	0	0	0	0	0	4	15	1	2	0	47
TOTAL	17	195	18	0	0	0	0	94	132	20	89	0	565

Truck traffic

Interval starts	VICTORIA RD			VICTORIA RD			QUEEN ST			QUEEN ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16 00	0	0	0	0	0	0	0	0	0	0	0	0	0
16 15	0	0	0	0	0	0	0	0	0	0	0	0	0
16 30	0	0	0	0	0	0	0	0	0	0	0	0	0
16 45	0	0	0	0	0	0	0	0	0	0	0	0	0
17 00	0	0	0	0	0	0	0	0	0	0	0	0	0
17 15	0	0	0	0	0	0	0	0	0	0	0	0	0
17 30	0	0	0	0	0	0	0	0	0	0	0	0	0
17 45	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0

Bicycle traffic

Interval starts	VICTORIA RD			VICTORIA RD			QUEEN ST			QUEEN ST			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16 00	0	0	0	0	0	0	0	0	0	0	0	0	0
16 15	0	0	0	0	0	0	0	0	0	0	0	0	0
16 30	0	0	0	0	0	0	0	0	0	0	0	0	0
16 45	0	0	0	0	0	0	0	0	0	0	0	0	0
17 00	0	1	0	0	0	0	0	0	0	0	0	0	1
17 15	0	0	0	0	0	0	0	0	0	0	1	0	1
17 30	0	0	0	0	0	0	0	0	0	0	0	0	0
17 45	0	1	0	0	0	0	0	0	1	0	0	0	2
TOTAL	0	2	0	0	0	0	0	0	1	0	1	0	4

Pedestrian volumes

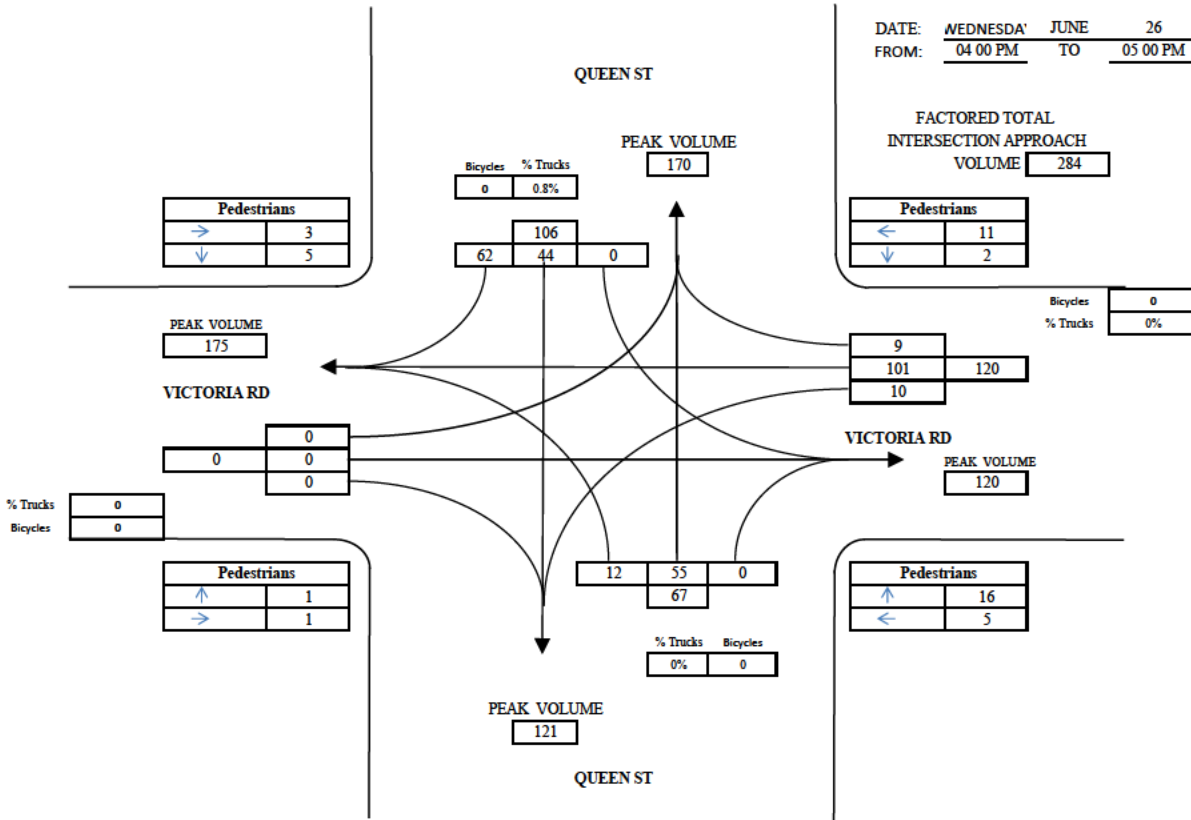
Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
16 00	0	1	1	0	3	3	0	1	1	1	5	6	11
16 15	1	2	3	1	2	3	0	0	0	1	10	11	17
16 30	1	3	4	2	0	2	1	0	1	3	1	4	11
16 45	0	5	5	0	0	0	0	0	0	0	0	0	5
17 00	0	2	2	1	0	1	2	0	2	2	3	5	10
17 15	0	0	0	0	1	1	1	0	1	0	0	0	2
17 30	0	1	1	0	0	0	0	1	1	0	1	1	3
17 45	0	2	2	0	1	1	0	0	0	0	0	0	3
TOTAL	2	16	18	4	7	11	4	2	6	7	20	27	62

