

417 WELLINGTON STREET REDEVELOPMENT ST. THOMAS, ON TRAFFIC IMPACT STUDY



RC SPENCER ASSOCIATES INC.
Consulting Engineers

Tecumseh: 1610 Sylvestre Drive - Tecumseh ON N9K 0B9
Leamington: 18 Talbot Street W. - Leamington ON N8H 1M4
Chatham-Kent: 49 Raleigh Street - Chatham ON N7M 2M6

417 WELLINGTON STREET REDEVELOPMENT, ST. THOMAS, ON

TRAFFIC IMPACT STUDY (FEBRUARY 2026)

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INTRODUCTION AND BACKGROUND

An infilling is proposed for the existing Elgin Centre located at 417 Wellington Street, in St. Thomas, Ontario. The area plan is illustrated on **Figure 1**. Wellington Street is an east / west arterial roadway which runs through the City of St. Thomas; it runs from Stanley Street at the west to Centennial Avenue at the East. Highview Drive is a residential collector road which circles around the neighbourhood (crossing Elm and Chestnut Streets); the Elgin Centre is located at the northwest corner of Highview Drive, north of Wellington Street. Stokes Road is a short residential road; it begins at Wellington Street and runs to Chestnut Street. Manor Road is a north / south residential collector road, which begins at Talbot Street and ends at Elm Street.

The site plan is provided on **Figure 2**. The proposed infilling consists of two ten-storey apartment buildings comprised of a total of 232 dwelling units and 36,334 ft. of retail space in two one-storey buildings. These buildings will be located at the southwest corner of the site. Approximately 919 parking spaces will service the existing and new land uses; this includes both surface and underground parking spaces. Site access will be provided via the existing driveways at Highview Drive and Wellington Street. Two new service accesses will be provided behind the existing JYSK retail outlet building.

The purpose of this traffic impact study is to evaluate the proposed infilling development's impact on area traffic operations. The City of St. Thomas confirmed via email and phone correspondence that a study (exploring the site-specific impact on the four adjacent major intersections) would suffice; the applicable correspondence is provided in **Appendix A**. The site was attended by RC Spencer Associates Inc. staff on 28 May 2025; observations were recorded, and photographs were taken to supplement the analysis.

TRAFFIC DATA COLLECTION

As provided in **Appendix B**, RC Spencer Associates Inc. collected turning movement counts on 29 and 31 May 2025 for the following intersections:

- Highview Drive at Wellington Street (signalized);
- Stokes Road / Mall Access at Wellington Street (signalized);
- Manor Road at Highview Drive (all-way stop control); and
- Manor Road at Wellington Street (roundabout).

METHODOLOGY

The collected turning movement counts provided the basis for industry-standard traffic operations analysis; the software packages utilized for the analysis (Synchro 12, ARCADY 9) calculate various parameters of intersection performance, such as level of service (LOS), intersection capacity utilization (ICU), control delay, and queue lengths on individual approaches. The Synchro 12 software package references the Highway Capacity Manual (7th Edition).

Signalized level of service results are reported based on the following industry standard:

Level of Service	Average Control Delay (sec/veh)	General Description (Signalized Intersections)
A	≤10	Free Flow
B	>10 - 20	Stable Flow (slight delays)
C	>20 - 35	Stable flow (acceptable delays)
D	>35 - 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 - 80	Unstable flow (intolerable delay)
F	>80	Forced flow (jammed)

Unsignalized level of service results are reported based on the following industry standard:

Level of Service	Average Control Delay (sec/veh)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

TRIP GENERATION AND DISTRIBUTION

Trip generation for the existing “to-be-removed” land uses and for the infilling development proposal at the Elgin Centre Shopping Mall was estimated from the Institute of Transportation Engineers (ITE) Trip Generation Manual (12th Edition). The dataset’s average rate was used instead of the fitted curve equation because the value of the independent variable is in the lower range of the dataset (and because the fitted curve equation does not pass through the origin); furthermore, the fitted curve equation is not provided for all land uses. The detailed trip generation analysis results are provided in **Appendix C**.

ITE Land Use Code 221 – Multifamily Housing (Mid-Rise) is the most appropriate code for the proposed 232 dwelling units within two ten-storey apartment buildings; this land use code provides average trip generation rates of 0.38 trips per dwelling unit in the AM peak hour, with 23% entering and 77% exiting, 0.38 trips per dwelling unit in the PM peak hour, with 64% entering and 36% exiting, and 0.36 trips per dwelling unit in the Saturday peak hour, with 51% entering and 49% exiting. The trips generated by this portion of the proposed development are estimated as follows:

- 88 trips in the AM peak hour, with 20 entering and 68 exiting the site;
- 88 trips in the PM peak hour, with 56 entering and 32 exiting the site;
- 84 trips in the Saturday peak hour, with 43 entering and 41 exiting the site.

ITE Land Use Code 820 – Shopping Center (>150k) is the most appropriate code for the proposed 36,334 sq. ft. of new retail space. This land use code provides average trip generation rates of 0.88 trips per 1000 sq. ft. GLA in the AM peak hour, with 62% entering and 38% exiting, 3.26 trips per 1000 sq. ft. GLA in the PM peak hour, with 48% entering and 52% exiting, and 4.20 trips per 1000 sq. ft. GLA in the Saturday peak hour, with 52% entering and 48% exiting. The trips generated by this portion of the proposed development are estimated as follows:

- 32 trips in the AM peak hour, with 20 entering and 12 exiting the site;
- 118 trips in the PM peak hour, with 57 entering and 61 exiting the site;
- 156 trips in the Saturday peak hour, with 81 entering and 75 exiting the site.

ITE Land Use Code 932 – High-Turnover (Sit-Down) Restaurant is the most appropriate code for the existing Denny's® restaurant which will be demolished; this land use code provides average trip generation rates of 8.97 trips per 1000 sq. ft. GFA in the AM peak hour, with 55% entering and 45% exiting, 9.18 trips per 1000 sq. ft. GFA in the PM peak hour, with 61% entering and 39% exiting, and 11.1 trips per 1000 sq. ft. GFA in the Saturday peak hour, with 51% entering and 49% exiting. The trips generated by this portion of the development are estimated as follows:

- 45 trips in the AM peak hour, with 25 entering and 20 exiting the site;
- 46 trips in the PM peak hour, with 28 entering and 18 exiting the site;
- 56 trips in the Saturday peak hour, with 29 entering and 27 exiting the site;

When the proposed residential and commercial infilling land uses are offset by the existing “to-be-removed” Denny's® restaurant, this results in a difference of 75 additional AM peak hour trips (with 15 entering and 60 exiting), 160 additional PM peak hour trips (with 85 entering and 75 exiting), and 184 additional Saturday peak hour trips (with 95 entering and 89 exiting the site).

Although ITE data suggests that internal capture and pass-by trips could theoretically result in a reduction in the number of on-street trips generated by the proposed infilling, to be overly conservative, all site generated trips were assumed to be “new on-street trips”. It could also be assumed that the location and the availability of transit will result in a further reduction of site generated traffic (due to modal split); however, as previously stated, this report considers the “absolute worst-case” scenario (assuming that all trips are new motor vehicle trips).

The additional site generated traffic was distributed to and from the site in accordance with origin-destination matrices derived from the collected turning movement counts. The resulting site-generated turning movements are illustrated on **Figures 3 and 4**.

CAPACITY AND LEVEL OF SERVICE ANALYSIS

Detailed Synchro 12 analysis was carried out with respect to the following traffic scenarios:

- Existing Traffic;
- Total Traffic 2030 (Background Traffic 2030 + Site Generated Traffic);
- Total Traffic 2035 (Background Traffic 2035 + Site Generated Traffic).

The developer is expecting to build out the proposed infilling by Horizon Year 2030; the horizon year traffic volumes were increased by 2% per year (compounded annually) to be consistent with previous St. Thomas studies (and with the 2024 Watson Growth Analysis Study – City of St. Thomas). The current signal timings (provided by the City of St. Thomas) were applied to all signalized control scenarios.

Figures 5 to 10 summarize total traffic estimates that result from adding site generated traffic to the existing and horizon year forecasts; the resulting effect at each specific intersection can be found in **Appendix D**. The resulting simulation reports are provided in **Appendix E**.

Highview Drive at Wellington Street

The signalized intersection of Highview Drive at Wellington Street is comprised of a through / left turn lane and a through / right turn lane on the northbound approach and a dedicated right turn and a through / left turn on the southbound approach; the eastbound and westbound approaches are comprised of a through lane, a shared through / right turn lane, and a dedicated left turn lane. Sidewalks are provided on both sides of all four legs, and bicycle lanes are provided on the south leg. Based on the level of service results provided in **Tables 1 and 2**, it is anticipated that the additional site generated traffic will have a nominal impact on this intersection’s traffic operations.

Table 1: Overall Signalized Intersection Level of Service – Highview Drive at Wellington Street

Scenario	Highview Drive at Wellington Street		
	AM Peak Hour	PM Peak Hour	Sat. Peak Hour
Existing Traffic	A	A	A
Total Traffic 2030	A	A	A
Total Traffic 2035	A	A	A

Table 2: Level of Service by Approach – Highview Drive at Wellington Street

Scenario	Highview Drive at Wellington Street											
	AM Peak Hour				PM Peak Hour				Saturday Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing Traffic	A	A	B	A	A	A	B	B	A	A	B	B
Total Traffic 2030	A	A	B	A	A	A	B	B	A	A	B	B
Total Traffic 2035	A	A	B	A	A	A	B	B	A	A	B	B

Wellington Street at Mall Access / Stokes Road

The signalized intersection of Wellington Street at Mall Access / Stokes Road is comprised of a through / right turn lane and a dedicated left turn lane on the northbound and southbound approaches; the eastbound and westbound approaches are comprised of a through lane, a shared through / right turn lane, and a dedicated left turn lane. Sidewalks are provided on both sides of all legs. Based on the level of service results provided in **Tables 3 and 4**, it is anticipated that the additional site generated traffic will have no discernable impact on this intersection's traffic operations.

Table 3: Overall Signalized Intersection Level of Service – Wellington Street at Access / Stokes Road

Scenario	Wellington Street at Mall Access / Stokes Road		
	AM Peak Hour	PM Peak Hour	Sat. Peak Hour
Existing Traffic	A	A	A
Total Traffic 2030	A	A	A
Total Traffic 2035	A	A	A

Table 4: Level of Service by Approach – Wellington Street at Mall Access / Stokes Road

Scenario	Wellington Street at Mall Access / Stokes Road											
	AM Peak Hour				PM Peak Hour				Saturday Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing Traffic	A	A	B	B	A	A	B	B	A	A	B	B
Total Traffic 2030	A	A	B	B	A	A	B	B	A	A	B	B
Total Traffic 2035	A	A	B	B	A	A	B	B	A	A	B	B

Highview Drive at Manor Road

The all-way stop-controlled intersection of Highview Drive at Manor Road is comprised of a through / left turn lane and a dedicated right turn lane on the southbound approach; the northbound, eastbound, and westbound approaches are each comprised of a shared lane. Sidewalks are provided on both side of all legs. Bicycle lanes are provided on the south and west legs. Based on the level of service results provided in **Table 5**, it is anticipated that the additional site generated traffic will have a nominal impact on this intersection's traffic operations.

Table 5: Level of Service by Approach – Highview Drive at Manor Road

Scenario	Highview Drive at Manor Road											
	AM Peak Hour				PM Peak Hour				Saturday Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing Traffic	A	A	B	A	A	A	A	A	A	A	A	A
Total Traffic 2030	A	A	B	A	A	A	A	B	A	A	A	A
Total Traffic 2035	A	A	B	A	A	A	A	B	A	A	B	B

Manor Road at Wellington Street

The intersection of Manor Road at Wellington Street consists of a single lane roundabout. Sidewalks are provided on both sides of all legs, except for immediately at the southwest corner (which is currently being developed). Pedestrian crossovers are signed for each leg of the roundabout. Based on the level of service results provided in **Table 6**, it is anticipated that the addition of site generated traffic will have no discernable impact on traffic operations.

Table 6: Level of Service by Approach – Manor Road at Wellington Street

Scenario	Manor Road at Wellington Street											
	AM Peak Hour				PM Peak Hour				Saturday Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing Traffic	A	A	A	A	A	A	A	A	A	A	A	A
Total Traffic 2030	A	A	A	A	A	A	A	A	A	A	A	A
Total Traffic 2035	A	A	A	A	A	A	A	A	A	A	A	A

SIGHT LINE ANALYSIS

Sight line analyses were completed for the proposed service accesses at Highview Drive. The analysis was completed per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (2017). The speed limit on Highview Drive is 50 km/h, so the analysis was completed for a 60 km/h design speed; a single-unit truck was selected as the design vehicle. According to the TAC Geometric Design Guide for Canadian Roads (2017), the sight line should be evaluated with the design vehicle located at 4.4m from the edge of the nearest travelled lane.

As calculated in **Appendix F**, for a single-unit truck, the minimum intersection sight distance is 159m for the worst-case left turn egress maneuver and 142m for the less-critical right turn egress maneuver. Based on the sight lines illustrated on **Figures 11 to 12** (and the supplementary photographs captured during the site visit on 28 May 2025), it is the engineers' opinion that some modifications may need to be made to facilitate safe egress from the proposed site access.

The westerly service access is close to the curve in Highview Drive; however, vehicles will need to slow to navigate the curve. The visibility should be sufficient, but to minimize the potential risks, the developer could limit the service accesses to "entry only" at the westerly access and "exit only" at the easterly access (to ensure that the sight lines are sufficient).



Sight Line Analysis – Looking Left (West) from Proposed Westerly Service Access at Highview Drive



Sight Line Analysis – Looking Right (East) from Proposed Westerly Service Access at Highview Drive



Sight Line Analysis – Looking Left (West) from Proposed Easterly Service Access at Highview Drive



Sight Line Analysis – Looking Right (East) from Proposed Easterly Service Access at Highview Drive

CONCLUSIONS AND RECOMMENDATIONS

An infilling is proposed for the existing Elgin Centre, located at 417 Wellington Street, in St. Thomas, Ontario. The proposed infilling consists of two ten-storey apartment buildings comprised of a total of 232 dwelling units and 36,334 ft. of retail space in two one-storey buildings; these buildings will be located at the southwest corner of the site. Approximately 919 parking spaces will service the existing and new development; this includes both surface and underground parking spaces. Site access will be provided via the existing Highview Drive and Wellington Street accesses; two new service accesses will be provided behind the existing JYSK retail building.

Using recently obtained turning movement counts and applying the best available trip generation and distribution data and methodologies, an analysis was completed to measure the operational impact of the proposed development on area traffic operations. Upon completion of the analysis, it was concluded that:

- The signal-controlled intersection of Highview Drive at Wellington Street is currently operating at a good level of service; even with the additional site generated traffic, this intersection will continue to operate at a good level of service;

- The signal-controlled intersection of Stokes Road / Mall Access at Wellington Street West is currently operating at a good level of service; even with the additional site generated traffic, this intersection will continue to operate at a good level of service;
- The all-way stop-controlled intersection of Manor Road at Highview Drive is currently operating at a good level of service; even with the additional site generated traffic, this intersection will continue to operate at a good level of service;
- The roundabout-controlled Manor Road at Wellington Street is currently operating at a good level of service; even with the additional site generated traffic, this intersection will continue to operate at a good level of service;
- Some modifications may need to be made to facilitate safe egress from the proposed westerly service access because it is close to the curve in Highview Drive; even though vehicles will need to slow to navigate the curve, to minimize the potential risks (and to ensure that the sight lines are sufficient), the developer could consider limiting the service accesses to “entry only” at the westerly access and “exit only” at the easterly access.

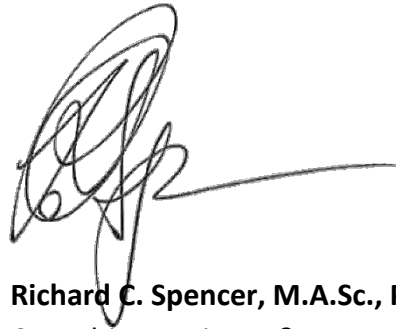
Therefore, based on the results of the technical work, it is the engineers’ opinion that the proposed redevelopment will not adversely impact area traffic operations, but consideration should be given to modifying the proposed westerly service access.

All of which is respectfully submitted,

RC Spencer Associates Inc.



Aaron D. Blata, M.Eng., P.Eng., PTOE, RSP1
Consulting Engineer, Road Safety Professional &
Professional Traffic Operations Engineer
Associate / Leamington Office Manager



Richard C. Spencer, M.A.Sc., P.Eng., PE
Consulting Engineer &
Fellow ITE Member
President / Windsor Office Manager



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Scale : As indicated

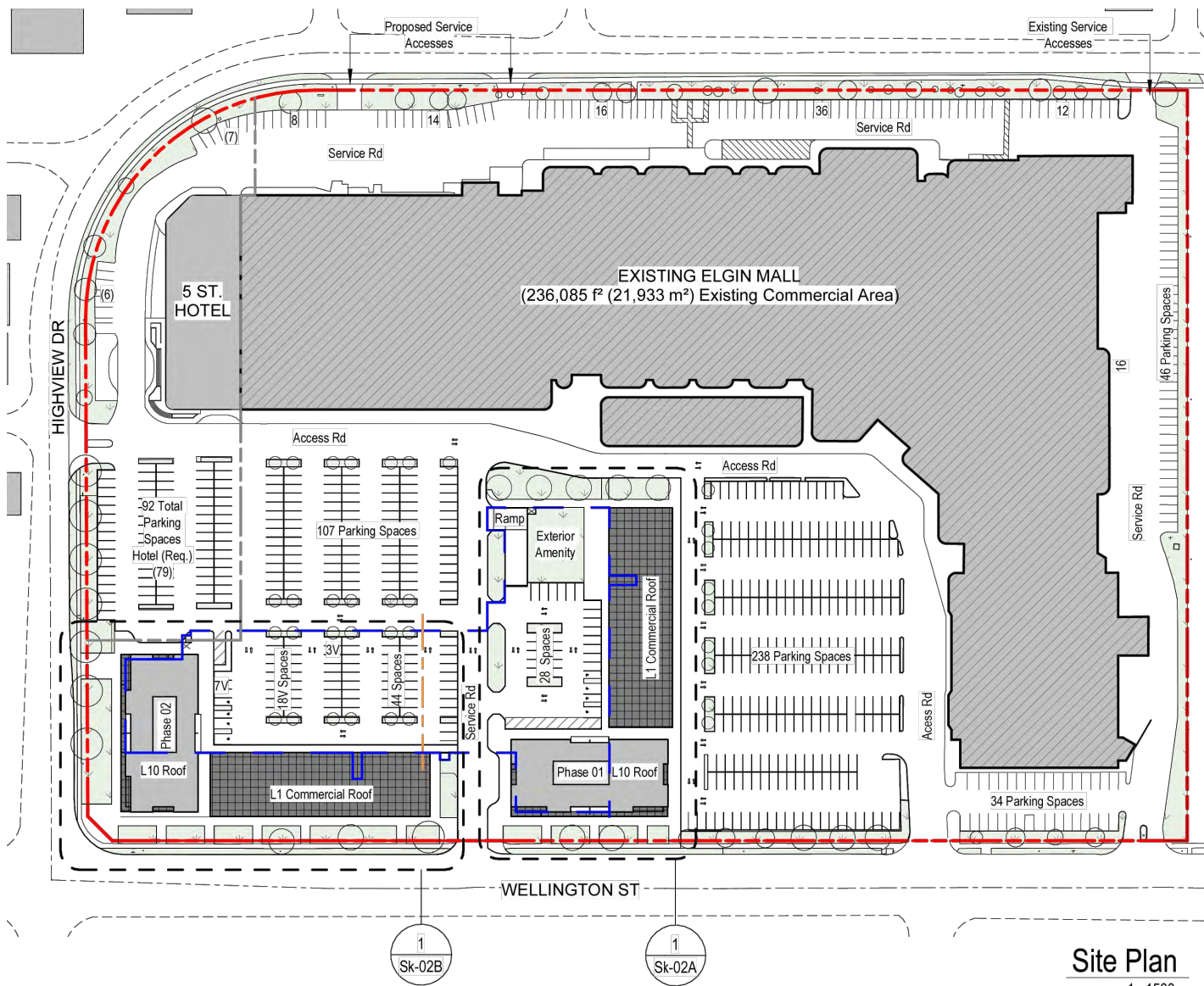
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417 Wellington Feasibility

417 Wellington St - St. Thomas, Ontario

Proposed Site Plan

2026/01/16 Sk-01C



Site Plan
1 : 1500

Site Development Stats

417 Wellington St, St. Thomas, ON

	ITEM	Existing	Proposed
1	Zoning Designation	C4-6 / 15.5.6 Special Zone	As Below
2	Lot Area (min.)	79,700 m ²	79,630 m ²
3	Lot Frontage (MINIMUM)	N/A	
4	Front Yard Depth (MINIMUM)	N/A	
5	Side Yard Depth - Highview (MINIMUM)	N/A	
6	Rear yard Depth (min.) (MINIMUM)	11 m	11m
7	Side Yard Depth - Wellington (MINIMUM)	5 m	5m
8	Landscape Open Space (% MINIMUM)	N/A	
9	Coverage	N/A	
10	Building Height (max.)	5 Storeys	10 Storeys / max. 122 ft
11	Density	N/A	
12	Gross Leasable Area (max.) (SQM MAXIMUM)	27,375 m ²	21,933 m ² + 1688m ² + 1688m ² = 25,309 m ²
13	Residential Units	N/A	232
14	Parking Spaces Total (min.)	930	919
15	Parking Spaces - Hotel	N/A	92
16	Parking Spaces - Existing Mall	N/A	507 (2.31/100m ²)
17	Residential Parking Spaces - Ph. 01	N/A	128 (1.10 pdu)
18	Commercial Parking Spaces - Ph. 01	N/A	32 (1.9/100m ²)
19	Residential Parking Spaces - Ph. 02	N/A	128 (1.10 pdu)
20	Commercial Parking Spaces - Ph. 02	N/A	32 (1.9/100m ²)

- Property Line
- Outline of Underground Parking Garage
- Underground Division between Phase 01 & Phase 02 (Future Connection)

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ARCHITECTURE

2-627 malland street london ontario N5Y 2V7 519 518 9333
www.zeddarchitecture.com info@zeddarchitecture.com

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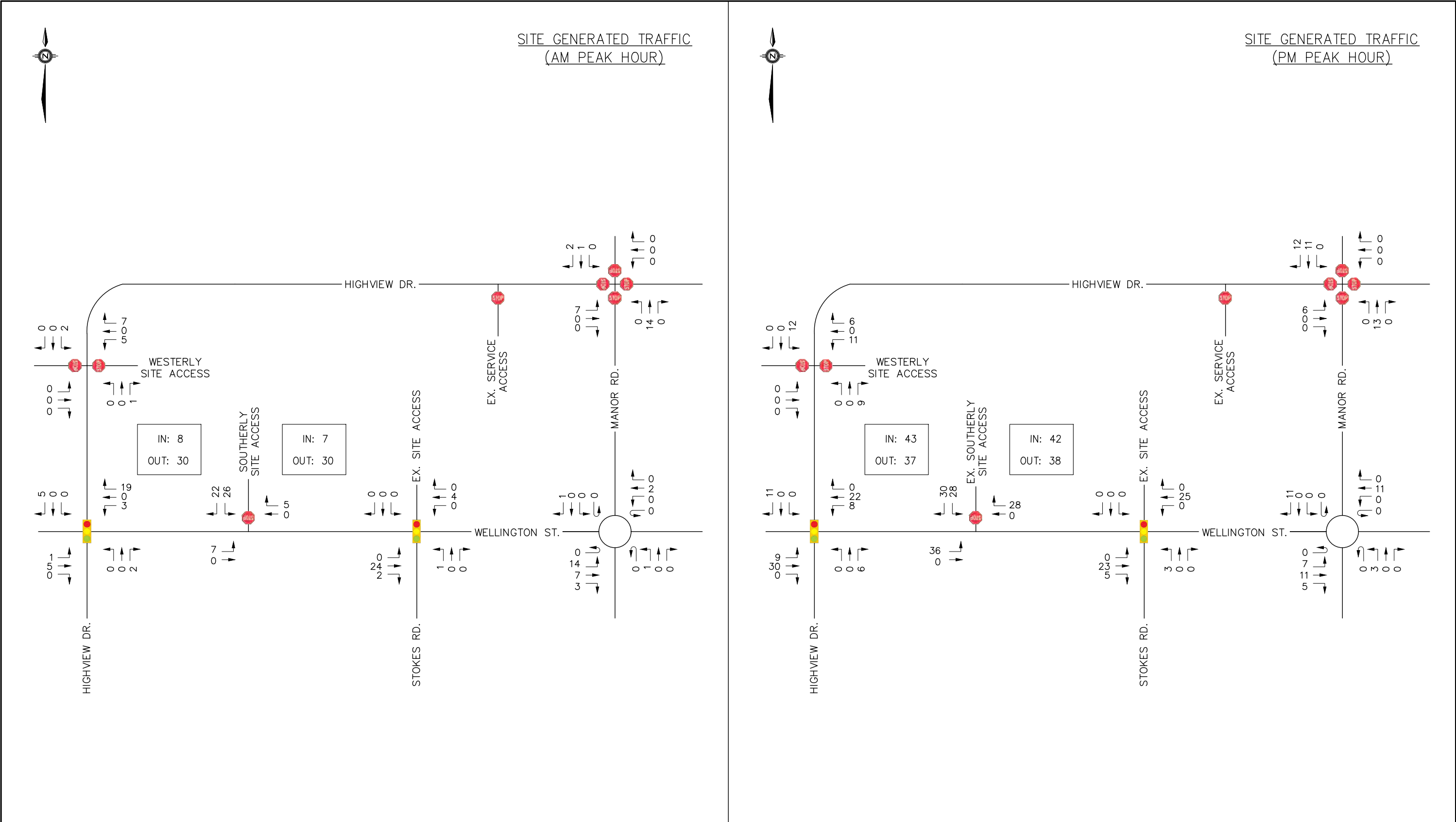
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NO.	REVISION	DATE	BY	APP	SCALE	N.T.S.

417 WELLINGTON ST., ST. THOMAS – T.I.S.

SITE PLAN

PROJECT NO.
26-1912

FIGURE NO.
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OF
12



RC SPENCER ASSOCIATES INC. Consulting Engineers Windsor: 800 University Avenue W. – Windsor ON N9A 5R9 Leamington: 18 Talbot Street W. – Leamington ON N8H 1M4 Chatham-Kent: 49 Raleigh Street – Chatham ON N7M 2M6 Professional Engineers Ontario				DESIGN A.D.B.		417 WELLINGTON ST., ST. THOMAS – T.I.S.		PROJECT NO.	
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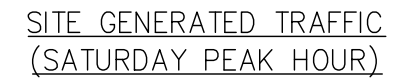
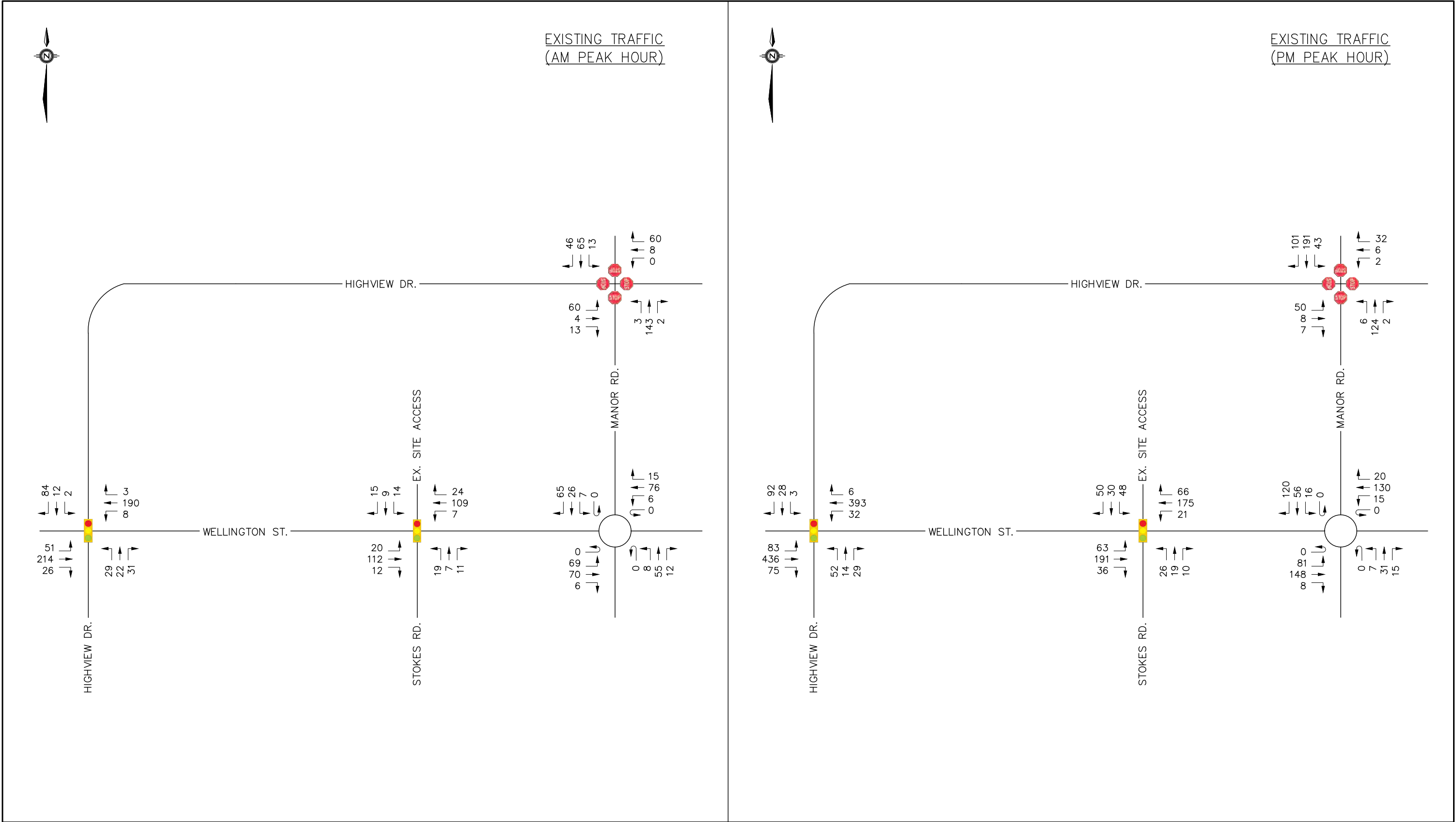


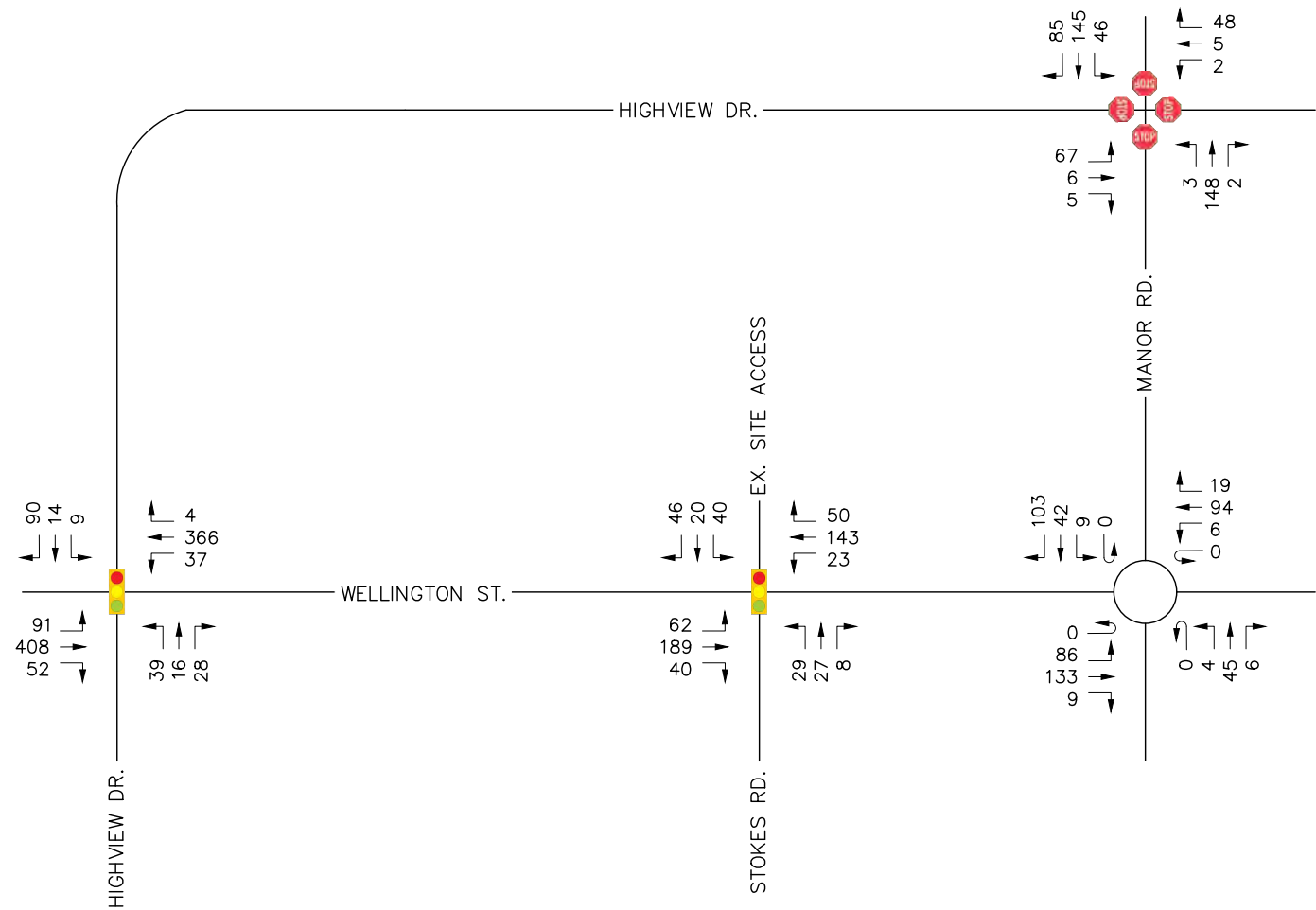
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			 RC SPENCER ASSOCIATES INC. Consulting Engineers Windsor: 800 University Avenue W. - Windsor ON N9A 5R9 Leamington: 18 Talbot Street W. - Leamington ON N8H 1M4 Chatham-Kent: 49 Raleigh Street - Chatham ON N7M 2M6  Professional Engineers Ontario <table><tr><td></td><td></td><td></td><td></td><td></td><td>DESIGN</td><td>A.D.B.</td><td rowspan="5">417 WELLINGTON ST., ST. THOMAS – T.I.S.</td><td>PROJECT NO.</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>CHECKED</td><td>A.D.B.</td><td>26–1912</td></tr><tr><td>3.</td><td>UPDATED REPORT FIGURES</td><td>09 FEB 2026</td><td>F.C.</td><td>A.D.B.</td><td>DRAWN</td><td>E.A.R.</td><td>FIGURE NO.</td></tr><tr><td>2.</td><td>UPDATED REPORT FIGURES</td><td>30 JAN 2026</td><td>M.J.W.</td><td>A.D.B.</td><td>CHECKED</td><td>A.D.B.</td><td>5</td></tr><tr><td>1.</td><td>COMPLETED REPORT FIGURES</td><td>23 JUNE 2025</td><td>E.A.R.</td><td>A.D.B.</td><td>DATE</td><td>FEBRUARY 2026</td><td>OF</td></tr><tr><td>NO.</td><td>REVISION</td><td>DATE</td><td>BY</td><td>APP</td><td>SCALE</td><td>N.T.S.</td><td></td><td>12</td></tr></table>						DESIGN	A.D.B.	417 WELLINGTON ST., ST. THOMAS – T.I.S.	PROJECT NO.						CHECKED	A.D.B.	26–1912	3.	UPDATED REPORT FIGURES	09 FEB 2026	F.C.	A.D.B.	DRAWN	E.A.R.	FIGURE NO.	2.	UPDATED REPORT FIGURES	30 JAN 2026	M.J.W.	A.D.B.	CHECKED	A.D.B.	5	1.	COMPLETED REPORT FIGURES	23 JUNE 2025	E.A.R.	A.D.B.	DATE	FEBRUARY 2026	OF	NO.	REVISION	DATE	BY	APP	SCALE	N.T.S.		12								
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EXISTING TRAFFIC
(SATURDAY PEAK HOUR)



RC SPENCER ASSOCIATES INC.
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Leamington: 18 Talbot Street W. - Leamington ON N8H 1M4
Chatham-Kent: 49 Raleigh Street - Chatham ON N7M 2M6

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Ontario

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				SCALE	N.T.S.
NO.	REVISION	DATE	BY	APP	
3.	UPDATED REPORT FIGURES	09 FEB 2026	F.C.	A.D.B.	
2.	UPDATED REPORT FIGURES	30 JAN 2026	M.J.W.	A.D.B.	
1.	COMPLETED REPORT FIGURES	23 JUNE 2025	E.A.R.	A.D.B.	

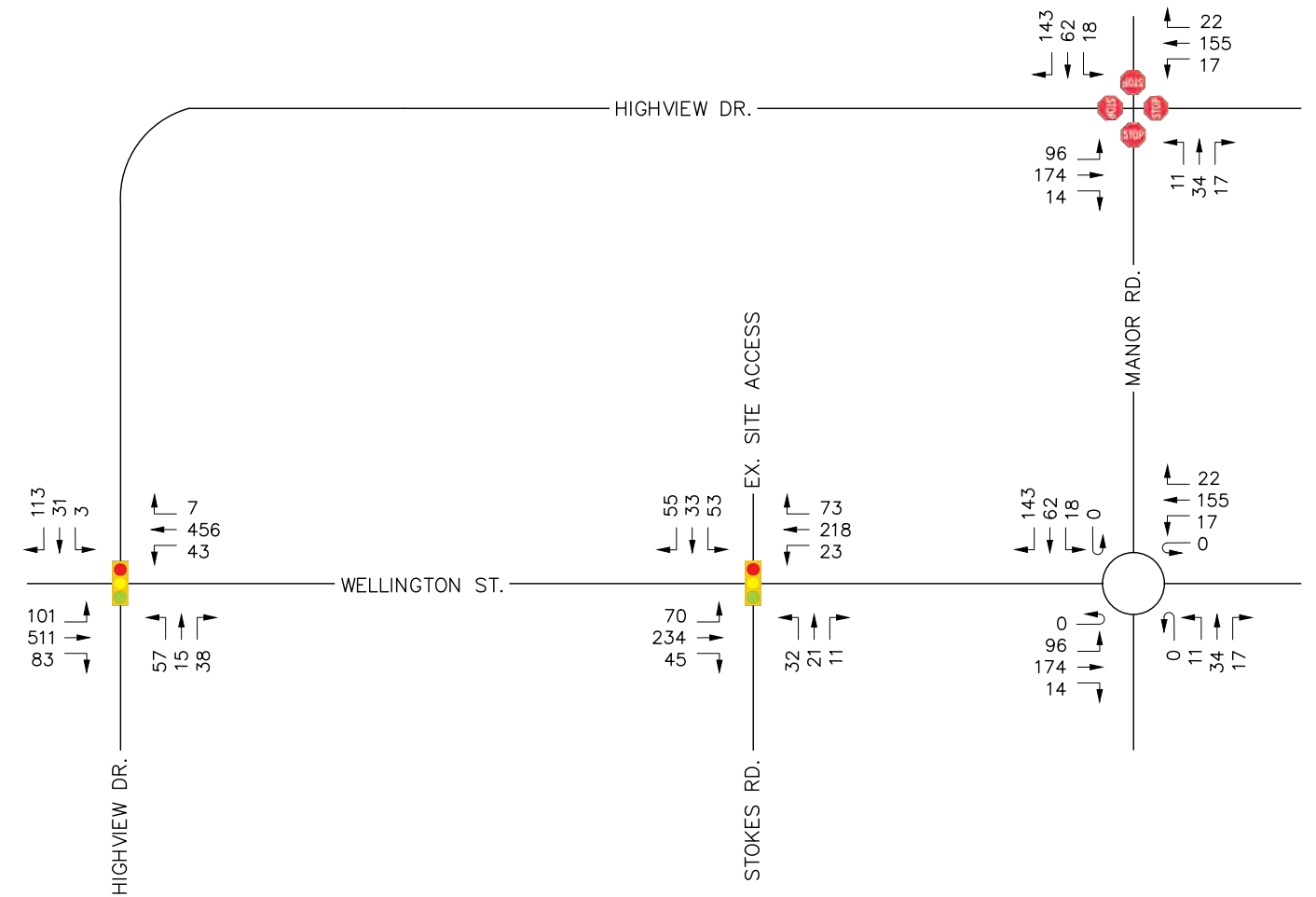
417 WELLINGTON ST., ST. THOMAS - T.I.S.