VEHICULAR GRAPHIC SUMMARY SHEET

QUEENS ST @ VICTORIA RD

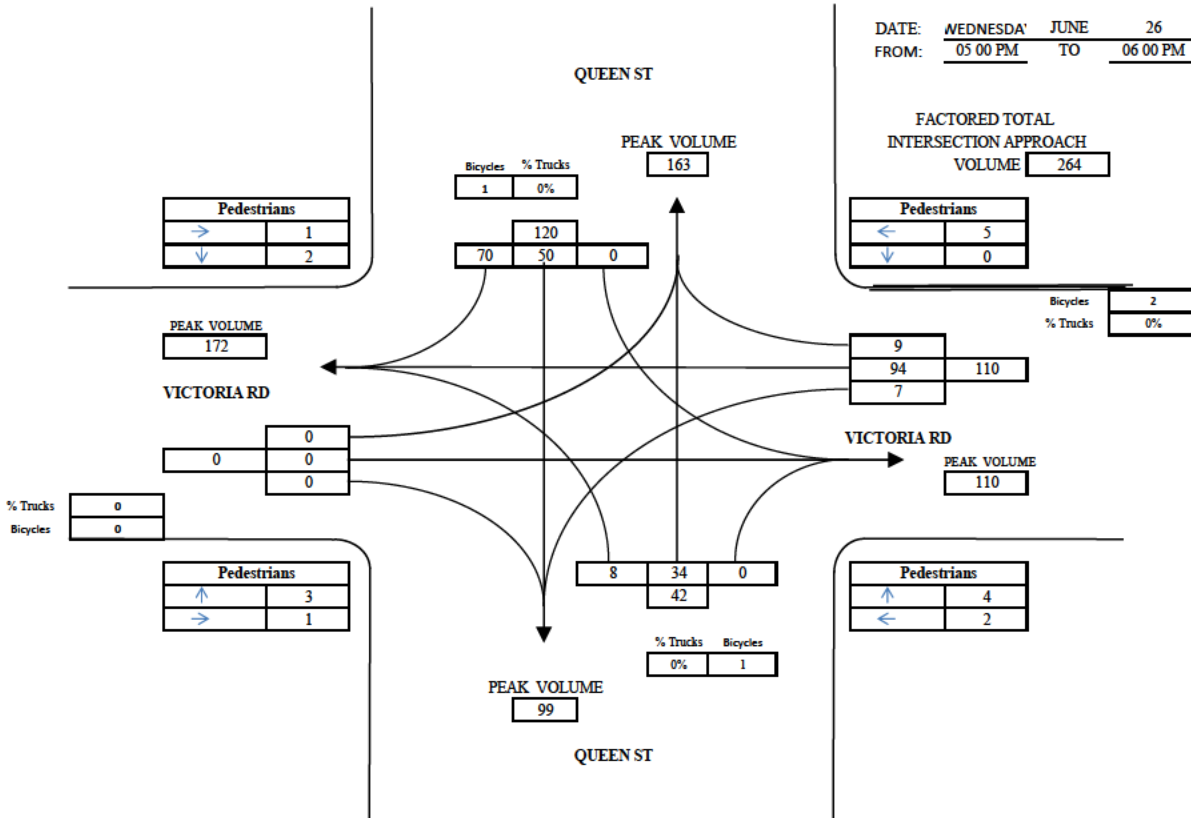
DATE: WEDNESDA' JUNE 26 2019
 FROM: 04 00 PM TO 05 00 PM

FACTORED TOTAL INTERSECTION APPROACH
 VOLUME 284



DATE: WEDNESDA' JUNE 26 2019
 FROM: 05 00 PM TO 06 00 PM

FACTORED TOTAL INTERSECTION APPROACH
 VOLUME 264



APPENDIX B

Appendix B: TRIP GENERATION

Trip Generation Summary

Alternative: Alternative 1

Phase:

Open Date: 4/6/2022

Project: 53 Queen Street

Analysis Date: 4/6/2022

ITE	Land Use	Weekday Average Daily Trips			Weekday AM Peak Hour of Adjacent Street Traffic			Weekday PM Peak Hour of Adjacent Street Traffic					
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
222	Residential High Rise 155 Dwelling Units		412	411	823		13	43	56		37	24	61
712	Office Space 6 1000 Sq. Ft. GFA		49	48	97		10	2	12		5	10	15
820	Commercial Space 4 1000 Sq. Ft. GLA		76	75	151		2	2	4		7	8	15
Unadjusted Volume			537	534	1071		25	47	72		49	42	91
Internal Capture Trips			0	0	0		1	1	2		5	5	10
Pass-By Trips			0	0	0		0	0	0		2	2	4
Volume Added to Adjacent Streets			537	534	1071		24	46	70		42	35	77