EXISTING TRAFFIC
(SATURDAY PEAK HOUR)

PROJECT NO.
26-1912

FIGURE NO.
6

OF
12



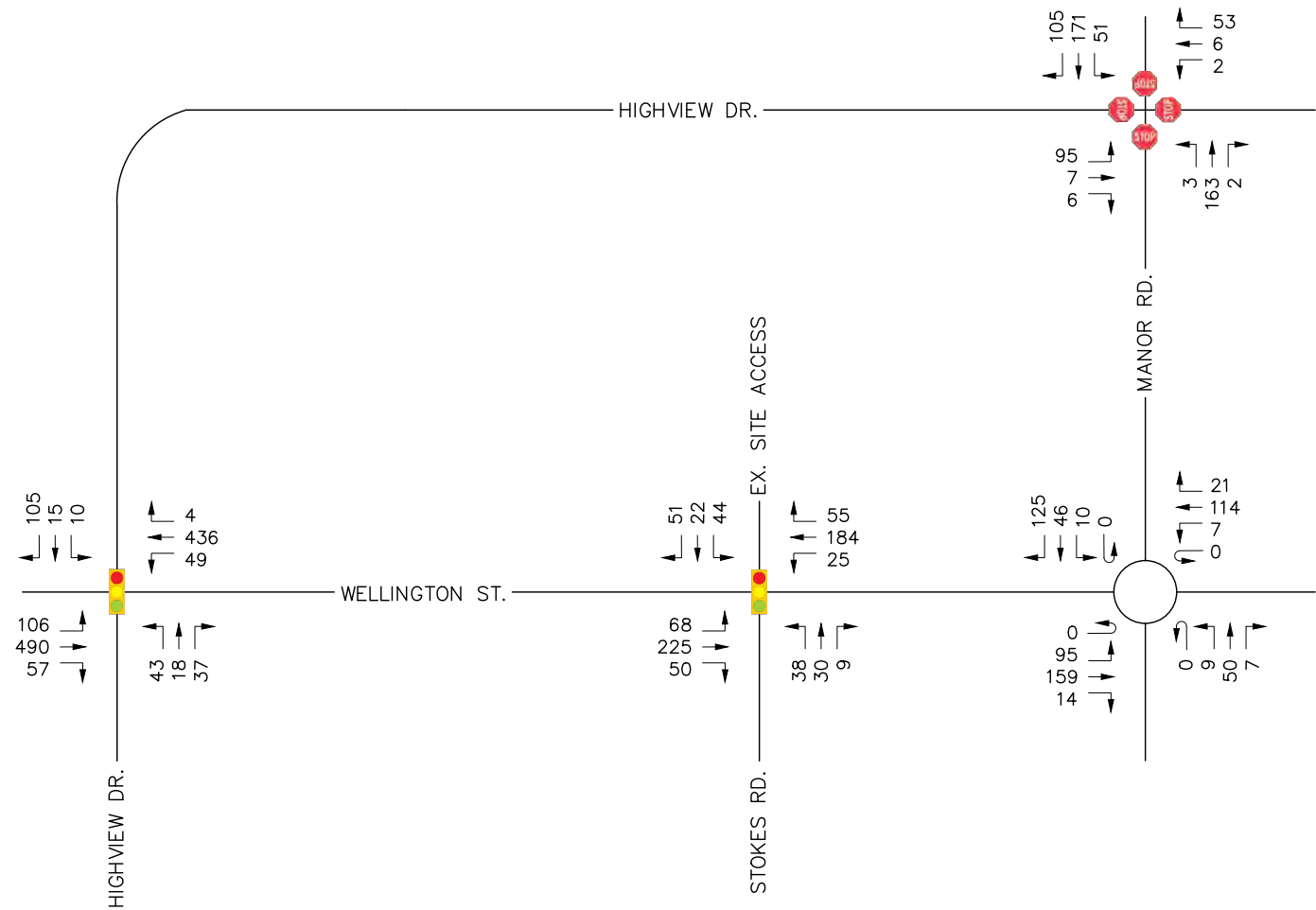
					DESIGN	A.D.B.
					CHECKED	A.D.B.
3.	UPDATED REPORT FIGURES	09 FEB 2026	F.C.	A.D.B.	DRAWN	E.A.R.
2.	UPDATED REPORT FIGURES	30 JAN 2026	M.J.W.	A.D.B.	CHECKED	A.D.B.
1.	COMPLETED REPORT FIGURES	23 JUNE 2025	E.A.R.	A.D.B.	DATE	FEBRUARY 2026
NO.	REVISION	DATE	BY	APP	SCALE	N.T.S.

TOTAL TRAFFIC 2030
(AM/PM PEAK HOUR)

OF 12



TOTAL TRAFFIC 2030
(SATURDAY PEAK HOUR)





RC SPENCER ASSOCIATES INC.
Consulting Engineers
Windsor: 800 University Avenue W. - Windsor ON N9A 5R9
Leamington: 18 Talbot Street W. - Leamington ON N8H 1M4
Chatham-Kent: 49 Raleigh Street - Chatham ON N7M 2M6



Professional Engineers
Ontario

				DESIGN	A.D.B.
				CHECKED	A.D.B.
	3.	UPDATED REPORT FIGURES	09 FEB 2026	F.C.	A.D.B.
	2.	UPDATED REPORT FIGURES	30 JAN 2026	M.J.W.	A.D.B.
	1.	COMPLETED REPORT FIGURES	23 JUNE 2025	E.A.R.	A.D.B.
NO.	REVISION		DATE	BY	APP
				SCALE	N.T.S.

417 WELLINGTON ST., ST. THOMAS – T.I.S.

TOTAL TRAFFIC 2030
(SATURDAY PEAK HOUR)

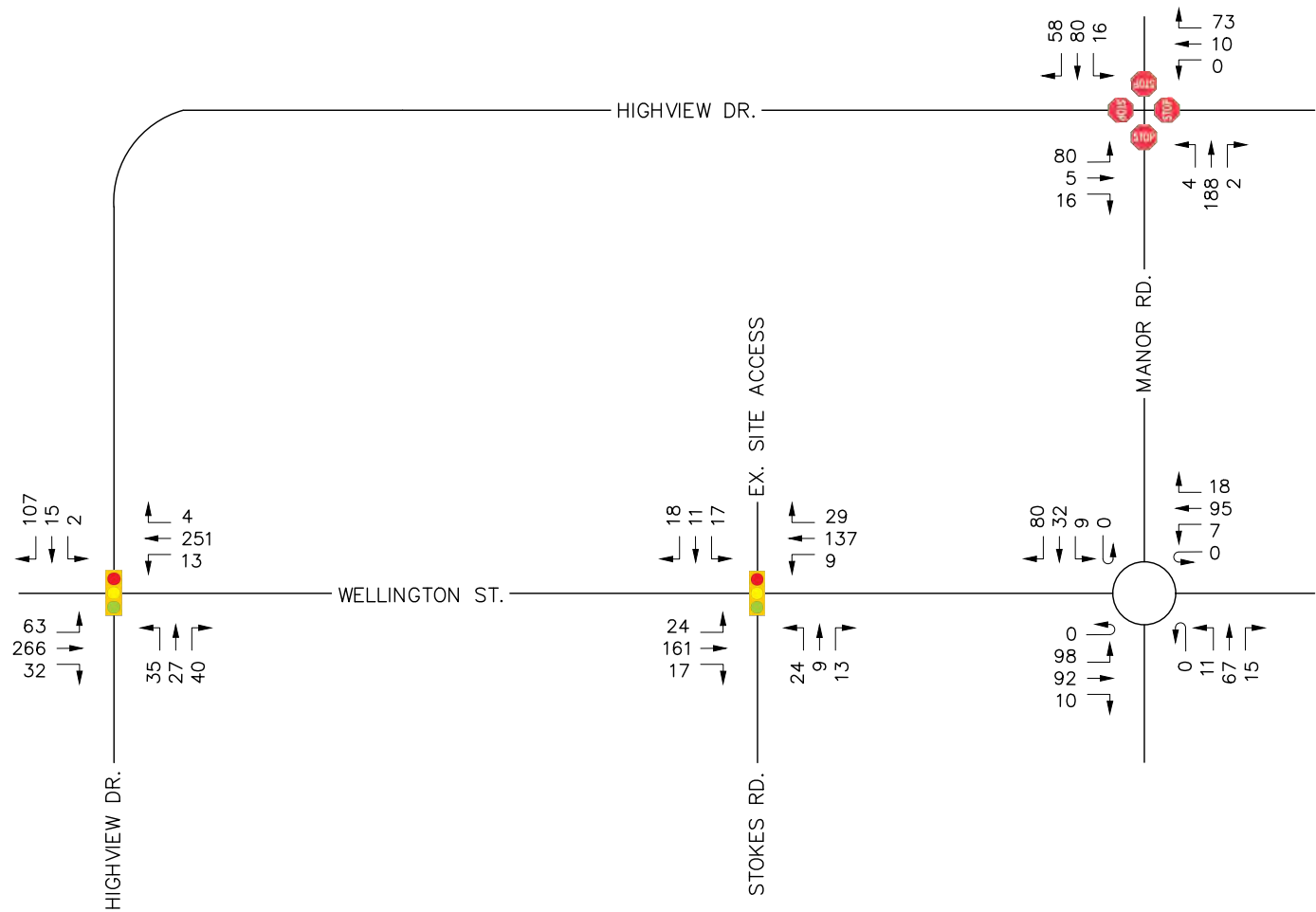
PROJECT NO.
26-1912

FIGURE NO.
8

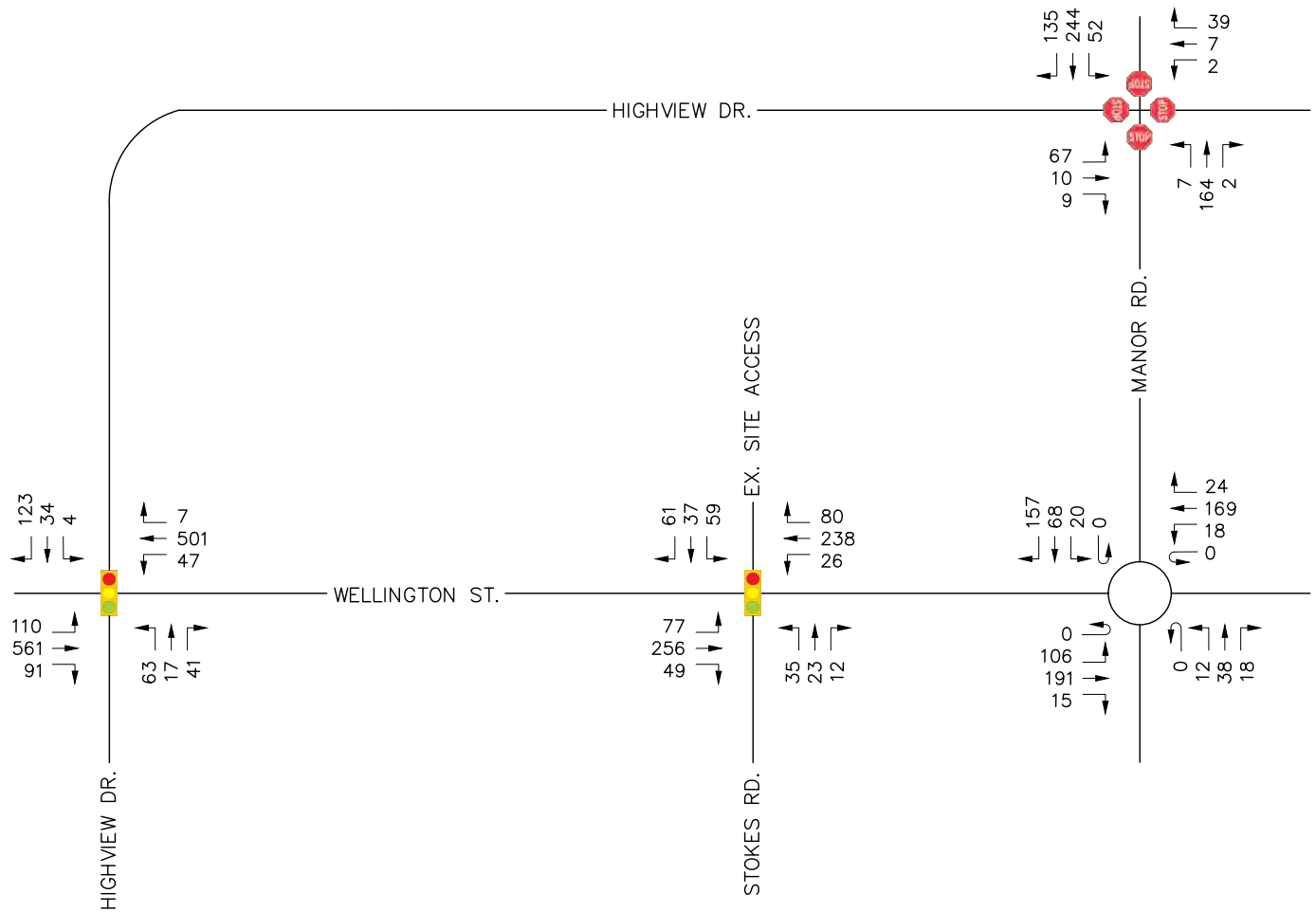
OF
12



TOTAL TRAFFIC 2035
(AM PEAK HOUR)



TOTAL TRAFFIC 2035
(PM PEAK HOUR)



RC SPENCER ASSOCIATES INC.
Consulting Engineers
Windsor: 800 University Avenue W. - Windsor ON N9A 5P9
Leamington: 18 Talbot Street W. - Leamington ON N8H 1M4
Chatham-Kent: 49 Raleigh Street - Chatham ON N7M 2M6

Professional Engineers
Ontario

NO.	REVISION	DATE	BY	APP	DESIGN A.D.B.
					CHECKED A.D.B.
3.	UPDATED REPORT FIGURES	09 FEB 2026	F.C.	A.D.B.	DRAWN E.A.R.
2.	UPDATED REPORT FIGURES	30 JAN 2026	M.J.W.	A.D.B.	CHECKED A.D.B.
1.	COMPLETED REPORT FIGURES	23 JUNE 2025	E.A.R.	A.D.B.	DATE FEBRUARY 2026
					SCALE N.T.S.

417 WELLINGTON ST., ST. THOMAS - T.I.S.

TOTAL TRAFFIC 2035
(AM/PM PEAK HOUR)

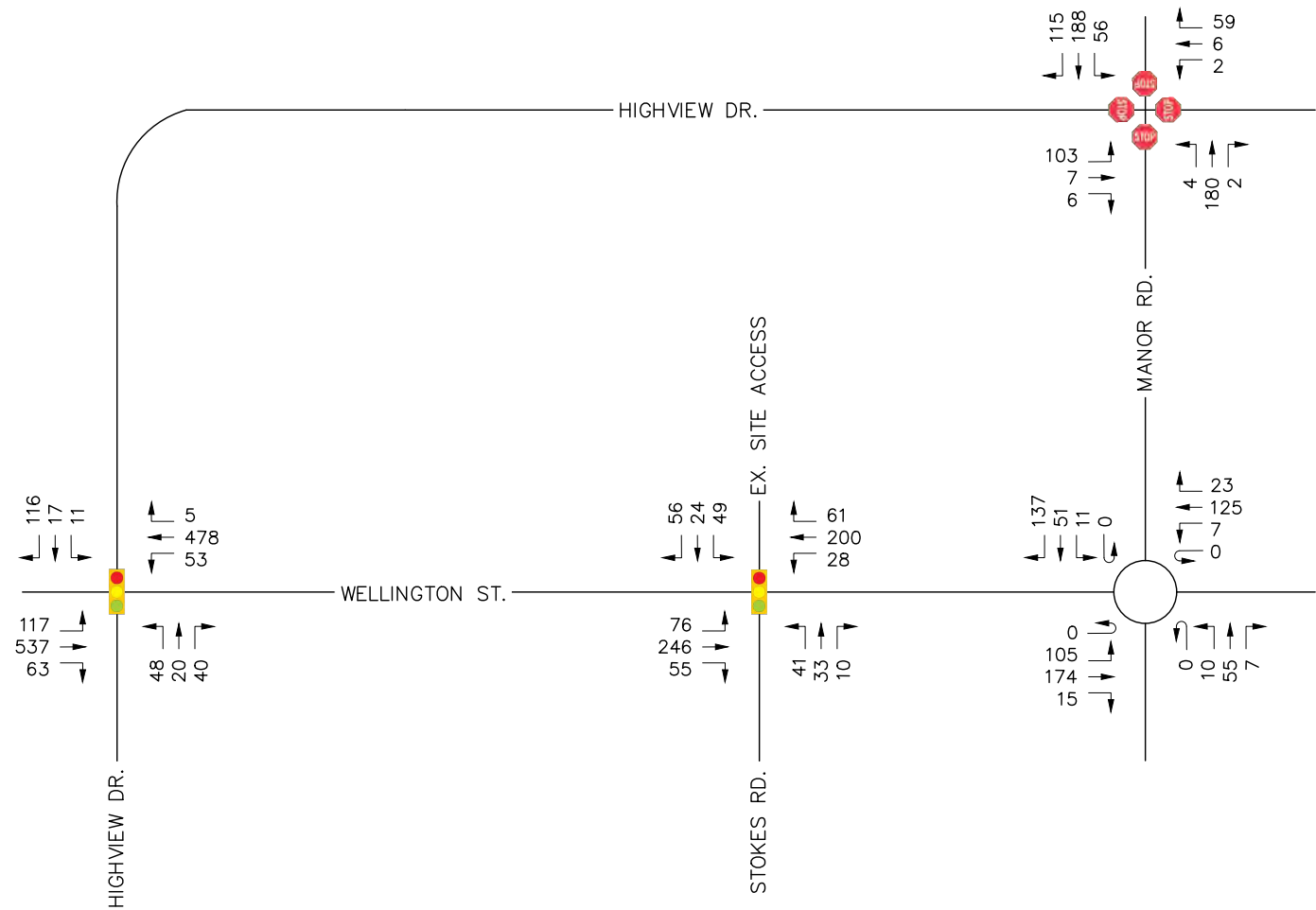
PROJECT NO.
26-1912

FIGURE NO.
9

OF
12



TOTAL TRAFFIC 2035
(SATURDAY PEAK HOUR)



RC SPENCER ASSOCIATES INC.
Consulting Engineers
Windsor: 800 University Avenue W. - Windsor ON N9A 5R9
Leamington: 18 Talbot Street W. - Leamington ON N8H 1M4
Chatham-Kent: 49 Raleigh Street - Chatham ON N7M 2M6

Professional Engineers
Ontario

				DESIGN	A.D.B.
				CHECKED	A.D.B.
				DRAWN	E.A.R.
				CHECKED	A.D.B.
				DATE	FEBRUARY 2026
				SCALE	N.T.S.
NO.	REVISION	DATE	BY	APP	
3.	UPDATED REPORT FIGURES	09 FEB 2026	F.C.	A.D.B.	
2.	UPDATED REPORT FIGURES	30 JAN 2026	M.J.W.	A.D.B.	
1.	COMPLETED REPORT FIGURES	23 JUNE 2025	E.A.R.	A.D.B.	

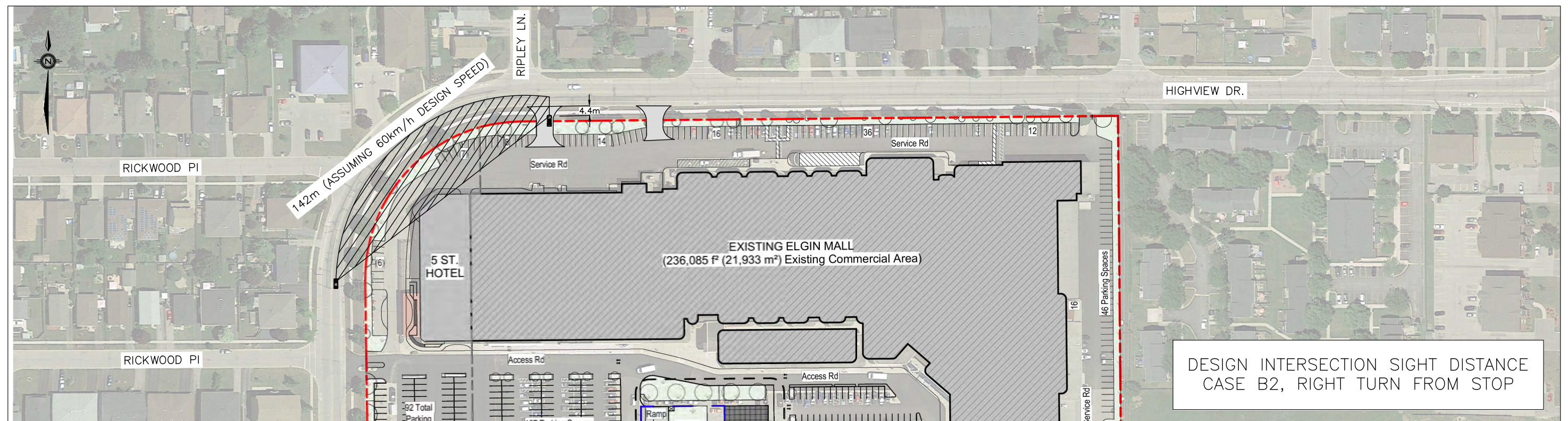
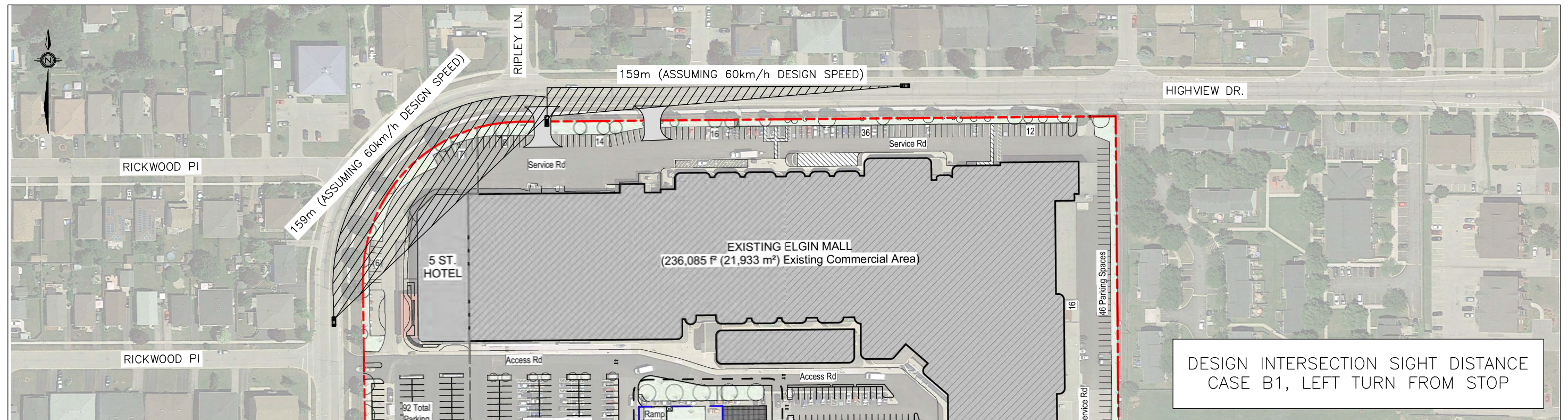
417 WELLINGTON ST., ST. THOMAS - T.I.S.

TOTAL TRAFFIC 2035
(SATURDAY PEAK HOUR)

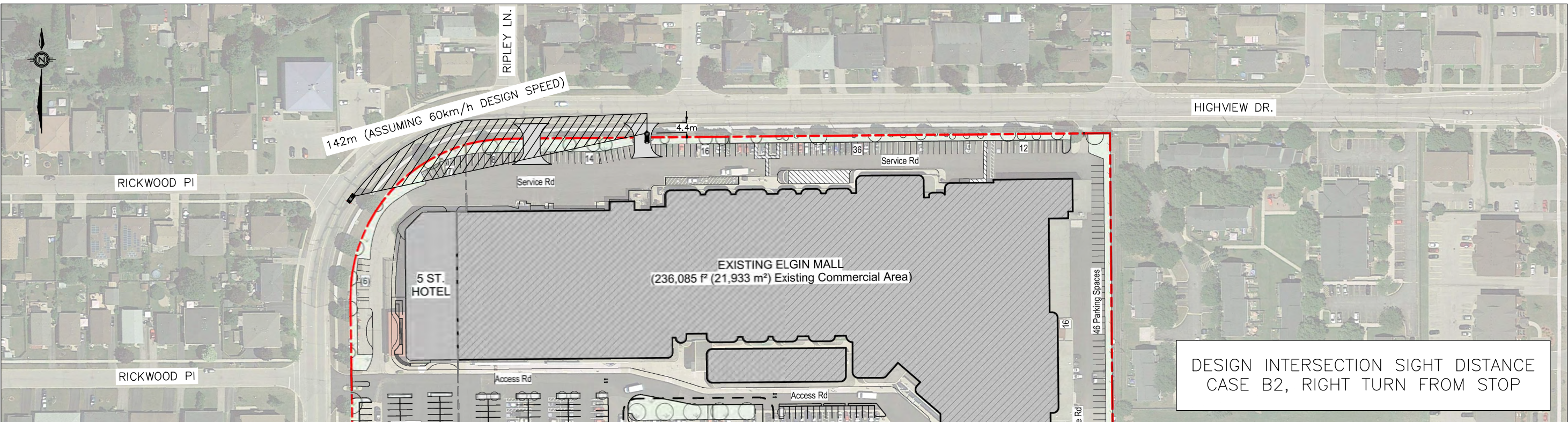
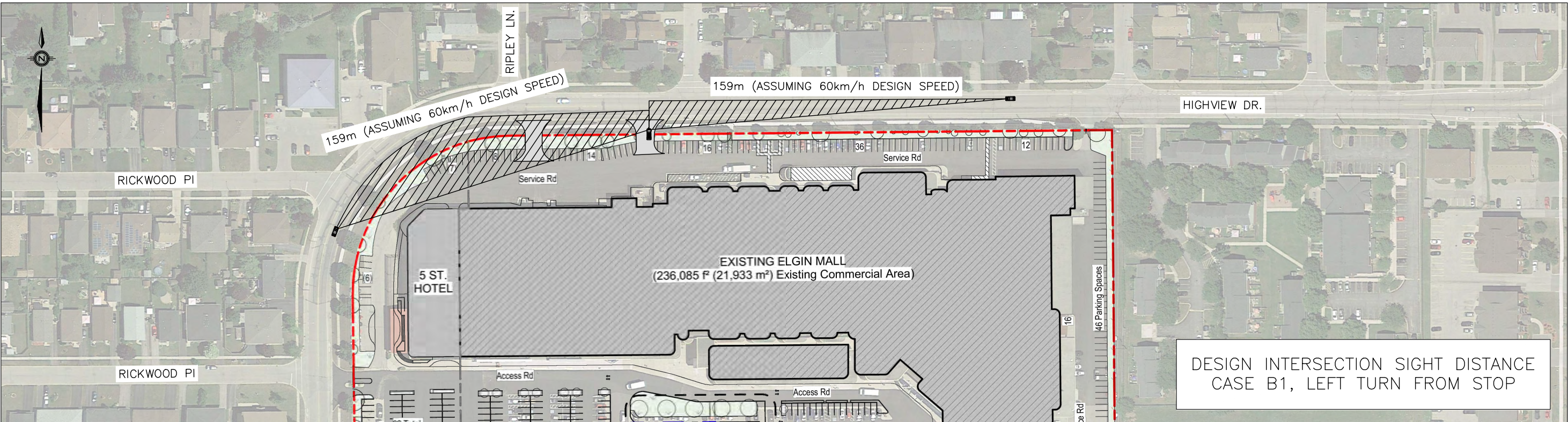
PROJECT NO.
26-1912

FIGURE NO.
10

OF
12



 RC SPENCER ASSOCIATES INC. Consulting Engineers Windsor: 800 University Avenue W. – Windsor ON N9A 5R9 Leamington: 18 Talbot Street W. – Leamington ON N8H 1M4 Chatham-Kent: 49 Raleigh Street – Chatham ON N7M 2M6  Professional Engineers Ontario	DESIGN	A.D.B.	417 WELLINGTON ST., ST. THOMAS – T.I.S.	PROJECT NO.	26–1912			
	CHECKED	A.D.B.		SIGHT LINE ANALYSIS: WESTERLY SERVICE ACCESS AT HIGHVIEW DR. (SINGLE–UNIT TRUCK)	FIGURE NO.	11		
	3. UPDATED REPORT FIGURES	09 FEB 2026			F.C.	A.D.B.	DRAWN	E.A.R.
	2. UPDATED REPORT FIGURES	30 JAN 2026			M.J.W.	A.D.B.	CHECKED	A.D.B.
	1. COMPLETED REPORT FIGURES	23 JUNE 2025			E.A.R.	A.D.B.	DATE	FEBRUARY 2026
	NO.	REVISION			DATE	BY	APP	SCALE



			 RC SPENCER ASSOCIATES INC. Consulting Engineers Windsor: 800 University Avenue W. – Windsor ON N9A 5R9 Leamington: 18 Talbot Street W. – Leamington ON N8H 1M4 Chatham-Kent: 49 Raleigh Street – Chatham ON N7M 2M6 Professional Engineers Ontario						DESIGN A.D.B.	417 WELLINGTON ST., ST. THOMAS – T.I.S.	PROJECT NO. 26–1912
								CHECKED A.D.B.	FIGURE NO. 12		
3.	UPDATED REPORT FIGURES	09 FEB 2026	F.C.	A.D.B.	DRAWN E.A.R.	SIGHT LINE ANALYSIS: EASTERLY SERVICE ACCESS AT HIGHVIEW DR. (SINGLE–UNIT TRUCK)	OF 12				
2.	UPDATED REPORT FIGURES	30 JAN 2026	M.J.W.	A.D.B.	CHECKED A.D.B.						
1.	COMPLETED REPORT FIGURES	23 JUNE 2025	E.A.R.	A.D.B.	DATE FEBRUARY 2026						
NO.	REVISION	DATE	BY	APP	SCALE N.T.S.						

Appendix A

CORRESPONDENCE WITH ROAD AUTHORITIES

From: [Knieriem, Michelle](#)
To: [Reitsma, Shayne](#); "[cmorden@rcspencer.ca](#)"
Cc: [ablata@rcspencer.ca](#); [rcspencer@rcspencer.ca](#)
Subject: Re: 417 Wellington Road Plaza Infilling
Date: February 20, 2026 10:24:53 AM
Attachments: [image002.png](#)
[image003.png](#)
[Outlook-A logo for.png](#)
[Outlook-A red circ.png](#)
[Outlook-A red and .png](#)
[Outlook-A red circ.png](#)
[Outlook-A red circ.png](#)
[Outlook-A red circ.png](#)

Good morning,

Please see below for a link to the Growth Analysis Study that was prepared by Watson and Associates and approved by Council.

[Growth Analysis Study - City of St. Thomas](#)

Please let me know if you have any questions.

Thanks,
Michelle



Michelle Knieriem, MCIP, RPP
Manager of Planning Services

t. 519.631.1680 x4188

The Corporation of the City of St. Thomas
545 Talbot Street, PO Box 520, St. Thomas, ON, N5P 3V7 | [StThomas.ca](#)



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From: Reitsma, Shayne <sreitsma@stthomas.ca>
Sent: Friday, February 20, 2026 10:14 AM
To: 'cmorden@rcspencer.ca' <cmorden@rcspencer.ca>; Knieriem, Michelle <mknieriem@stthomas.ca>
Cc: ablata@rcspencer.ca <ablata@rcspencer.ca>; rcspencer@rcspencer.ca <rcspencer@rcspencer.ca>
Subject: RE: 417 Wellington Road Plaza Infilling

Good morning,

What you have describe below works for the City. I have CC'd [@Knieriem, Michelle](#) the manager of planning who would have access to the City Watson Growth study that would describe a detailed percentage per year growth that may assist further.

Thanks,



Shayne Reitsma, P. Eng.
Manager of Development and Compliance

Phone: 519-631-1680 ext 4151

Email: sreitsma@stthomas.ca

545 Talbot Street, PO Box 520

St. Thomas, ON N5P 3V7

www.stthomas.ca



From: cmorden@rcspencer.ca <cmorden@rcspencer.ca>

Sent: Friday, February 20, 2026 9:25 AM

To: Reitsma, Shayne <sreitsma@stthomas.ca>

Cc: ablata@rcspencer.ca; rcspencer@rcspencer.ca

Subject: FW: 417 Wellington Road Plaza Infilling

You don't often get email from cmorden@rcspencer.ca. [Learn why this is important](#)

CAUTION:

This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning, Shane.

Could you please provide comment on the below request?

Thank you,

Cheryl Morden

Executive Assistant to Aaron D. Blata

RC SPENCER ASSOCIATES INC.

18 Talbot St. W. | Leamington, ON N8H 1M4

Office: (519) 324-0606 ext. 1143

From: cmorden@rcspencer.ca <cmorden@rcspencer.ca>

Sent: February 9, 2026 12:33 PM

To: 'sreitsma@stthomas.ca' <sreitsma@stthomas.ca>

Cc: 'ablata@rcspencer.ca' <ablata@rcspencer.ca>; 'rcspencer@rcspencer.ca' <rcspencer@rcspencer.ca>

Subject: 417 Wellington Road Plaza Infilling

Good afternoon, Shayne.

RC Spencer Associates Inc. has been asked to update a Traffic Impact Brief prepared in July 2025 for the

above-noted site. The City of St. Thomas had confirmed via email and phone correspondence that a Brief exploring the four adjacent major intersections would suffice. The site plan has since been amended (see attached); due to the land use changes, the site will generate more trips than originally anticipated. The trip generation estimates are attached, noting the differences in the new trips estimated for the site between the original site plan and the updated site plan. The site is now estimated to generate 75, 160, and 184 new trips during the AM, PM and Saturday peak hours, respectively.

It is assumed that, with the increase in trips during the PM and Saturday peak hours, a Traffic Impact Study will now be required. Our intent is to evaluate the horizon years 2030 (build-out) and 2035 (5-year post build-out), with background traffic grown at 2% per year, compounded annually, as utilized in previous studies for the City of St. Thomas, for the previously determined study area.

Could the City please confirm that this expansion of the previous scope will satisfy the City?

Thank you,

Cheryl Morden

Executive Assistant to Aaron D. Blata

RC SPENCER ASSOCIATES INC.

18 Talbot St. W. | Leamington, ON N8H 1M4

Office: (519) 324-0606 ext. 1143



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Appendix B

TRAFFIC DATA COLLECTION

**Highview Drive at Wellington Street
Stokes Road / Mall Access at Wellington Street
Manor Road at Highview Drive
Manor Road at Wellington Street**

Date: 29 May 2025

Counted By: Erick R. / Reviewed By: A. Blata

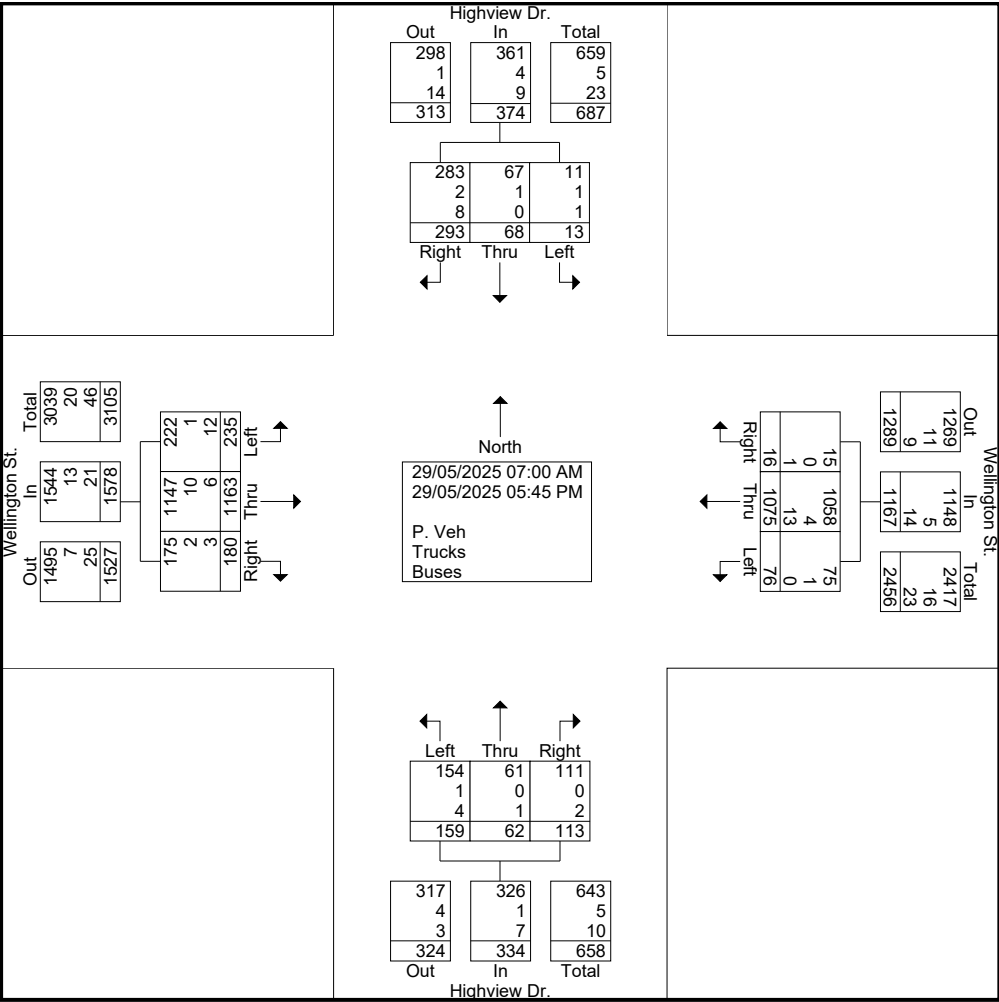
Weather Conditions: Cloudy / Rainy

Highview Dr. at Wellington St.