Total Weekday Average Daily Trips Internal Capture = 0 Percent

Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 3 Percent

Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 11 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 10th Edition

TRIP GENERATION 10, TRAFFICWARE, LLC

APPENDIX C

Appendix C: TRIP DISTRIBUTION AND ASSIGNMENT

Development: 53 Queen Street

Driveway: 1 Driveway

Origin #	Route	To		From	
		Distribution %	Trips	Distribution %	Trips
1	Driveway to Ochterloney North (502)	25.00	6	25.00	12
2	Driveway to Ochterloney South (302)	25.00	6	25.00	12
3	Driveway to King West (301)	15.00	4	15.00	7
4	Driveway to King East (202)	25.00	6	25.00	12
5	Driveway to Queen North (401)	5.00	1	5.00	2
6	Driveway to Queen South (201)	5.00	1	5.00	2

Development: 53 Queen Street

Driveway: 1 Driveway

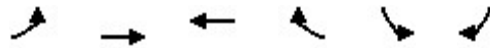
Origin #	Route	To		From	
		Distribution %	Trips	Distribution %	Trips
1	Driveway to Ochterloney North (502)	25.00	11	25.00	9
2	Driveway to Ochterloney South (302)	25.00	11	25.00	9
3	Driveway to King West (301)	15.00	6	15.00	5
4	Driveway to King East (202)	25.00	11	25.00	9
5	Driveway to Queen North (401)	5.00	2	5.00	2
6	Driveway to Queen South (201)	5.00	2	5.00	2

APPENDIX D

















Appendix D: SYNCHRO REPORTS

53 Queen Street Development
1: King & Driveway

2022 Baseline Traffic
Timing Plan: AM Peak



































Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Volume (veh/h)	0	115	95	0	0	0
Future Volume (Veh/h)	0	115	95	0	0	0
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)	0	125	103	0	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)						
pX, platoon unblocked						
vC, conflicting volume	103				228	103
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	103				228	103
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				100	100
cM capacity (veh/h)	1502				765	957
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	125	103	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1502	1700	1700			
Volume to Capacity	0.00	0.06	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			9.4%	ICU Level of Service	A	
Analysis Period (min)			15			

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	60	45	30	40	60	40	60	60	30	110	15
Future Volume (vph)	10	60	45	30	40	60	40	60	60	30	110	15
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)	11	65	49	33	43	65	43	65	65	33	120	16
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	125	141	173	169								
Volume Left (vph)	11	33	43	33								
Volume Right (vph)	49	65	65	16								
Hadj (s)	-0.22	-0.23	-0.18	-0.02								
Departure Headway (s)	4.7	4.7	4.6	4.7								
Degree Utilization, x	0.16	0.18	0.22	0.22								
Capacity (veh/h)	702	710	735	708								
Control Delay (s)	8.6	8.7	8.9	9.1								
Approach Delay (s)	8.6	8.7	8.9	9.1								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			8.8									
Level of Service			A									
Intersection Capacity Utilization			34.1%	ICU Level of Service								A
Analysis Period (min)			15									

53 Queen Street Development
3: Ochterloney & King

















2022 Baseline Traffic
Timing Plan: AM Peak

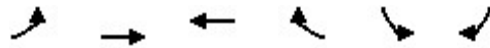
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	30	30	25	20	50	5	130	25	60	315	15
Future Volume (Veh/h)	30	30	30	25	20	50	5	130	25	60	315	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			2%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	33	33	27	22	54	5	141	27	65	342	16
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	710	658	350	694	652	154	358			168		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	710	658	350	694	652	154	358			168		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	89	91	95	91	94	94	100			95		
cM capacity (veh/h)	303	368	698	307	370	897	1212			1422		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	99	103	173	423								
Volume Left	33	27	5	65								
Volume Right	33	54	27	16								
cSH	403	496	1212	1422								
Volume to Capacity	0.25	0.21	0.00	0.05								
Queue Length 95th (m)	7.6	6.2	0.1	1.1								
Control Delay (s)	16.8	14.1	0.3	1.6								
Lane LOS	C	B	A	A								
Approach Delay (s)	16.8	14.1	0.3	1.6								
Approach LOS	C	B										
Intersection Summary												
Average Delay			4.8									
Intersection Capacity Utilization			46.9%	ICU Level of Service	A							
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	20	30	35	10	25	5	20	90	20	10	110	10
Future Volume (vph)	20	30	35	10	25	5	20	90	20	10	110	10
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)	22	33	38	11	27	5	22	98	22	11	120	11
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	93	43	142	142								
Volume Left (vph)	22	11	22	11								
Volume Right (vph)	38	5	22	11								
Hadj (s)	-0.20	-0.02	-0.06	-0.03								
Departure Headway (s)	4.4	4.6	4.3	4.3								
Degree Utilization, x	0.11	0.06	0.17	0.17								
Capacity (veh/h)	759	716	799	789								
Control Delay (s)	8.0	7.9	8.2	8.2								
Approach Delay (s)	8.0	7.9	8.2	8.2								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			8.1									
Level of Service			A									
Intersection Capacity Utilization			24.7%	ICU Level of Service								A
Analysis Period (min)			15									

