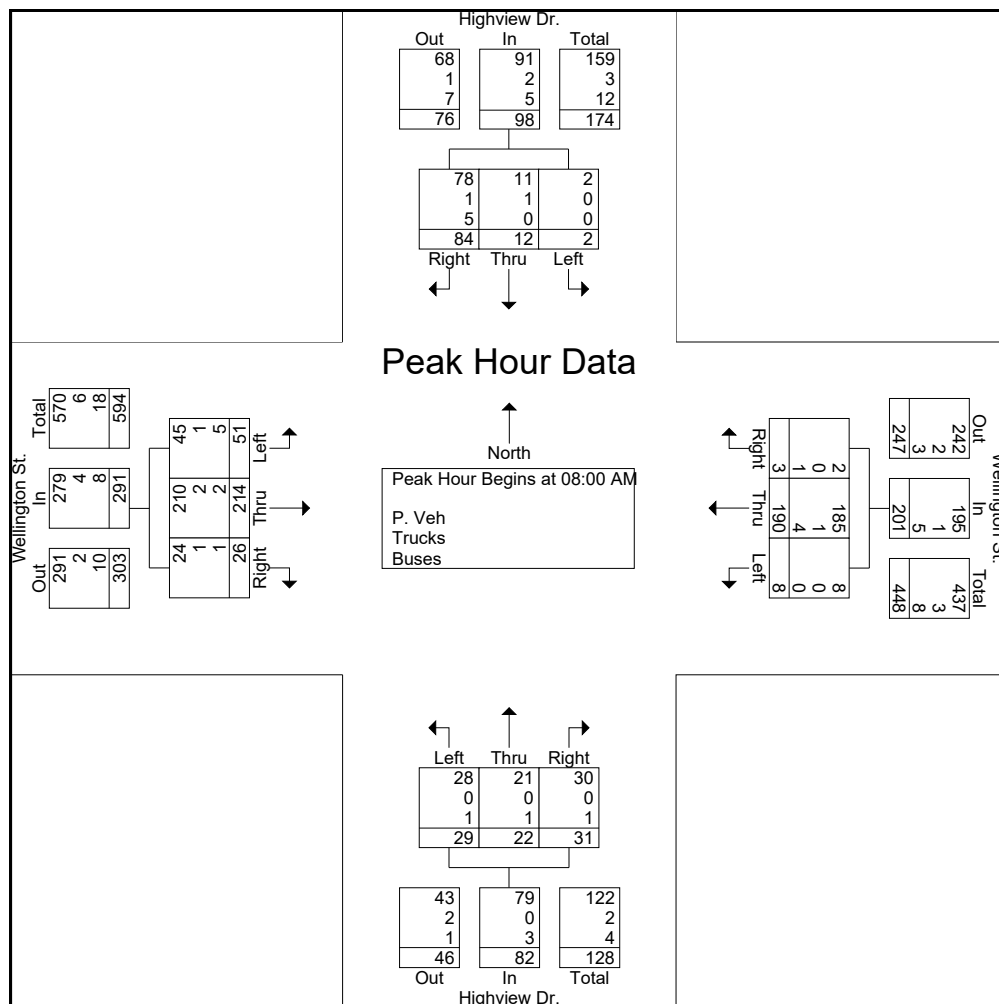
Groups Printed- P. Veh - Trucks - Buses

	Wellington St. E/B					Wellington St. W/B					Highview Dr. N/B					Highview Dr. S/B					Exclu. Total	Inclu. Total	Int. Total
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total			
07:00 AM	7	24	3	(0)	34	0	25	0	(0)	25	6	3	4	(0)	13	0	0	8	(0)	8	0	80	80
07:15 AM	14	26	3	(1)	43	1	29	0	(0)	30	5	0	3	(0)	8	1	2	9	(0)	12	1	93	94
07:30 AM	8	34	1	(0)	43	2	32	1	(0)	35	10	2	6	(0)	18	1	1	9	(0)	11	0	107	107
07:45 AM	7	53	6	(0)	66	2	31	0	(0)	33	17	4	7	(1)	28	0	5	7	(1)	12	2	139	141
Total	36	137	13	(1)	186	5	117	1	(0)	123	38	9	20	(1)	67	2	8	33	(1)	43	3	419	422
08:00 AM	4	36	4	(0)	44	2	41	2	(0)	45	6	4	6	(2)	16	1	3	17	(0)	21	2	126	128
08:15 AM	10	48	8	(0)	66	1	48	0	(0)	49	5	8	12	(0)	25	1	3	25	(1)	29	1	169	170
08:30 AM	12	65	6	(3)	83	2	43	0	(3)	45	6	6	4	(1)	16	0	2	20	(1)	22	8	166	174
08:45 AM	25	65	8	(1)	98	3	58	1	(0)	62	12	4	9	(1)	25	0	4	22	(1)	26	3	211	214
Total	51	214	26	(4)	291	8	190	3	(3)	201	29	22	31	(4)	82	2	12	84	(3)	98	14	672	686
*** BREAK ***																							
04:00 PM	16	105	15	(2)	136	8	90	1	(2)	99	12	4	8	(6)	24	0	9	22	(1)	31	11	290	301
04:15 PM	23	117	15	(3)	155	10	107	1	(1)	118	9	1	12	(3)	22	0	11	20	(0)	31	7	326	333
04:30 PM	17	92	16	(0)	125	10	76	1	(6)	87	12	3	10	(0)	25	0	7	19	(3)	26	9	263	272
04:45 PM	22	112	18	(2)	152	7	96	3	(2)	106	18	4	4	(3)	26	1	5	24	(0)	30	7	314	321
Total	78	426	64	(7)	568	35	369	6	(11)	410	51	12	34	(12)	97	1	32	85	(4)	118	34	1193	1227
05:00 PM	21	115	26	(0)	162	5	114	1	(3)	120	13	6	3	(5)	22	2	5	29	(0)	36	8	340	348
05:15 PM	19	99	15	(3)	133	10	93	2	(3)	105	6	5	8	(5)	19	2	2	22	(1)	26	12	283	295
05:30 PM	13	84	22	(0)	119	7	114	2	(0)	123	10	7	7	(1)	24	0	7	21	(1)	28	2	294	296
05:45 PM	17	88	14	(0)	119	6	78	1	(1)	85	12	1	10	(0)	23	4	2	19	(1)	25	2	252	254
Total	70	386	77	(3)	533	28	399	6	(7)	433	41	19	28	(11)	88	8	16	91	(3)	115	24	1169	1193
Grand Total	235	1163	180	(15)	1578	76	1075	16	(21)	1167	159	62	113	(28)	334	13	68	293	(11)	374	75	3453	3528
Apprch %	14.9	73.7	11.4			6.5	92.1	1.4			47.6	18.6	33.8			3.5	18.2	78.3					
Total %	6.8	33.7	5.2		45.7	2.2	31.1	0.5		33.8	4.6	1.8	3.3		9.7	0.4	2	8.5		10.8	2.1	97.9	
P. Veh	222	1147	175		1559	75	1058	15		1169	154	61	111		354	11	67	283		372	0	0	3454
% P. Veh	94.5	98.6	97.2	100	97.9	98.7	98.4	93.8	100	98.4	96.9	98.4	98.2	100	97.8	84.6	98.5	96.6	100	96.6	0	0	97.9
Trucks	1	10	2		13	1	4	0		5	1	0	0		1	1	1	2		4	0	0	23
% Trucks	0.4	0.9	1.1	0	0.8	1.3	0.4	0	0	0.4	0.6	0	0	0	0.3	7.7	1.5	0.7	0	1	0	0	0.7
Buses	12	6	3		21	0	13	1		14	4	1	2		7	1	0	8		9	0	0	51
% Buses	5.1	0.5	1.7	0	1.3	0	1.2	6.2	0	1.2	2.5	1.6	1.8	0	1.9	7.7	0	2.7	0	2.3	0	0	1.4





	Wellington St. E/B				Wellington St. W/B				Highview Dr. N/B				Highview Dr. S/B				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	4	36	4	44	2	41	2	45	6	4	6	16	1	3	17	21	126
08:15 AM	10	48	8	66	1	48	0	49	5	8	12	25	1	3	25	29	169
08:30 AM	12	65	6	83	2	43	0	45	6	6	4	16	0	2	20	22	166
08:45 AM	25	65	8	98	3	58	1	62	12	4	9	25	0	4	22	26	211
Total Volume	51	214	26	291	8	190	3	201	29	22	31	82	2	12	84	98	672
% App. Total	17.5	73.5	8.9		4	94.5	1.5		35.4	26.8	37.8		2	12.2	85.7		
PHF	.510	.823	.813	.742	.667	.819	.375	.810	.604	.688	.646	.820	.500	.750	.840	.845	.796
P. Veh	45	210	24	279	8	185	2	195	28	21	30	79	2	11	78	91	644
% P. Veh	88.2	98.1	92.3	95.9	100	97.4	66.7	97.0	96.6	95.5	96.8	96.3	100	91.7	92.9	92.9	95.8
Trucks	1	2	1	4	0	1	0	1	0	0	0	0	0	1	1	2	7
% Trucks	2.0	0.9	3.8	1.4	0	0.5	0	0.5	0	0	0	0	0	8.3	1.2	2.0	1.0
Buses	5	2	1	8	0	4	1	5	1	1	1	3	0	0	5	5	21
% Buses	9.8	0.9	3.8	2.7	0	2.1	33.3	2.5	3.4	4.5	3.2	3.7	0	0	6.0	5.1	3.1

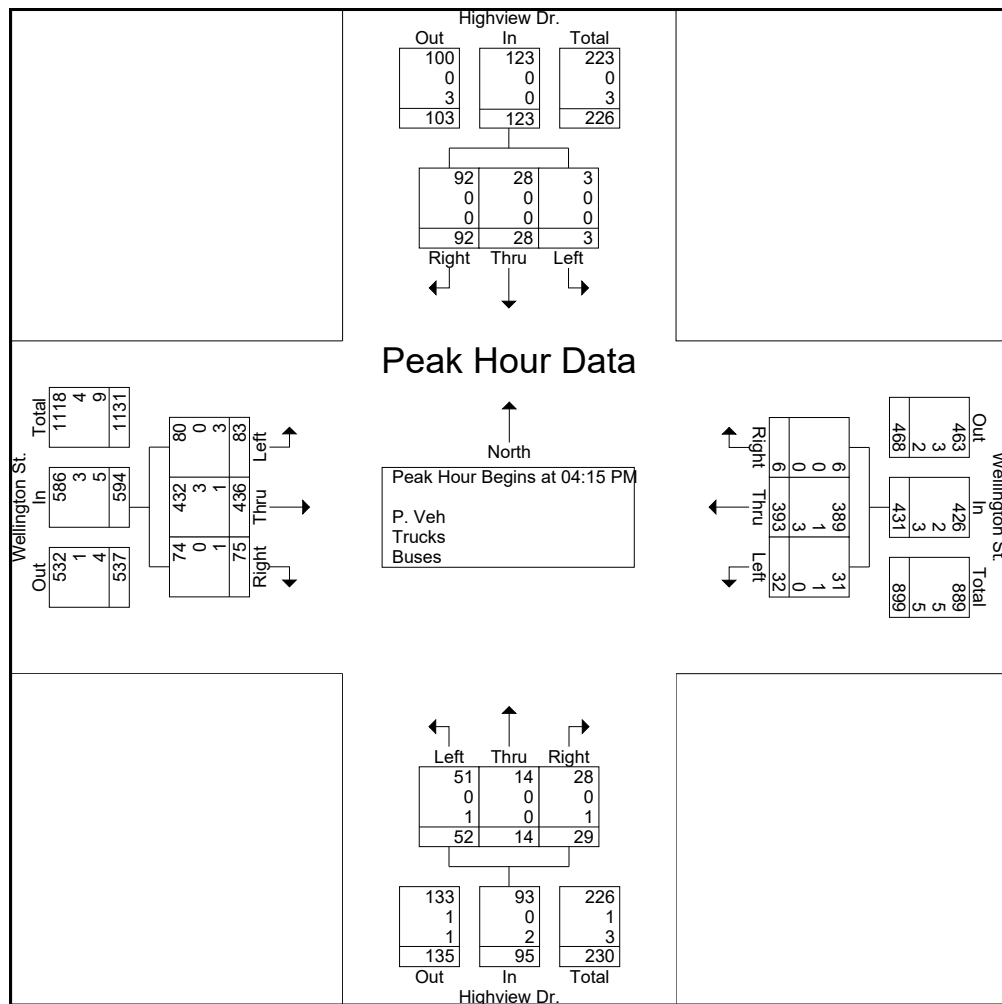


	Wellington St. E/B				Wellington St. W/B				Highview Dr. N/B				Highview Dr. S/B				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total

Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:15 PM

04:15 PM	23	117	15	155	10	107	1	118	9	1	12	22	0	11	20	31	326
04:30 PM	17	92	16	125	10	76	1	87	12	3	10	25	0	7	19	26	263
04:45 PM	22	112	18	152	7	96	3	106	18	4	4	26	1	5	24	30	314
05:00 PM	21	115	26	162	5	114	1	120	13	6	3	22	2	5	29	36	340
Total Volume	83	436	75	594	32	393	6	431	52	14	29	95	3	28	92	123	1243
% App. Total	14	73.4	12.6		7.4	91.2	1.4		54.7	14.7	30.5		2.4	22.8	74.8		
PHF	.902	.932	.721	.917	.800	.862	.500	.898	.722	.583	.604	.913	.375	.636	.793	.854	.914
P. Veh	80	432	74	586	31	389	6	426	51	14	28	93	3	28	92	123	1228
% P. Veh	96.4	99.1	98.7	98.7	96.9	99.0	100	98.8	98.1	100	96.6	97.9	100	100	100	100	98.8
Trucks	0	3	0	3	1	1	0	2	0	0	0	0	0	0	0	0	5
% Trucks	0	0.7	0	0.5	3.1	0.3	0	0.5	0	0	0	0	0	0	0	0	0.4
Buses	3	1	1	5	0	3	0	3	1	0	1	2	0	0	0	0	10
% Buses	3.6	0.2	1.3	0.8	0	0.8	0	0.7	1.9	0	3.4	2.1	0	0	0	0	0.8



Date: 31 May 2025

Counted By: Erick R. / Reviewed By: A. Blata

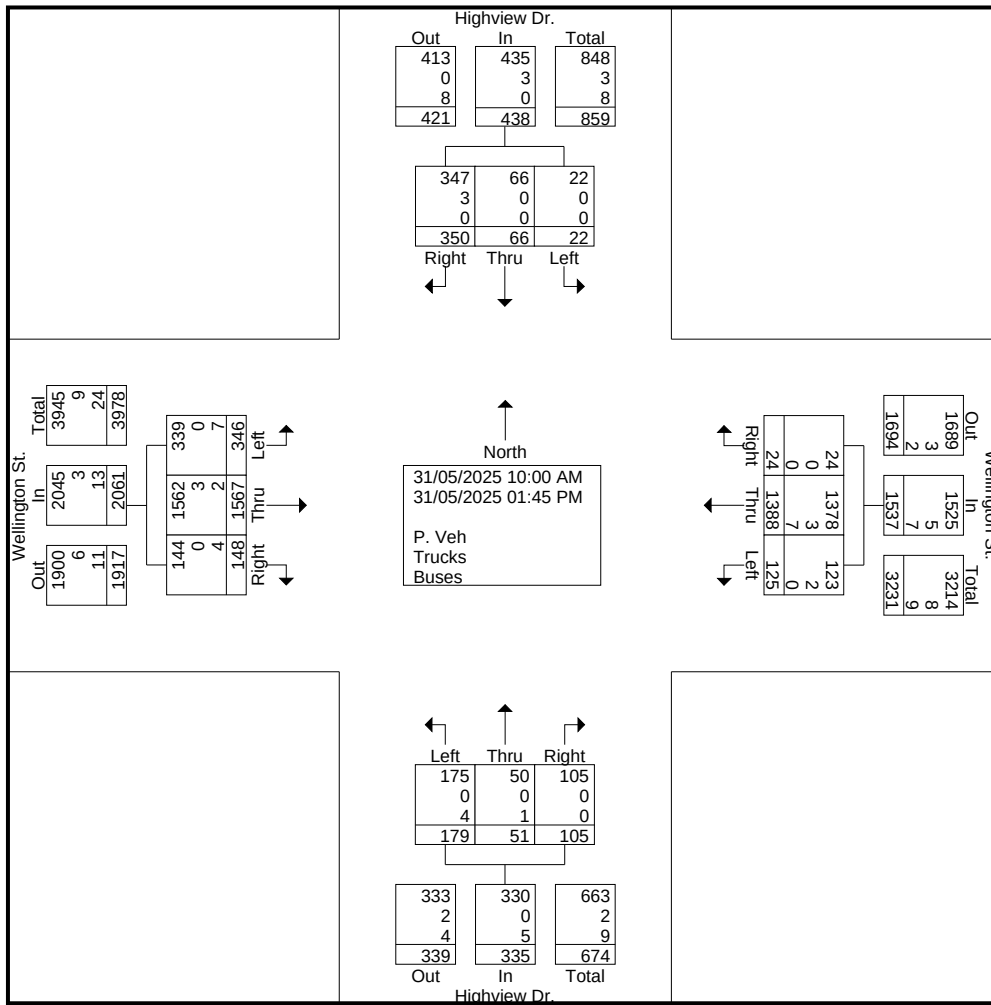
Weather Conditions: Cloudy

Highview Dr. at Wellington St.

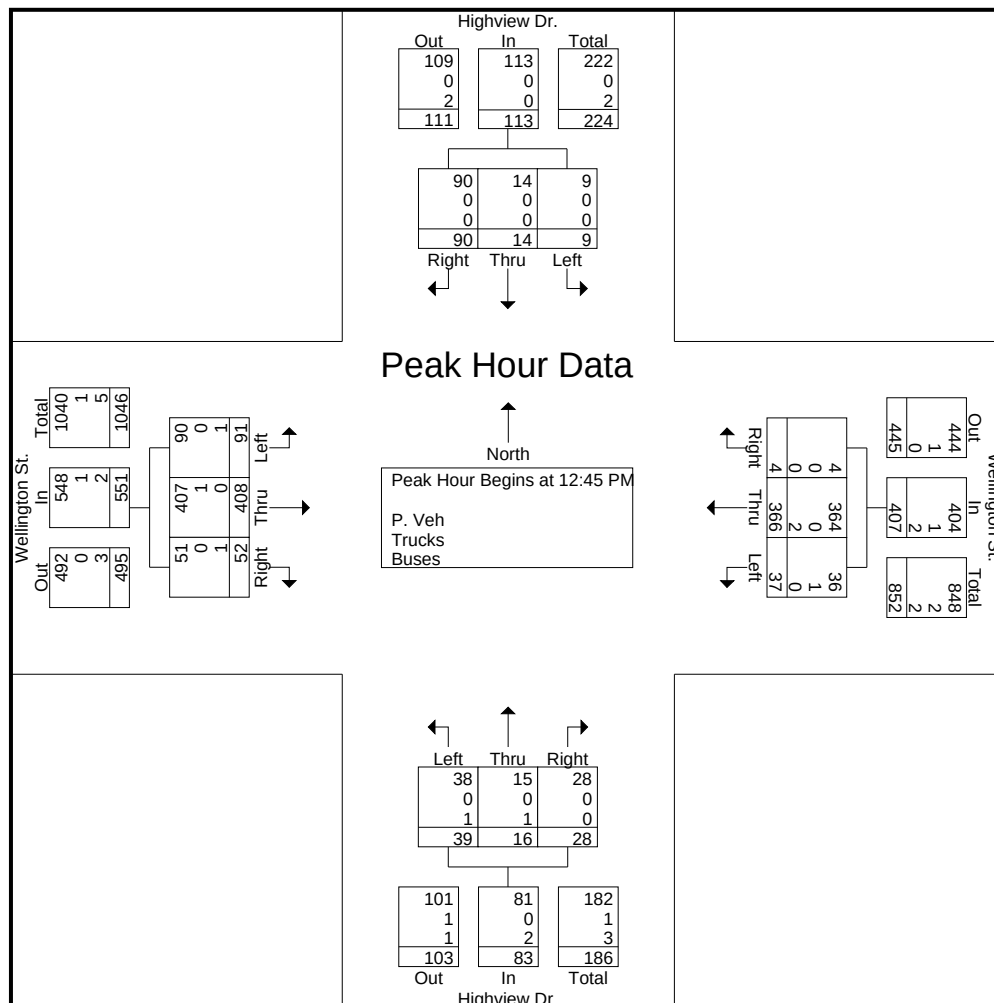
Groups Printed- P. Veh - Trucks - Buses

	Wellington St. E/B					Wellington St. W/B					Highview Dr. N/B					Highview Dr. S/B							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
10:00 AM	33	97	4	(0)	134	5	68	4	(2)	77	13	2	6	(1)	21	2	3	25	(0)	30	3	262	265
10:15 AM	28	107	11	(1)	146	9	75	1	(1)	85	24	4	5	(0)	33	2	5	15	(0)	22	2	286	288
10:30 AM	14	74	2	(0)	90	4	75	0	(1)	79	10	2	6	(2)	18	1	5	15	(0)	21	3	208	211
10:45 AM	12	87	3	(1)	102	7	85	1	(0)	93	11	1	4	(1)	16	1	5	21	(0)	27	2	238	240
Total	87	365	20	(2)	472	25	303	6	(4)	334	58	9	21	(4)	88	6	18	76	(0)	100	10	994	1004
11:00 AM	18	118	14	(0)	150	8	86	1	(2)	95	11	6	7	(1)	24	0	6	19	(0)	25	3	294	297
11:15 AM	14	104	8	(0)	126	14	90	4	(0)	108	8	4	9	(1)	21	1	3	18	(0)	22	1	277	278
11:30 AM	18	86	11	(1)	115	10	76	2	(1)	88	13	2	13	(2)	28	2	5	26	(0)	33	4	264	268
11:45 AM	21	96	11	(1)	128	8	103	3	(1)	114	8	2	6	(1)	16	0	2	22	(3)	24	6	282	288
Total	71	404	44	(2)	519	40	355	10	(4)	405	40	14	35	(5)	89	3	16	85	(3)	104	14	1117	1131
12:00 PM	33	107	7	(3)	147	6	91	0	(3)	97	13	3	7	(3)	23	0	6	25	(0)	31	9	298	307
12:15 PM	25	91	12	(1)	128	8	105	2	(1)	115	12	3	4	(0)	19	2	2	26	(0)	30	2	292	294
12:30 PM	19	91	6	(0)	116	5	79	0	(0)	84	10	4	6	(0)	20	2	7	21	(0)	30	0	250	250
12:45 PM	26	98	19	(1)	143	5	108	0	(2)	113	9	3	4	(1)	16	3	3	17	(0)	23	4	295	299
Total	103	387	44	(5)	534	24	383	2	(6)	409	44	13	21	(4)	78	7	18	89	(0)	114	15	1135	1150
01:00 PM	23	114	16	(1)	153	13	75	2	(1)	90	13	6	7	(2)	26	4	3	22	(1)	29	5	298	303
01:15 PM	25	89	7	(1)	121	11	91	0	(0)	102	7	3	9	(4)	19	2	6	25	(0)	33	5	275	280
01:30 PM	17	107	10	(0)	134	8	92	2	(5)	102	10	4	8	(0)	22	0	2	26	(3)	28	8	286	294
01:45 PM	20	101	7	(0)	128	4	89	2	(2)	95	7	2	4	(2)	13	0	3	27	(5)	30	9	266	275
Total	85	411	40	(2)	536	36	347	6	(8)	389	37	15	28	(8)	80	6	14	100	(9)	120	27	1125	1152
Grand Total	346	1567	148	(11)	2061	125	1388	24	(22)	1537	179	51	105	(21)	335	22	66	350	(12)	438	66	4371	4437
Apprch %	16.8	76	7.2			8.1	90.3	1.6			53.4	15.2	31.3			5	15.1	79.9					
Total %	7.9	35.8	3.4		47.2	2.9	31.8	0.5		35.2	4.1	1.2	2.4		7.7	0.5	1.5	8		10	1.5	98.5	
P. Veh	339	1562	144		2056	123	1378	24		1547	175	50	105		351	22	66	347		447	0	0	4401
% P. Veh	98	99.7	97.3	100	99.2	98.4	99.3	100	100	99.2	97.8	98	100	100	98.6	100	100	99.1	100	99.3	0	0	99.2
Trucks	0	3	0		3	2	3	0		5	0	0	0		0	0	0	3		3	0	0	11
% Trucks	0	0.2	0	0	0.1	1.6	0.2	0	0	0.3	0	0	0	0	0	0	0	0.9	0	0.7	0	0	0.2
Buses	7	2	4		13	0	7	0		7	4	1	0		5	0	0	0		0	0	0	25
% Buses	2	0.1	2.7	0	0.6	0	0.5	0	0	0.4	2.2	2	0	0	1.4	0	0	0	0	0	0	0	0.6





	Wellington St. E/B				Wellington St. W/B				Highview Dr. N/B				Highview Dr. S/B				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:45 PM																	
12:45 PM	26	98	19	143	5	108	0	113	9	3	4	16	3	3	17	23	295
01:00 PM	23	114	16	153	13	75	2	90	13	6	7	26	4	3	22	29	298
01:15 PM	25	89	7	121	11	91	0	102	7	3	9	19	2	6	25	33	275
01:30 PM	17	107	10	134	8	92	2	102	10	4	8	22	0	2	26	28	286
Total Volume	91	408	52	551	37	366	4	407	39	16	28	83	9	14	90	113	1154
% App. Total	16.5	74	9.4		9.1	89.9	1		47	19.3	33.7		8	12.4	79.6		
PHF	.875	.895	.684	.900	.712	.847	.500	.900	.750	.667	.778	.798	.563	.583	.865	.856	.968
P. Veh	90	407	51	548	36	364	4	404	38	15	28	81	9	14	90	113	1146
% P. Veh	98.9	99.8	98.1	99.5	97.3	99.5	100	99.3	97.4	93.8	100	97.6	100	100	100	100	99.3
Trucks	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	2
% Trucks	0	0.2	0	0.2	2.7	0	0	0.2	0	0	0	0	0	0	0	0	0.2
Buses	1	0	1	2	0	2	0	2	1	1	0	2	0	0	0	0	6
% Buses	1.1	0	1.9	0.4	0	0.5	0	0.5	2.6	6.3	0	2.4	0	0	0	0	0.5



Date: 29 May 2025

Counted By: Nicholas M. / A. Blata

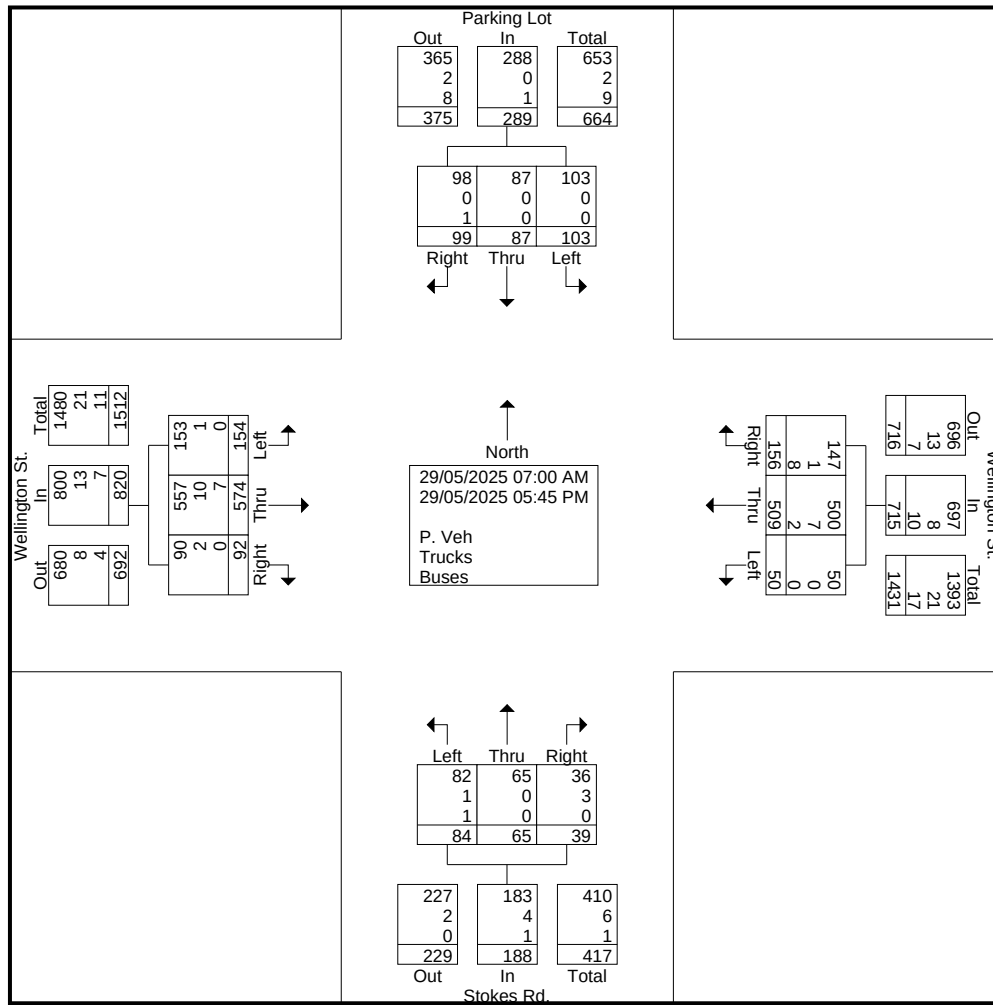
Weather Conditions: Cloudy

Wellington St. at Stokes Rd.

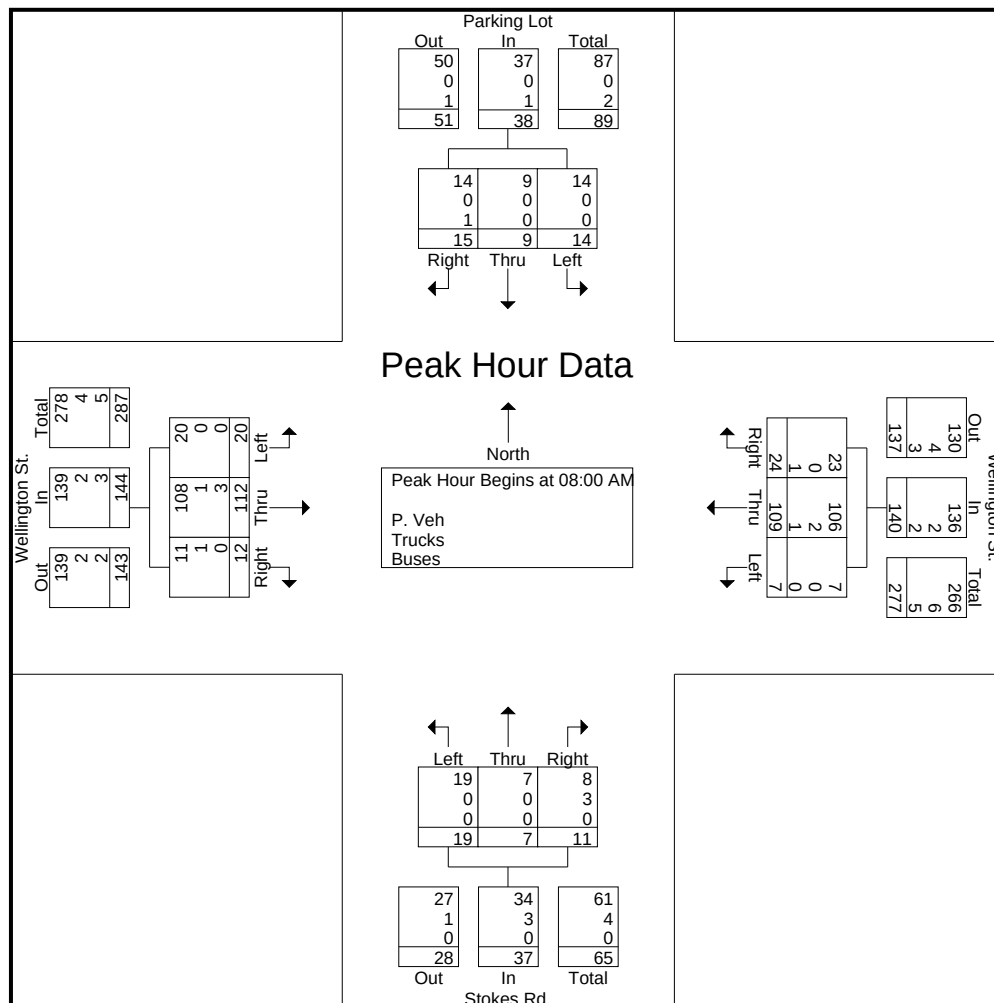
Groups Printed- P. Veh - Trucks - Buses

	Wellington St. E/B					Wellington St. W/B					Stokes Rd. N/B					Parking Lot S/B					Exclu. Total	Inclu. Total	Int. Total
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total			
07:00 AM	0	18	3	(0)	21	2	16	1	(0)	19	4	0	3	(0)	7	1	1	0	(0)	2	0	49	49
07:15 AM	2	21	2	(1)	25	1	14	3	(0)	18	4	4	3	(0)	11	2	2	2	(0)	6	1	60	61
07:30 AM	3	23	2	(0)	28	1	20	3	(0)	24	3	2	3	(1)	8	2	1	0	(0)	3	1	63	64
07:45 AM	7	34	4	(0)	45	2	18	4	(0)	24	5	1	3	(1)	9	2	0	0	(0)	2	1	80	81
Total	12	96	11	(1)	119	6	68	11	(0)	85	16	7	12	(2)	35	7	4	2	(0)	13	3	252	255
08:00 AM	1	27	2	(0)	30	1	26	4	(1)	31	3	2	5	(0)	10	4	2	4	(0)	10	1	81	82
08:15 AM	5	27	2	(0)	34	3	25	5	(0)	33	8	3	2	(0)	13	1	2	3	(0)	6	0	86	86
08:30 AM	6	30	4	(1)	40	1	24	6	(1)	31	4	2	3	(0)	9	3	3	3	(0)	9	2	89	91
08:45 AM	8	28	4	(2)	40	2	34	9	(1)	45	4	0	1	(1)	5	6	2	5	(1)	13	5	103	108
Total	20	112	12	(3)	144	7	109	24	(3)	140	19	7	11	(1)	37	14	9	15	(1)	38	8	359	367
*** BREAK ***																							
04:00 PM	14	55	8	(0)	77	2	34	7	(1)	43	8	14	2	(2)	24	10	10	6	(0)	26	3	170	173
04:15 PM	17	48	8	(3)	73	7	37	14	(0)	58	6	7	3	(3)	16	8	10	15	(2)	33	8	180	188
04:30 PM	14	51	7	(1)	72	5	35	15	(2)	55	8	3	4	(1)	15	16	6	12	(8)	34	12	176	188
04:45 PM	19	44	12	(3)	75	4	45	15	(0)	64	7	7	0	(1)	14	13	8	11	(2)	32	6	185	191
Total	64	198	35	(7)	297	18	151	51	(3)	220	29	31	9	(7)	69	47	34	44	(12)	125	29	711	740
05:00 PM	13	48	9	(0)	70	5	58	22	(0)	85	5	2	3	(3)	10	11	6	12	(1)	29	4	194	198
05:15 PM	16	44	11	(1)	71	6	40	14	(3)	60	4	6	2	(3)	12	11	11	9	(4)	31	11	174	185
05:30 PM	17	35	6	(0)	58	3	49	13	(2)	65	8	6	2	(3)	16	3	15	10	(6)	28	11	167	178
05:45 PM	12	41	8	(0)	61	5	34	21	(2)	60	3	6	0	(0)	9	10	8	7	(2)	25	4	155	159
Total	58	168	34	(1)	260	19	181	70	(7)	270	20	20	7	(9)	47	35	40	38	(13)	113	30	690	720
Grand Total	154	574	92	(12)	820	50	509	156	(13)	715	84	65	39	(19)	188	103	87	99	(26)	289	70	2012	2082
Apprch %	18.8	70	11.2			7	71.2	21.8			44.7	34.6	20.7			35.6	30.1	34.3					
Total %	7.7	28.5	4.6		40.8	2.5	25.3	7.8		35.5	4.2	3.2	1.9		9.3	5.1	4.3	4.9		14.4	3.4	96.6	
P. Veh	153	557	90		812	50	500	147		710	82	65	36		202	103	87	98		314	0	0	2038
% P. Veh	99.4	97	97.8	100	97.6	100	98.2	94.2	100	97.5	97.6	100	92.3	100	97.6	100	100	99	100	99.7	0	0	97.9
Trucks	1	10	2		13	0	7	1		8	1	0	3		4	0	0	0		0	0	0	25
% Trucks	0.6	1.7	2.2	0	1.6	0	1.4	0.6	0	1.1	1.2	0	7.7	0	1.9	0	0	0	0	0	0	0	1.2
Buses	0	7	0		7	0	2	8		10	1	0	0		1	0	0	1		1	0	0	19
% Buses	0	1.2	0	0	0.8	0	0.4	5.1	0	1.4	1.2	0	0	0	0.5	0	0	1	0	0.3	0	0	0.9





	Wellington St. E/B				Wellington St. W/B				Stokes Rd. N/B				Parking Lot S/B				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	1	27	2	30	1	26	4	31	3	2	5	10	4	2	4	10	81
08:15 AM	5	27	2	34	3	25	5	33	8	3	2	13	1	2	3	6	86
08:30 AM	6	30	4	40	1	24	6	31	4	2	3	9	3	3	3	9	89
08:45 AM	8	28	4	40	2	34	9	45	4	0	1	5	6	2	5	13	103
Total Volume	20	112	12	144	7	109	24	140	19	7	11	37	14	9	15	38	359
% App. Total	13.9	77.8	8.3		5	77.9	17.1		51.4	18.9	29.7		36.8	23.7	39.5		
PHF	.625	.933	.750	.900	.583	.801	.667	.778	.594	.583	.550	.712	.583	.750	.750	.731	.871
P. Veh	20	108	11	139	7	106	23	136	19	7	8	34	14	9	14	37	346
% P. Veh	100	96.4	91.7	96.5	100	97.2	95.8	97.1	100	100	72.7	91.9	100	100	93.3	97.4	96.4
Trucks	0	1	1	2	0	2	0	2	0	0	3	3	0	0	0	0	7
% Trucks	0	0.9	8.3	1.4	0	1.8	0	1.4	0	0	27.3	8.1	0	0	0	0	1.9
Buses	0	3	0	3	0	1	1	2	0	0	0	0	0	0	1	1	6
% Buses	0	2.7	0	2.1	0	0.9	4.2	1.4	0	0	0	0	0	0	6.7	2.6	1.7

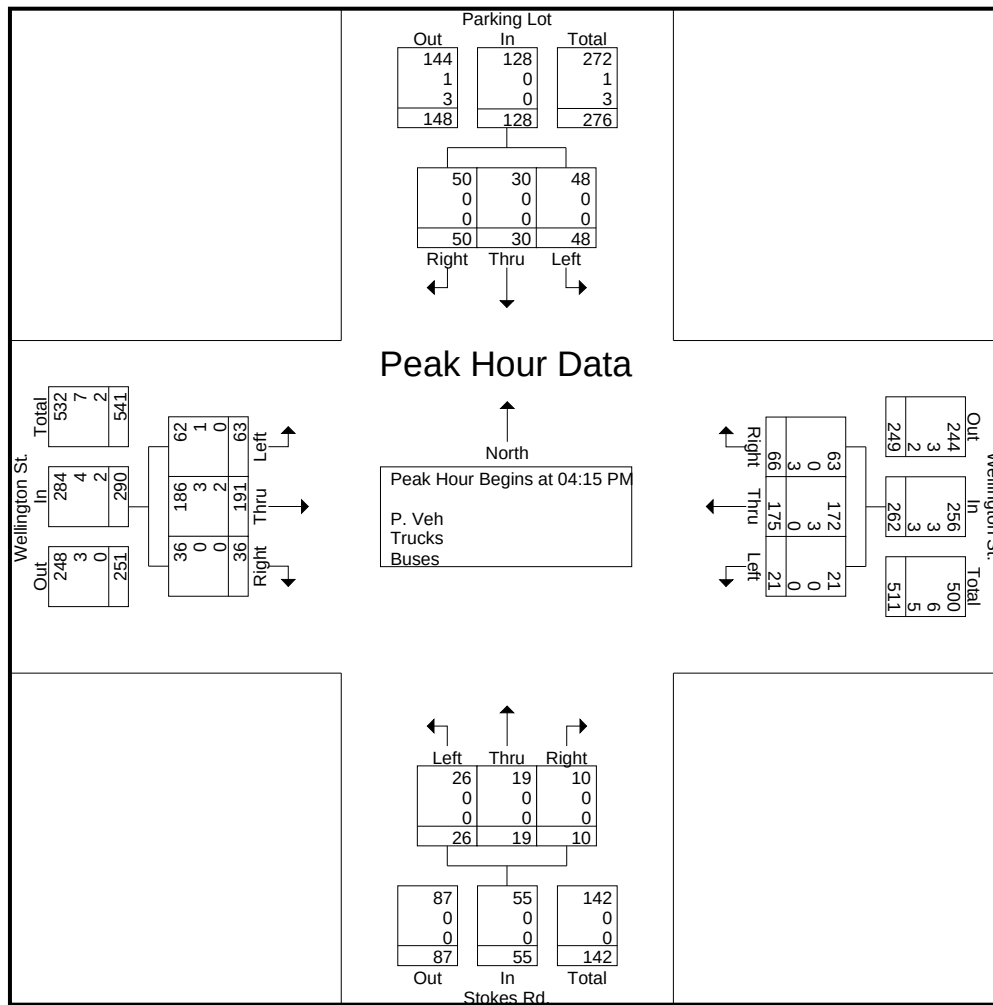


	Wellington St. E/B				Wellington St. W/B				Stokes Rd. N/B				Parking Lot S/B				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:15 PM