53 Queen Street Development
5: Wentworth & Ochterloney

2022 Baseline Traffic
Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	30	10	20	15	20	15	175	20	35	360	15
Future Volume (Veh/h)	15	30	10	20	15	20	15	175	20	35	360	15
Sign Control		Stop			Stop			Free			Free	
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)	16	33	11	22	16	22	16	190	22	38	391	16
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	738	719	399	736	716	201	407			212		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	738	719	399	736	716	201	407			212		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	90	98	93	95	97	99			97		
cM capacity (veh/h)	306	342	655	298	343	845	1163			1370		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	60	60	228	445								
Volume Left	16	22	16	38								
Volume Right	11	22	22	16								
cSH	362	410	1163	1370								
Volume to Capacity	0.17	0.15	0.01	0.03								
Queue Length 95th (m)	4.7	4.1	0.3	0.7								
Control Delay (s)	16.9	15.3	0.7	0.9								
Lane LOS	C	C	A	A								
Approach Delay (s)	16.9	15.3	0.7	0.9								
Approach LOS	C	C										
Intersection Summary												
Average Delay			3.1									
Intersection Capacity Utilization			41.0%	ICU Level of Service						A		
Analysis Period (min)			15									



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	
Traffic Volume (veh/h)	0	115	95	0	0	0
Future Volume (Veh/h)	0	140	116	0	0	0
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)	0	152	126	0	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)						
pX, platoon unblocked						
vC, conflicting volume	126			278	126	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	126			278	126	
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			100	100	
cM capacity (veh/h)	1473			716	930	
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	152	126	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1473	1700	1700			
Volume to Capacity	0.00	0.07	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			9.4%	ICU Level of Service	A	
Analysis Period (min)			15			

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	60	45	30	40	60	40	60	60	30	110	15
Future Volume (vph)	12	73	55	37	49	73	49	73	73	37	134	18
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)	13	79	60	40	53	79	53	79	79	40	146	20
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	152	172	211	206								
Volume Left (vph)	13	40	53	40								
Volume Right (vph)	60	79	79	20								
Hadj (s)	-0.22	-0.23	-0.17	-0.02								
Departure Headway (s)	5.0	4.9	4.8	5.0								
Degree Utilization, x	0.21	0.24	0.28	0.29								
Capacity (veh/h)	652	661	679	666								
Control Delay (s)	9.3	9.5	9.8	10.0								
Approach Delay (s)	9.3	9.5	9.8	10.0								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			9.7									
Level of Service			A									
Intersection Capacity Utilization			34.1%	ICU Level of Service	A							
Analysis Period (min)			15									

53 Queen Street Development
3: Ochterloney & King

2032 Background Only
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	30	30	30	25	20	50	5	130	25	60	315	15
Future Volume (Veh/h)	37	37	37	30	24	61	6	158	30	73	384	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			2%			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)	40	40	40	33	26	66	7	172	33	79	417	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	866	804	427	848	798	188	437			205		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	866	804	427	848	798	188	437			205		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	82	87	94	85	91	92	99			94		
cM capacity (veh/h)	226	299	632	227	301	859	1134			1378		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	120	125	212	516								
Volume Left	40	33	7	79								
Volume Right	40	66	33	20								
cSH	321	405	1134	1378								
Volume to Capacity	0.37	0.31	0.01	0.06								
Queue Length 95th (m)	13.4	10.3	0.1	1.5								
Control Delay (s)	22.8	17.8	0.3	1.7								
Lane LOS	C	C	A	A								
Approach Delay (s)	22.8	17.8	0.3	1.7								
Approach LOS	C	C										
Intersection Summary												
Average Delay			6.1									
Intersection Capacity Utilization			46.9%	ICU Level of Service						A		
Analysis Period (min)			15									

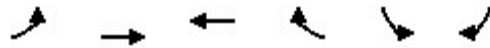
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	20	30	35	10	25	5	20	90	20	10	110	10
Future Volume (vph)	24	37	43	12	30	6	24	110	24	12	134	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	40	47	13	33	7	26	120	26	13	146	13
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	113	53	172	172								
Volume Left (vph)	26	13	26	13								
Volume Right (vph)	47	7	26	13								
Hadj (s)	-0.20	-0.03	-0.06	-0.03								
Departure Headway (s)	4.6	4.8	4.4	4.5								
Degree Utilization, x	0.14	0.07	0.21	0.21								
Capacity (veh/h)	726	683	773	763								
Control Delay (s)	8.3	8.2	8.6	8.7								
Approach Delay (s)	8.3	8.2	8.6	8.7								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			8.5									
Level of Service			A									
Intersection Capacity Utilization			24.7%	ICU Level of Service								A
Analysis Period (min)			15									

53 Queen Street Development
5: Wentworth & Ochterloney

















2032 Background Only
Timing Plan: AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	15	30	10	20	15	20	15	175	20	35	360	15
Future Volume (Veh/h)	18	37	12	24	18	24	18	213	24	43	439	18
Sign Control		Stop			Stop			Free			Free	
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)	20	40	13	26	20	26	20	232	26	47	477	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	902	879	487	899	876	245	497			258		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	902	879	487	899	876	245	497			258		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	91	85	98	88	93	97	98			96		
cM capacity (veh/h)	229	273	585	218	274	799	1077			1318		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	73	72	278	544								
Volume Left	20	26	20	47								
Volume Right	13	26	26	20								
cSH	285	320	1077	1318								
Volume to Capacity	0.26	0.22	0.02	0.04								
Queue Length 95th (m)	8.0	6.8	0.5	0.9								
Control Delay (s)	21.9	19.5	0.8	1.0								
Lane LOS	C	C	A	A								
Approach Delay (s)	21.9	19.5	0.8	1.0								
Approach LOS	C	C										
Intersection Summary												
Average Delay			3.9									
Intersection Capacity Utilization			41.0%	ICU Level of Service		A						
Analysis Period (min)			15									

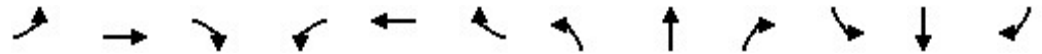


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	115	95	0	0	0
Future Volume (Veh/h)	20	140	116	10	20	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	152	126	11	22	41
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	137			328	132	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	137			328	132	
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	96	
cM capacity (veh/h)	1459			661	923	
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	174	137	63			
Volume Left	22	0	22			
Volume Right	0	11	41			
cSH	1459	1700	811			
Volume to Capacity	0.02	0.08	0.08			
Queue Length 95th (m)	0.4	0.0	2.0			
Control Delay (s)	1.1	0.0	9.8			
Lane LOS	A		A			
Approach Delay (s)	1.1	0.0	9.8			
Approach LOS			A			
Intersection Summary						
Average Delay			2.1			
Intersection Capacity Utilization			9.4%	ICU Level of Service	A	
Analysis Period (min)			15			

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	60	45	30	40	60	40	60	60	30	110	15
Future Volume (vph)	15	88	57	37	56	73	50	73	73	37	134	20
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)	16	96	62	40	61	79	54	79	79	40	146	22
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	174	180	212	208								
Volume Left (vph)	16	40	54	40								
Volume Right (vph)	62	79	79	22								
Hadj (s)	-0.20	-0.22	-0.17	-0.02								
Departure Headway (s)	5.0	5.0	4.9	5.1								
Degree Utilization, x	0.24	0.25	0.29	0.29								
Capacity (veh/h)	645	650	671	650								
Control Delay (s)	9.7	9.7	10.0	10.2								
Approach Delay (s)	9.7	9.7	10.0	10.2								
Approach LOS	A	A	A	B								
Intersection Summary												
Delay			9.9									
Level of Service			A									
Intersection Capacity Utilization			34.1%	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 (veh/h)	30	30	30	25	20	50	5	130	25	60	315	15
Future Volume (Veh/h)	37	41	37	45	33	76	6	158	38	80	384	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			2%			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)	40	45	40	49	36	83	7	172	41	87	417	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	908	828	427	870	818	192	437			213		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	908	828	427	870	818	192	437			213		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	80	84	94	77	88	90	99			94		
cM capacity (veh/h)	200	287	632	214	291	854	1134			1369		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	125	168	220	524								
Volume Left	40	49	7	87								
Volume Right	40	83	41	20								
cSH	298	374	1134	1369								
Volume to Capacity	0.42	0.45	0.01	0.06								
Queue Length 95th (m)	15.9	18.0	0.1	1.6								
Control Delay (s)	25.6	22.3	0.3	1.9								
Lane LOS	D	C	A	A								
Approach Delay (s)	25.6	22.3	0.3	1.9								
Approach LOS	D	C										
Intersection Summary												
Average Delay			7.7									
Intersection Capacity Utilization			46.9%	ICU Level of Service		A						
Analysis Period (min)			15									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	20	30	35	10	25	5	20	90	20	10	110	10
Future Volume (vph)	24	37	43	12	30	6	24	112	24	12	135	12
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)	26	40	47	13	33	7	26	122	26	13	147	13

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	113	53	174	173
Volume Left (vph)	26	13	26	13
Volume Right (vph)	47	7	26	13
Hadj (s)	-0.20	-0.03	-0.06	-0.03
Departure Headway (s)	4.6	4.8	4.4	4.5
Degree Utilization, x	0.14	0.07	0.21	0.21
Capacity (veh/h)	725	682	772	763
Control Delay (s)	8.3	8.2	8.7	8.7
Approach Delay (s)	8.3	8.2	8.7	8.7
Approach LOS	A	A	A	A

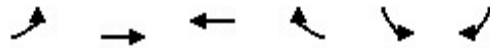
Intersection Summary			
Delay		8.5	
Level of Service		A	
Intersection Capacity Utilization	24.7%		ICU Level of Service A
Analysis Period (min)		15	