04:15 PM	17	48	8	73	7	37	14	58	6	7	3	16	8	10	15	33	180
04:30 PM	14	51	7	72	5	35	15	55	8	3	4	15	16	6	12	34	176
04:45 PM	19	44	12	75	4	45	15	64	7	7	0	14	13	8	11	32	185
05:00 PM	13	48	9	70	5	58	22	85	5	2	3	10	11	6	12	29	194
Total Volume	63	191	36	290	21	175	66	262	26	19	10	55	48	30	50	128	735
% App. Total	21.7	65.9	12.4		8	66.8	25.2		47.3	34.5	18.2		37.5	23.4	39.1		
PHF	.829	.936	.750	.967	.750	.754	.750	.771	.813	.679	.625	.859	.750	.750	.833	.941	.947
P. Veh	62	186	36	284	21	172	63	256	26	19	10	55	48	30	50	128	723
% P. Veh	98.4	97.4	100	97.9	100	98.3	95.5	97.7	100	100	100	100	100	100	100	100	98.4
Trucks	1	3	0	4	0	3	0	3	0	0	0	0	0	0	0	0	7
% Trucks	1.6	1.6	0	1.4	0	1.7	0	1.1	0	0	0	0	0	0	0	0	1.0
Buses	0	2	0	2	0	0	3	3	0	0	0	0	0	0	0	0	5
% Buses	0	1.0	0	0.7	0	0	4.5	1.1	0	0	0	0	0	0	0	0	0.7

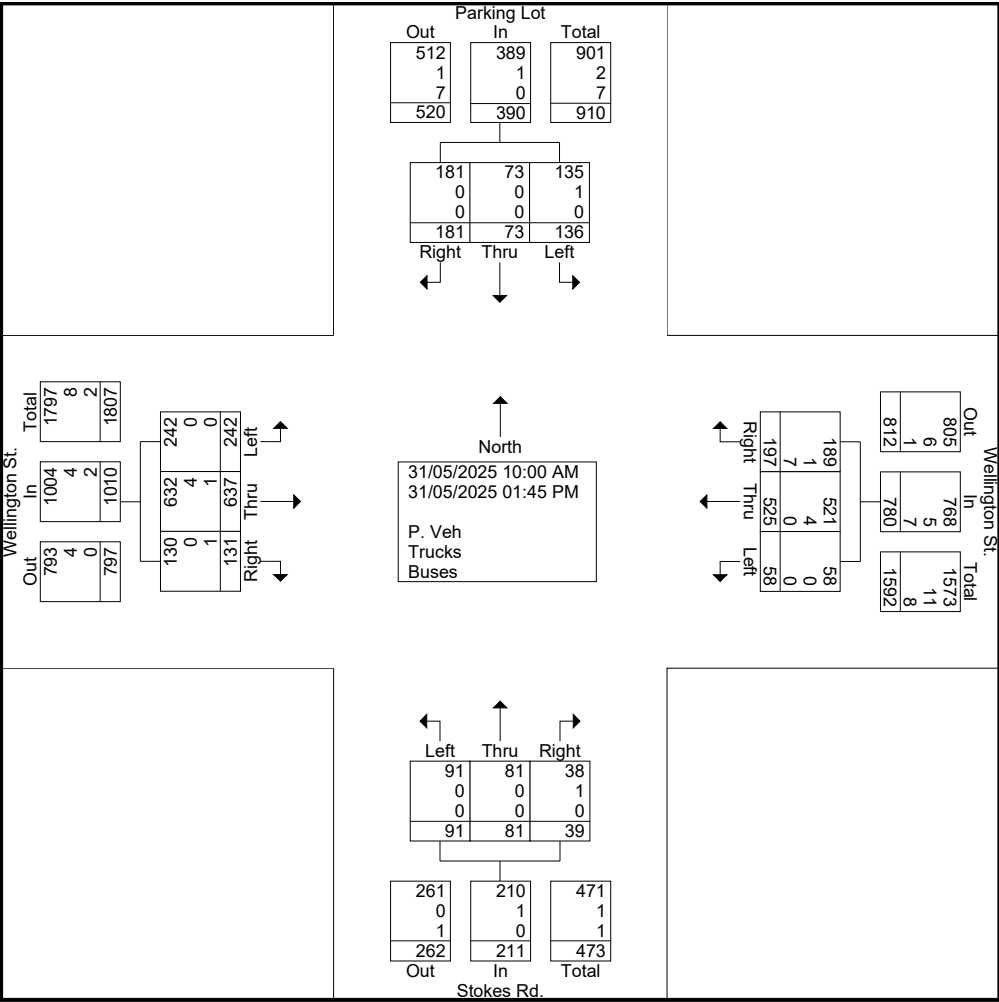


Date: 31 May 2025
Counted By: Nicholas M. / A. Blata
Weather Conditions: Cloudy
Wellington St. at Stokes Rd.

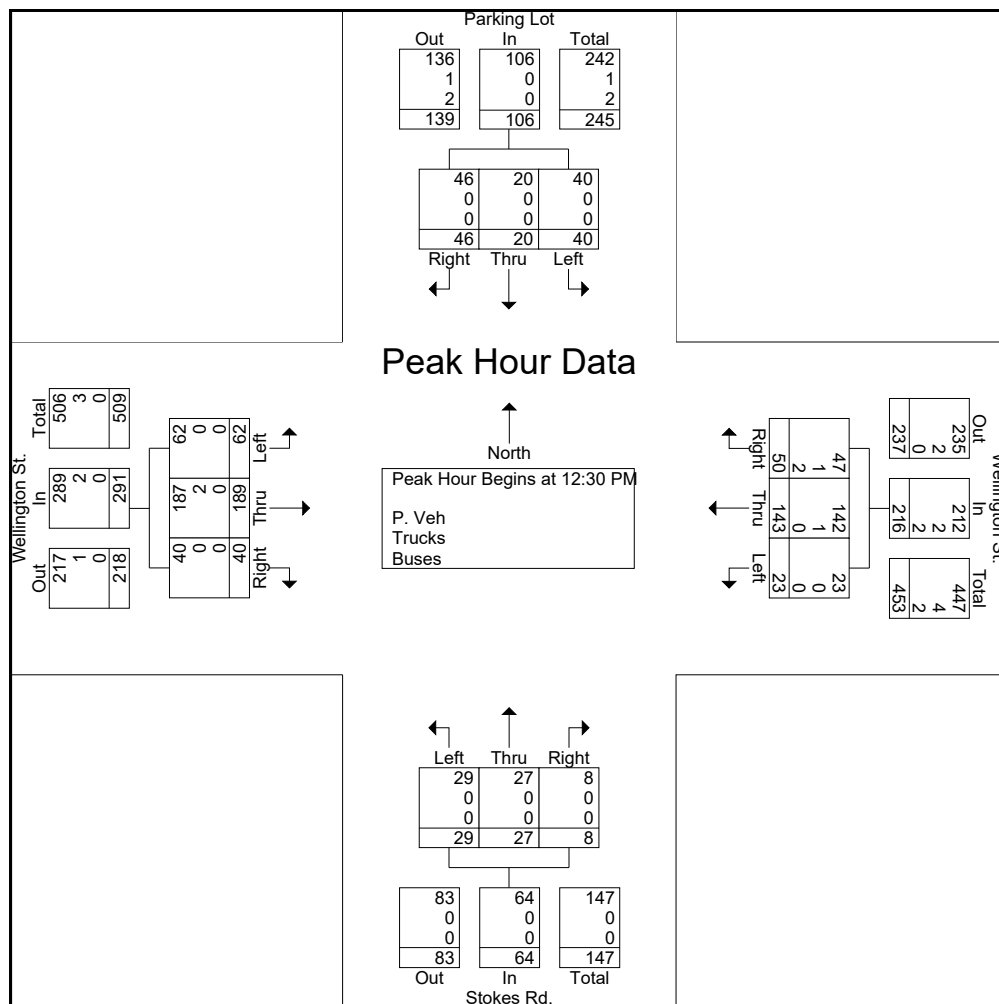
Groups Printed- P. Veh - Trucks - Buses

	Wellington St. E/B					Wellington St. W/B					Stokes Rd. N/B					Parking Lot S/B							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
10:00 AM	25	39	8	(0)	72	1	32	21	(0)	54	4	7	3	(1)	14	4	2	7	(0)	13	1	153	154
10:15 AM	11	40	10	(2)	61	1	26	13	(0)	40	7	3	4	(0)	14	5	8	12	(1)	25	3	140	143
10:30 AM	12	34	6	(1)	52	3	30	10	(2)	43	2	1	1	(2)	4	10	6	10	(2)	26	7	125	132
10:45 AM	12	31	8	(0)	51	7	40	12	(0)	59	6	5	3	(3)	14	4	3	14	(0)	21	3	145	148
Total	60	144	32	(3)	236	12	128	56	(2)	196	19	16	11	(6)	46	23	19	43	(3)	85	14	563	577
11:00 AM	23	44	5	(0)	72	6	33	10	(1)	49	7	6	4	(2)	17	10	5	9	(0)	24	3	162	165
11:15 AM	19	42	9	(0)	70	1	33	11	(1)	45	6	5	2	(0)	13	13	4	12	(1)	29	2	157	159
11:30 AM	12	30	4	(0)	46	0	33	13	(0)	46	5	3	3	(4)	11	9	3	8	(3)	20	7	123	130
11:45 AM	19	43	4	(0)	66	3	33	13	(2)	49	7	3	2	(0)	12	12	6	15	(0)	33	2	160	162
Total	73	159	22	(0)	254	10	132	47	(4)	189	25	17	11	(6)	53	44	18	44	(4)	106	14	602	616
12:00 PM	12	47	10	(0)	69	2	36	12	(1)	50	3	5	3	(3)	11	8	5	9	(0)	22	4	152	156
12:15 PM	13	37	7	(0)	57	3	32	13	(0)	48	3	6	4	(1)	13	8	4	19	(1)	31	2	149	151
12:30 PM	18	35	6	(0)	59	4	30	14	(2)	48	7	5	1	(1)	13	12	4	16	(2)	32	5	152	157
12:45 PM	9	43	11	(0)	63	4	37	14	(0)	55	8	9	2	(0)	19	11	5	8	(2)	24	2	161	163
Total	52	162	34	(0)	248	13	135	53	(3)	201	21	25	10	(5)	56	39	18	52	(5)	109	13	614	627
01:00 PM	21	50	11	(0)	82	7	30	9	(1)	46	4	5	3	(1)	12	13	2	8	(2)	23	4	163	167
01:15 PM	14	61	12	(0)	87	8	46	13	(0)	67	10	8	2	(1)	20	4	9	14	(3)	27	4	201	205
01:30 PM	8	21	10	(0)	39	5	23	11	(0)	39	5	6	1	(4)	12	5	3	7	(3)	15	7	105	112
01:45 PM	14	40	10	(0)	64	3	31	8	(0)	42	7	4	1	(1)	12	8	4	13	(1)	25	2	143	145
Total	57	172	43	(0)	272	23	130	41	(1)	194	26	23	7	(7)	56	30	18	42	(9)	90	17	612	629
Grand Total	242	637	131	(3)	1010	58	525	197	(10)	780	91	81	39	(24)	211	136	73	181	(21)	390	58	2391	2449
Apprch %	24	63.1	13			7.4	67.3	25.3			43.1	38.4	18.5			34.9	18.7	46.4					
Total %	10.1	26.6	5.5		42.2	2.4	22	8.2		32.6	3.8	3.4	1.6		8.8	5.7	3.1	7.6		16.3	2.4	97.6	
P. Veh	242	632	130		1007	58	521	189		778	91	81	38		234	135	73	181		410	0	0	2429
% P. Veh	100	99.2	99.2	100	99.4	100	99.2	95.9	100	98.5	100	100	97.4	100	99.6	99.3	100	100	100	99.8	0	0	99.2
Trucks	0	4	0		4	0	4	1		5	0	0	1		1	1	0	0		1	0	0	11
% Trucks	0	0.6	0	0	0.4	0	0.8	0.5	0	0.6	0	0	2.6	0	0.4	0.7	0	0	0	0.2	0	0	0.4
Buses	0	1	1		2	0	0	7		7	0	0	0		0	0	0	0		0	0	0	9
% Buses	0	0.2	0.8	0	0.2	0	0	3.6	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0.4





	Wellington St. E/B				Wellington St. W/B				Stokes Rd. N/B				Parking Lot S/B				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:30 PM																	
12:30 PM	18	35	6	59	4	30	14	48	7	5	1	13	12	4	16	32	152
12:45 PM	9	43	11	63	4	37	14	55	8	9	2	19	11	5	8	24	161
01:00 PM	21	50	11	82	7	30	9	46	4	5	3	12	13	2	8	23	163
01:15 PM	14	61	12	87	8	46	13	67	10	8	2	20	4	9	14	27	201
Total Volume	62	189	40	291	23	143	50	216	29	27	8	64	40	20	46	106	677
% App. Total	21.3	64.9	13.7		10.6	66.2	23.1		45.3	42.2	12.5		37.7	18.9	43.4		
PHF	.738	.775	.833	.836	.719	.777	.893	.806	.725	.750	.667	.800	.769	.556	.719	.828	.842
P. Veh	62	187	40	289	23	142	47	212	29	27	8	64	40	20	46	106	671
% P. Veh	100	98.9	100	99.3	100	99.3	94.0	98.1	100	100	100	100	100	100	100	100	99.1
Trucks	0	2	0	2	0	1	1	2	0	0	0	0	0	0	0	0	4
% Trucks	0	1.1	0	0.7	0	0.7	2.0	0.9	0	0	0	0	0	0	0	0	0.6
Buses	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	2
% Buses	0	0	0	0	0	0	4.0	0.9	0	0	0	0	0	0	0	0	0.3



Date: 29 May 2025

Counted By: Kristian R. / A. Blata

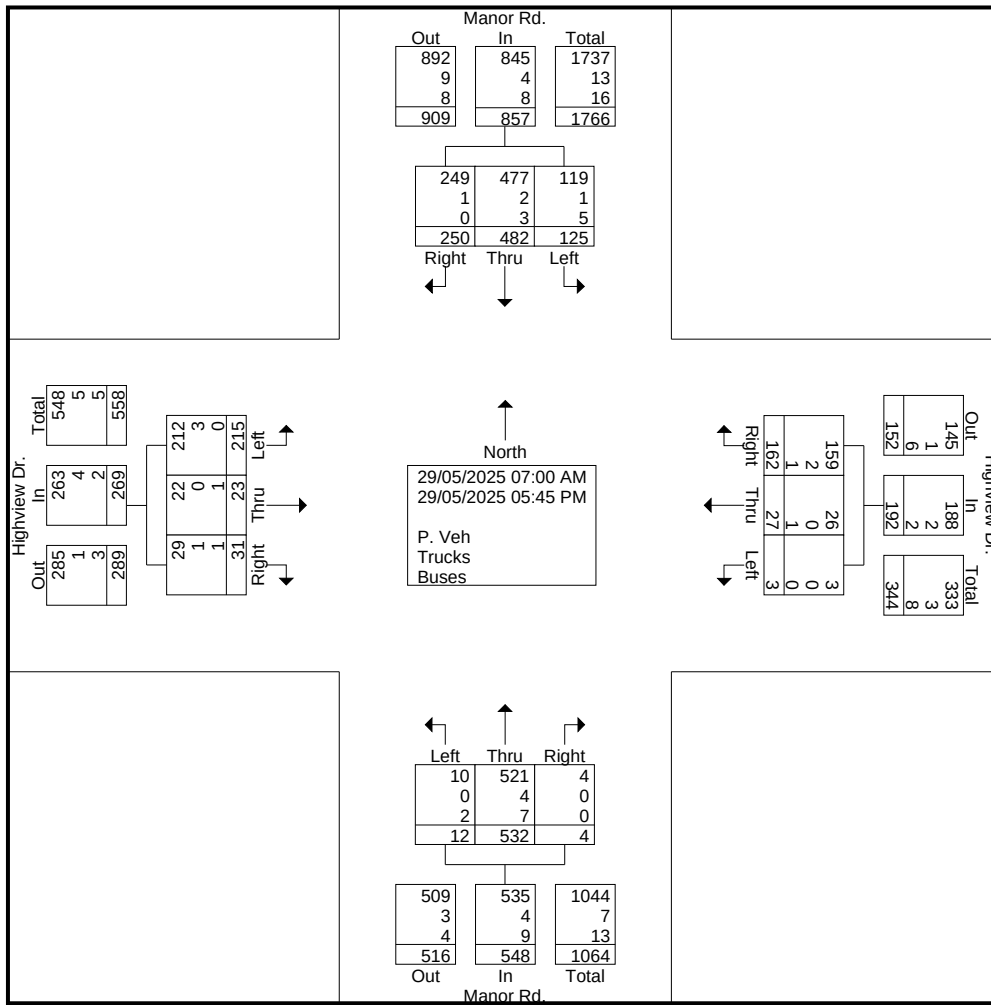
Weather Conditions: Cloudy

Manor Rd. at Highview Dr.