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	15	30	10	20	15	20	15	175	20	35	360	15
Future Volume (Veh/h)	18	37	12	24	18	24	18	228	24	43	446	18
Sign Control		Stop			Stop			Free			Free	
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)	20	40	13	26	20	26	20	248	26	47	485	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	926	903	495	923	900	261	505			274		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	926	903	495	923	900	261	505			274		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	91	85	98	88	92	97	98			96		
cM capacity (veh/h)	219	264	579	209	265	783	1070			1301		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	73	72	294	552								
Volume Left	20	26	20	47								
Volume Right	13	26	26	20								
cSH	275	309	1070	1301								
Volume to Capacity	0.27	0.23	0.02	0.04								
Queue Length 95th (m)	8.3	7.1	0.5	0.9								
Control Delay (s)	22.7	20.1	0.7	1.0								
Lane LOS	C	C	A	A								
Approach Delay (s)	22.7	20.1	0.7	1.0								
Approach LOS	C	C										
Intersection Summary												
Average Delay			3.9									
Intersection Capacity Utilization			41.0%	ICU Level of Service		A						
Analysis Period (min)			15									

53 Queen Street Development
1: King & Driveway

2022 Baseline
Timing Plan: PM Peak

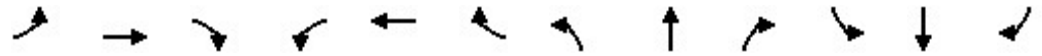


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	105	130	0	0	0
Future Volume (Veh/h)	0	105	130	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	114	141	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	141				255	141
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	141				255	141
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				100	100
cM capacity (veh/h)	1455				738	912
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	114	141	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1455	1700	1700			
Volume to Capacity	0.00	0.08	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			10.2%	ICU Level of Service	A	
Analysis Period (min)			15			

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	60	35	30	65	60	40	75	60	30	60	25
Future Volume (vph)	10	60	35	30	65	60	40	75	60	30	60	25
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)	11	65	38	33	71	65	43	82	65	33	65	27
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	114	169	190	125								
Volume Left (vph)	11	33	43	33								
Volume Right (vph)	38	65	65	27								
Hadj (s)	-0.18	-0.19	-0.16	-0.08								
Departure Headway (s)	4.7	4.6	4.6	4.7								
Degree Utilization, x	0.15	0.22	0.24	0.16								
Capacity (veh/h)	702	723	737	701								
Control Delay (s)	8.5	8.9	9.0	8.7								
Approach Delay (s)	8.5	8.9	9.0	8.7								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			8.8									
Level of Service			A									
Intersection Capacity Utilization			34.3%	ICU Level of Service	A							
Analysis Period (min)			15									

53 Queen Street Development
3: Ochterloney & King

2022 Baseline
Timing Plan: PM Peak



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	40	35	30	30	20	80	15	335	30	40	150	15
Future Volume (Veh/h)	40	35	30	30	20	80	15	335	30	40	150	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			2%			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)	43	38	33	33	22	87	16	364	33	43	163	16
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	768	686	171	722	678	380	179			397		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	768	686	171	722	678	380	179			397		
tC, single (s)	*6.5	6.5	6.2	*6.5	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	85	89	96	90	94	87	99			96		
cM capacity (veh/h)	292	355	878	331	359	671	1409			1173		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	114	142	413	222								
Volume Left	43	33	16	43								
Volume Right	33	87	33	16								
cSH	391	489	1409	1173								
Volume to Capacity	0.29	0.29	0.01	0.04								
Queue Length 95th (m)	9.6	9.6	0.3	0.9								
Control Delay (s)	18.0	15.4	0.4	1.9								
Lane LOS	C	C	A	A								
Approach Delay (s)	18.0	15.4	0.4	1.9								
Approach LOS	C	C										
Intersection Summary												
Average Delay			5.4									
Intersection Capacity Utilization			42.8%	ICU Level of Service		A						
Analysis Period (min)			15									

* User Entered Value

















53 Queen Street Development
4: Queen & Wentworth

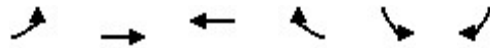
2022 Baseline
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	20	40	35	10	25	25	30	90	25	20	70	15
Future Volume (vph)	20	40	35	10	25	25	30	90	25	20	70	15
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)	22	43	38	11	27	27	33	98	27	22	76	16
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	103	65	158	114								
Volume Left (vph)	22	11	33	22								
Volume Right (vph)	38	27	27	16								
Hadj (s)	-0.18	-0.22	-0.06	-0.05								
Departure Headway (s)	4.4	4.4	4.4	4.4								
Degree Utilization, x	0.13	0.08	0.19	0.14								
Capacity (veh/h)	755	750	788	768								
Control Delay (s)	8.1	7.8	8.4	8.1								
Approach Delay (s)	8.1	7.8	8.4	8.1								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			8.2									
Level of Service			A									
Intersection Capacity Utilization			25.4%	ICU Level of Service	A							
Analysis Period (min)			15									

















53 Queen Street Development
5: Wentworth & Ochterloney

2022 Baseline
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	35	15	10	10	50	15	410	30	30	180	10
Future Volume (Veh/h)	20	35	15	10	10	50	15	410	30	30	180	10
Sign Control		Stop			Stop			Free			Free	
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)	22	38	16	11	11	54	16	446	33	33	196	11
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	822	778	202	797	768	462	207			479		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	822	778	202	797	768	462	207			479		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	91	88	98	96	97	91	99			97		
cM capacity (veh/h)	254	316	844	265	321	603	1376			1094		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	76	76	495	240								
Volume Left	22	11	16	33								
Volume Right	16	54	33	11								
cSH	336	460	1376	1094								
Volume to Capacity	0.23	0.17	0.01	0.03								
Queue Length 95th (m)	6.8	4.7	0.3	0.7								
Control Delay (s)	18.8	14.4	0.4	1.4								
Lane LOS	C	B	A	A								
Approach Delay (s)	18.8	14.4	0.4	1.4								
Approach LOS	C	B										
Intersection Summary												
Average Delay			3.4									
Intersection Capacity Utilization			39.5%		ICU Level of Service				A			
Analysis Period (min)			15									



































Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Volume (veh/h)	0	105	130	0	0	0
Future Volume (Veh/h)	0	128	158	0	0	0
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)	0	139	172	0	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)						
pX, platoon unblocked						
vC, conflicting volume	172				311	172
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	172				311	172
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				100	100
cM capacity (veh/h)	1417				686	877
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	139	172	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1417	1700	1700			
Volume to Capacity	0.00	0.10	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			10.2%	ICU Level of Service	A	
Analysis Period (min)			15			

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	60	35	30	65	60	40	75	60	30	60	25
Future Volume (vph)	12	73	43	37	79	73	49	91	73	37	73	30
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)	13	79	47	40	86	79	53	99	79	40	79	33
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	139	205	231	152								
Volume Left (vph)	13	40	53	40								
Volume Right (vph)	47	79	79	33								
Hadj (s)	-0.18	-0.19	-0.16	-0.08								
Departure Headway (s)	5.0	4.9	4.8	5.0								
Degree Utilization, x	0.19	0.28	0.31	0.21								
Capacity (veh/h)	654	678	684	655								
Control Delay (s)	9.1	9.7	10.0	9.4								
Approach Delay (s)	9.1	9.7	10.0	9.4								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			9.6									
Level of Service			A									
Intersection Capacity Utilization			34.3%	ICU Level of Service	A							
Analysis Period (min)			15									

53 Queen Street Development
3: Ochterloney & King

















2032 Background Only
Timing Plan: PM Peak

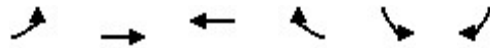
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	35	30	30	20	80	15	335	30	40	150	15
Future Volume (Veh/h)	49	43	37	37	24	98	18	408	37	49	183	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			2%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	53	47	40	40	26	107	20	443	40	53	199	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	938	838	209	882	828	463	219			483		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	938	838	209	882	828	463	219			483		
tC, single (s)	*6.5	6.5	6.2	*6.5	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	75	84	95	84	91	82	99			95		
cM capacity (veh/h)	210	286	836	247	289	603	1362			1090		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	140	173	503	272								
Volume Left	53	40	20	53								
Volume Right	40	107	40	20								
cSH	302	403	1362	1090								
Volume to Capacity	0.46	0.43	0.01	0.05								
Queue Length 95th (m)	18.6	16.8	0.4	1.2								
Control Delay (s)	26.9	20.5	0.5	2.0								
Lane LOS	D	C	A	A								
Approach Delay (s)	26.9	20.5	0.5	2.0								
Approach LOS	D	C										
Intersection Summary												
Average Delay			7.4									
Intersection Capacity Utilization			42.8%		ICU Level of Service				A			
Analysis Period (min)			15									
* User Entered Value												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	20	40	35	10	25	25	30	90	25	20	70	15
Future Volume (vph)	24	49	43	12	30	30	37	110	30	24	85	18
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)	26	53	47	13	33	33	40	120	33	26	92	20
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	126	79	193	138								
Volume Left (vph)	26	13	40	26								
Volume Right (vph)	47	33	33	20								
Hadj (s)	-0.18	-0.22	-0.06	-0.05								
Departure Headway (s)	4.6	4.6	4.5	4.6								
Degree Utilization, x	0.16	0.10	0.24	0.18								
Capacity (veh/h)	722	712	760	739								
Control Delay (s)	8.5	8.1	8.9	8.5								
Approach Delay (s)	8.5	8.1	8.9	8.5								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			8.6									
Level of Service			A									
Intersection Capacity Utilization			25.4%	ICU Level of Service	A							
Analysis Period (min)			15									

















53 Queen Street Development
5: Wentworth & Ochterloney

















2032 Background Only
Timing Plan: PM Peak

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	35	15	10	10	50	15	410	30	30	180	10
Future Volume (Veh/h)	24	43	18	12	12	61	18	500	37	37	219	12
Sign Control		Stop			Stop			Free			Free	
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)	26	47	20	13	13	66	20	543	40	40	238	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1000	948	244	971	934	563	251			583		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1000	948	244	971	934	563	251			583		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	81	97	93	95	88	98			96		
cM capacity (veh/h)	180	249	799	187	253	530	1326			1001		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	93	92	603	291								
Volume Left	26	13	20	40								
Volume Right	20	66	40	13								
cSH	260	375	1326	1001								
Volume to Capacity	0.36	0.25	0.02	0.04								
Queue Length 95th (m)	12.5	7.6	0.4	1.0								
Control Delay (s)	26.4	17.7	0.4	1.6								
Lane LOS	D	C	A	A								
Approach Delay (s)	26.4	17.7	0.4	1.6								
Approach LOS	D	C										
Intersection Summary												
Average Delay			4.4									
Intersection Capacity Utilization			39.5%	ICU Level of Service		A						
Analysis Period (min)			15									



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	105	130	0	0	0
Future Volume (Veh/h)	34	128	158	18	16	28
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)	37	139	172	20	17	30
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	192				395	182
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	192				395	182
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				97	97
cM capacity (veh/h)	1394				597	866
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	176	192	47			
Volume Left	37	0	17			
Volume Right	0	20	30			
cSH	1394	1700	745			
Volume to Capacity	0.03	0.11	0.06			
Queue Length 95th (m)	0.7	0.0	1.6			
Control Delay (s)	1.8	0.0	10.2			
Lane LOS	A		B			
Approach Delay (s)	1.8	0.0	10.2			
Approach LOS			B			
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			10.2%	ICU Level of Service	A	
Analysis Period (min)			15			

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	60	35	30	65	60	40	75	60	30	60	25
Future Volume (vph)	15	84	45	37	93	73	51	91	73	37	73	33
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)	16	91	49	40	101	79	55	99	79	40	79	36
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	156	220	233	155								
Volume Left (vph)	16	40	55	40								
Volume Right (vph)	49	79	79	36								
Hadj (s)	-0.17	-0.18	-0.16	-0.09								
Departure Headway (s)	5.0	4.9	4.9	5.1								
Degree Utilization, x	0.22	0.30	0.32	0.22								
Capacity (veh/h)	644	668	665	639								
Control Delay (s)	9.5	10.1	10.2	9.5								
Approach Delay (s)	9.5	10.1	10.2	9.5								
Approach LOS	A	B	B	A								
Intersection Summary												
Delay			9.9									
Level of Service			A									
Intersection Capacity Utilization			34.3%	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 (veh/h)	40	35	30	30	20	80	15	335	30	40	150	15
Future Volume (Veh/h)	49	50	37	48	30	108	18	408	50	62	183	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			2%			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)	53	54	40	52	33	117	20	443	54	67	199	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	986	880	209	920	863	470	219			497		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	986	880	209	920	863	470	219			497		
tC, single (s)	*6.5	6.5	6.2	*6.5	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	71	80	95	77	88	80	99			94		
cM capacity (veh/h)	185	266	836	224	272	598	1362			1077		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	147	202	517	286								
Volume Left	53	52	20	67								
Volume Right	40	117	54	20								
cSH	274	368	1362	1077								
Volume to Capacity	0.54	0.55	0.01	0.06								
Queue Length 95th (m)	23.5	25.3	0.4	1.6								
Control Delay (s)	32.4	26.1	0.5	2.5								
Lane LOS	D	D	A	A								
Approach Delay (s)	32.4	26.1	0.5	2.5								
Approach LOS	D	D										
Intersection Summary												
Average Delay			9.5									
Intersection Capacity Utilization			42.8%		ICU Level of Service				A			
Analysis Period (min)			15									
* User Entered Value												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	20	40	35	10	25	25	30	90	25	20	70	15
Future Volume (vph)	24	49	43	12	30	30	37	112	30	24	88	18
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)	26	53	47	13	33	33	40	122	33	26	96	20
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	126	79	195	142								
Volume Left (vph)	26	13	40	26								
Volume Right (vph)	47	33	33	20								
Hadj (s)	-0.18	-0.22	-0.06	-0.05								
Departure Headway (s)	4.6	4.6	4.5	4.6								
Degree Utilization, x	0.16	0.10	0.24	0.18								
Capacity (veh/h)	719	709	759	738								
Control Delay (s)	8.5	8.2	9.0	8.6								
Approach Delay (s)	8.5	8.2	9.0	8.6								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			8.6									
Level of Service			A									
Intersection Capacity Utilization			25.4%	ICU Level of Service	A							
Analysis Period (min)			15									

53 Queen Street Development
5: Wentworth & Ochterloney

2032 Background and Development
Timing Plan: PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	20	35	15	10	10	50	15	410	30	30	180	10
Future Volume (Veh/h)	24	43	18	12	12	61	18	511	37	37	233	12
Sign Control		Stop			Stop			Free			Free	
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)	26	47	20	13	13	66	20	555	40	40	253	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1027	974	260	998	961	575	266			595		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1027	974	260	998	961	575	266			595		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	85	80	97	93	95	87	98			96		
cM capacity (veh/h)	172	240	784	178	244	521	1310			991		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	93	92	615	306								
Volume Left	26	13	20	40								
Volume Right	20	66	40	13								
cSH	250	364	1310	991								
Volume to Capacity	0.37	0.25	0.02	0.04								
Queue Length 95th (m)	13.1	7.9	0.4	1.0								
Control Delay (s)	27.7	18.2	0.4	1.5								
Lane LOS	D	C	A	A								
Approach Delay (s)	27.7	18.2	0.4	1.5								
Approach LOS	D	C										
Intersection Summary												
Average Delay			4.5									
Intersection Capacity Utilization			39.5%	ICU Level of Service		A						
Analysis Period (min)			15									