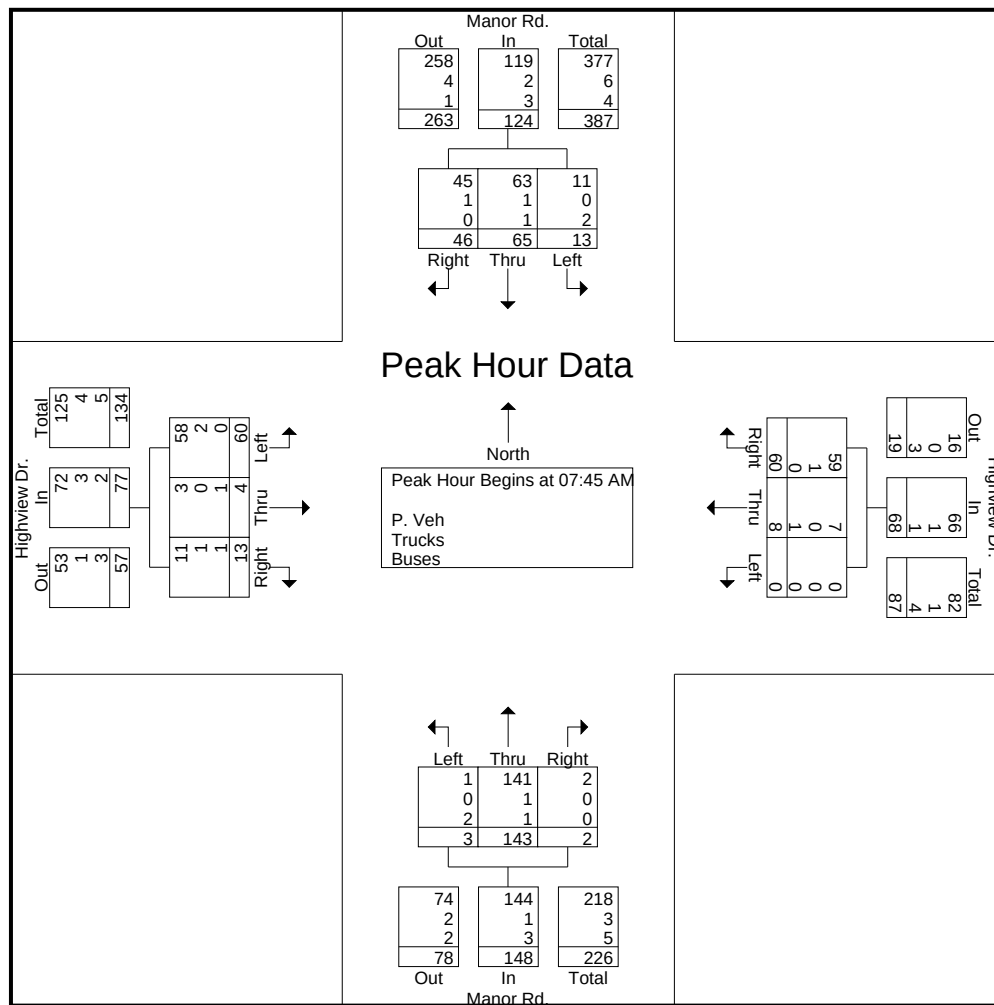
Groups Printed- P. Veh - Trucks - Buses

Start Time	Highview Dr. E/B					Highview Dr. W/B					Manor Rd. N/B					Manor Rd. S/B					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total			
07:00 AM	19	0	1	(0)	20	0	0	7	(4)	7	0	35	0	(2)	35	7	15	5	(0)	27	6	89	95
07:15 AM	23	0	1	(2)	24	0	0	16	(0)	16	0	45	0	(0)	45	6	16	8	(0)	30	2	115	117
07:30 AM	8	0	1	(1)	9	0	0	10	(0)	10	1	35	0	(0)	36	1	14	4	(0)	19	1	74	75
07:45 AM	14	1	3	(0)	18	0	2	16	(3)	18	0	47	0	(3)	47	5	17	6	(0)	28	6	111	117
Total	64	1	6	(3)	71	0	2	49	(7)	51	1	162	0	(5)	163	19	62	23	(0)	104	15	389	404
08:00 AM	17	2	2	(2)	21	0	2	14	(0)	16	1	27	1	(0)	29	4	15	12	(1)	31	3	97	100
08:15 AM	16	0	5	(0)	21	0	2	16	(2)	18	2	38	0	(0)	40	1	15	20	(0)	36	2	115	117
08:30 AM	13	1	3	(0)	17	0	2	14	(0)	16	0	31	1	(0)	32	3	18	8	(1)	29	1	94	95
08:45 AM	11	2	3	(0)	16	1	2	8	(0)	11	0	41	0	(1)	41	2	24	9	(1)	35	2	103	105
Total	57	5	13	(2)	75	1	8	52	(2)	61	3	137	2	(1)	142	10	72	49	(3)	131	8	409	417
*** BREAK ***																							
04:00 PM	11	3	2	(0)	16	0	3	6	(6)	9	0	26	0	(0)	26	11	47	21	(0)	79	6	130	136
04:15 PM	8	1	1	(0)	10	0	2	8	(3)	10	2	36	1	(0)	39	12	45	21	(0)	78	3	137	140
04:30 PM	16	3	1	(0)	20	2	1	10	(1)	13	2	29	0	(0)	31	6	52	29	(0)	87	1	151	152
04:45 PM	11	4	3	(1)	18	0	1	8	(2)	9	1	27	0	(1)	28	13	51	23	(0)	87	4	142	146
Total	46	11	7	(1)	64	2	7	32	(12)	41	5	118	1	(1)	124	42	195	94	(0)	331	14	560	574
05:00 PM	15	0	2	(0)	17	0	2	6	(0)	8	1	32	1	(3)	34	12	43	28	(0)	83	3	142	145
05:15 PM	11	2	1	(0)	14	0	2	6	(0)	8	0	27	0	(1)	27	15	31	23	(0)	69	1	118	119
05:30 PM	14	2	2	(0)	18	0	2	7	(0)	9	1	24	0	(0)	25	15	48	16	(0)	79	0	131	131
05:45 PM	8	2	0	(0)	10	0	4	10	(2)	14	1	32	0	(0)	33	12	31	17	(1)	60	3	117	120
Total	48	6	5	(0)	59	0	10	29	(2)	39	3	115	1	(4)	119	54	153	84	(1)	291	7	508	515
Grand Total	215	23	31	(6)	269	3	27	162	(23)	192	12	532	4	(11)	548	125	482	250	(4)	857	44	1866	1910
Apprch %	79.9	8.6	11.5			1.6	14.1	84.4			2.2	97.1	0.7			14.6	56.2	29.2					
Total %	11.5	1.2	1.7		14.4	0.2	1.4	8.7		10.3	0.6	28.5	0.2		29.4	6.7	25.8	13.4		45.9	2.3	97.7	
P. Veh	212	22	29		269	3	26	159		211	10	521	4		546	119	477	249		849	0	0	1875
% P. Veh	98.6	95.7	93.5		97.8	100	96.3	98.1		98.1	83.3	97.9	100		97.7	95.2	99	99.6		98.6	0	0	98.2
Trucks	3	0	1		4	0	0	2		2	0	4	0		4	1	2	1		4	0	0	14
% Trucks	1.4	0	3.2		1.5	0	0	1.2		0.9	0	0.8	0		0.7	0.8	0.4	0.4		0.5	0	0	0.7
Buses	0	1	1		2	0	1	1		2	2	7	0		9	5	3	0		8	0	0	21
% Buses	0	4.3	3.2		0.7	0	3.7	0.6		0.9	16.7	1.3	0		1.6	4	0.6	0		0.9	0	0	1.1





	Highview Dr. E/B				Highview Dr. W/B				Manor Rd. N/B				Manor Rd. S/B				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	14	1	3	18	0	2	16	18	0	47	0	47	5	17	6	28	111
08:00 AM	17	2	2	21	0	2	14	16	1	27	1	29	4	15	12	31	97
08:15 AM	16	0	5	21	0	2	16	18	2	38	0	40	1	15	20	36	115
08:30 AM	13	1	3	17	0	2	14	16	0	31	1	32	3	18	8	29	94
Total Volume	60	4	13	77	0	8	60	68	3	143	2	148	13	65	46	124	417
% App. Total	77.9	5.2	16.9		0	11.8	88.2		2	96.6	1.4		10.5	52.4	37.1		
PHF	.882	.500	.650	.917	.000	1.00	.938	.944	.375	.761	.500	.787	.650	.903	.575	.861	.907
P. Veh	58	3	11	72	0	7	59	66	1	141	2	144	11	63	45	119	401
% P. Veh	96.7	75.0	84.6	93.5	0	87.5	98.3	97.1	33.3	98.6	100	97.3	84.6	96.9	97.8	96.0	96.2
Trucks	2	0	1	3	0	0	1	1	0	1	0	1	0	1	1	2	7
% Trucks	3.3	0	7.7	3.9	0	0	1.7	1.5	0	0.7	0	0.7	0	1.5	2.2	1.6	1.7
Buses	0	1	1	2	0	1	0	1	2	1	0	3	2	1	0	3	9
% Buses	0	25.0	7.7	2.6	0	12.5	0	1.5	66.7	0.7	0	2.0	15.4	1.5	0	2.4	2.2

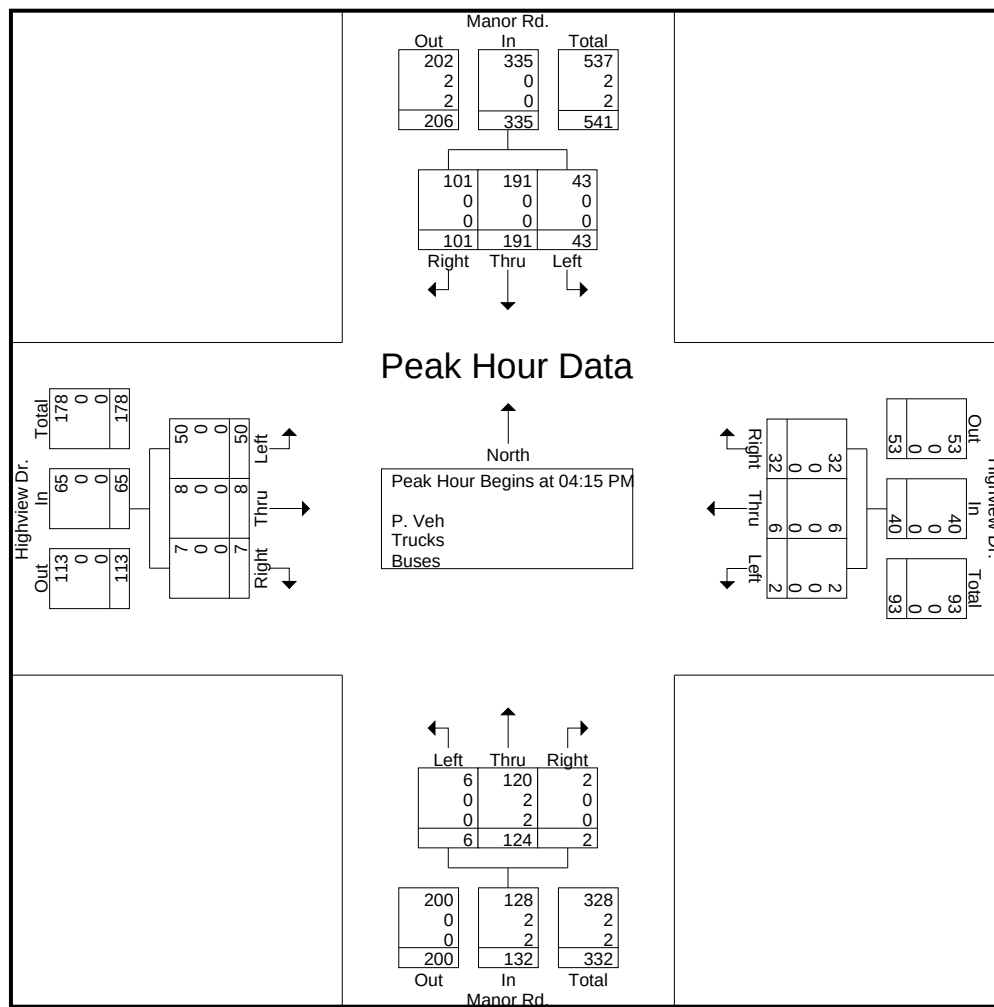


	Highview Dr. E/B				Highview Dr. W/B				Manor Rd. N/B				Manor Rd. S/B				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:15 PM

04:15 PM	8	1	1	10	0	2	8	10	2	36	1	39	12	45	21	78	137
04:30 PM	16	3	1	20	2	1	10	13	2	29	0	31	6	52	29	87	151
04:45 PM	11	4	3	18	0	1	8	9	1	27	0	28	13	51	23	87	142
05:00 PM	15	0	2	17	0	2	6	8	1	32	1	34	12	43	28	83	142
Total Volume	50	8	7	65	2	6	32	40	6	124	2	132	43	191	101	335	572
% App. Total	76.9	12.3	10.8		5	15	80		4.5	93.9	1.5		12.8	57	30.1		
PHF	.781	.500	.583	.813	.250	.750	.800	.769	.750	.861	.500	.846	.827	.918	.871	.963	.947
P. Veh	50	8	7	65	2	6	32	40	6	120	2	128	43	191	101	335	568
% P. Veh	100	100	100	100	100	100	100	100	100	96.8	100	97.0	100	100	100	100	99.3
Trucks	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
% Trucks	0	0	0	0	0	0	0	0	0	1.6	0	1.5	0	0	0	0	0.3
Buses	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
% Buses	0	0	0	0	0	0	0	0	0	1.6	0	1.5	0	0	0	0	0.3

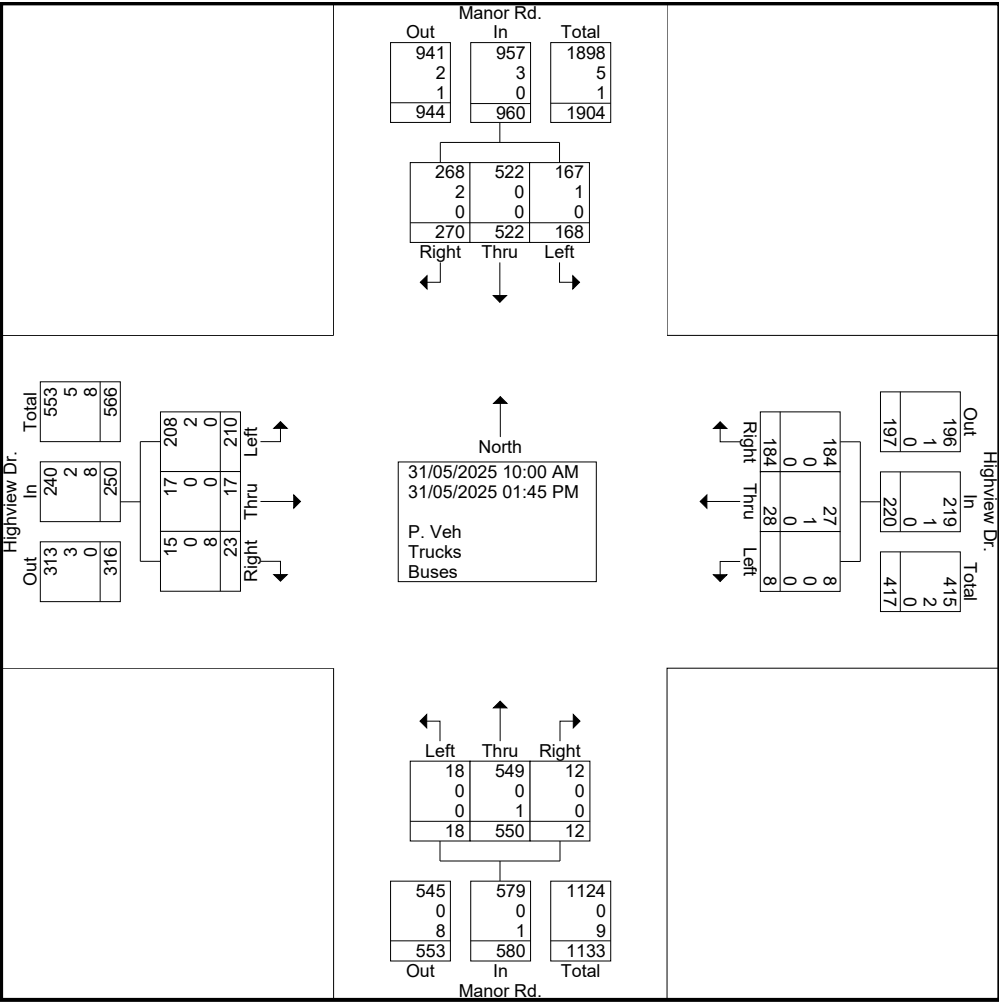


Date: 31 May 2025
Counted By: Nicholas M. / A. Blata
Weather Conditions: Cloudy
Highview Dr. at Manor Rd.

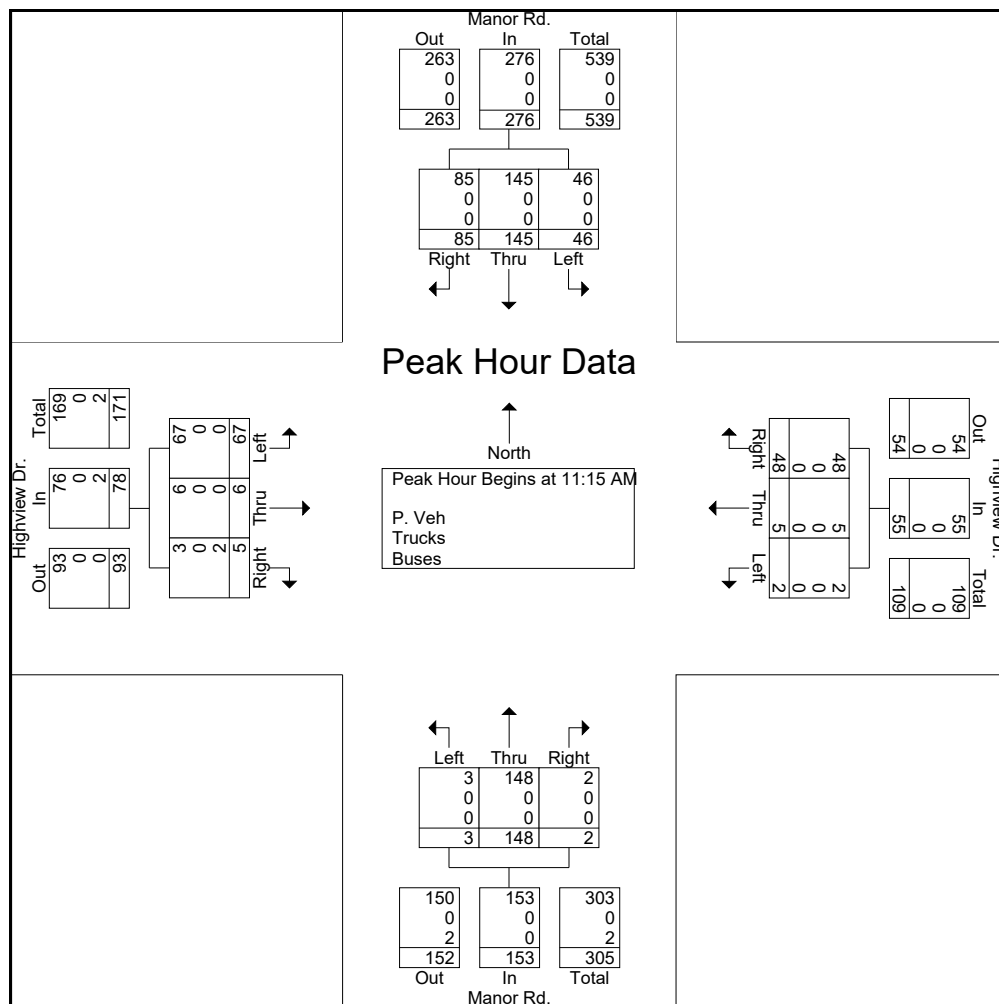
Groups Printed- P. Veh - Trucks - Buses

Start Time	Highview Dr. E/B					Highview Dr. W/B					Manor Rd. N/B					Manor Rd. S/B					Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total			
10:00 AM	10	0	3	(0)	13	1	2	14	(1)	17	2	39	1	(0)	42	8	23	12	(0)	43	1	115	116
10:15 AM	17	1	0	(0)	18	2	0	15	(0)	17	1	42	0	(0)	43	7	25	17	(0)	49	0	127	127
10:30 AM	7	1	2	(0)	10	0	1	15	(0)	16	2	26	0	(1)	28	13	22	14	(0)	49	1	103	104
10:45 AM	9	0	2	(0)	11	0	5	17	(0)	22	2	33	1	(1)	36	9	29	14	(1)	52	2	121	123
Total	43	2	7	(0)	52	3	8	61	(1)	72	7	140	2	(2)	149	37	99	57	(1)	193	4	466	470
11:00 AM	8	0	2	(0)	10	0	1	13	(0)	14	1	31	1	(0)	33	10	29	21	(0)	60	0	117	117
11:15 AM	22	0	2	(0)	24	1	3	14	(0)	18	0	43	0	(0)	43	12	34	25	(1)	71	1	156	157
11:30 AM	14	1	2	(2)	17	0	0	13	(3)	13	1	33	0	(1)	34	8	38	22	(2)	68	8	132	140
11:45 AM	15	4	0	(0)	19	1	2	11	(0)	14	1	31	0	(0)	32	15	33	12	(0)	60	0	125	125
Total	59	5	6	(2)	70	2	6	51	(3)	59	3	138	1	(1)	142	45	134	80	(3)	259	9	530	539
12:00 PM	16	1	1	(1)	18	0	0	10	(0)	10	1	41	2	(1)	44	11	40	26	(2)	77	4	149	153
12:15 PM	15	0	0	(0)	15	0	1	9	(3)	10	1	36	1	(1)	38	7	41	20	(1)	68	5	131	136
12:30 PM	12	1	0	(0)	13	0	1	8	(2)	9	1	34	1	(0)	36	11	31	12	(2)	54	4	112	116
12:45 PM	12	0	4	(0)	16	1	2	6	(0)	9	2	34	1	(0)	37	10	36	19	(0)	65	0	127	127
Total	55	2	5	(1)	62	1	4	33	(5)	38	5	145	5	(2)	155	39	148	77	(5)	264	13	519	532
01:00 PM	16	4	1	(1)	21	0	1	6	(0)	7	1	37	2	(0)	40	14	38	13	(0)	65	1	133	134
01:15 PM	9	1	2	(2)	12	1	6	11	(3)	18	0	39	1	(1)	40	11	43	16	(2)	70	8	140	148
01:30 PM	15	2	0	(0)	17	1	1	9	(0)	11	1	28	1	(1)	30	15	32	16	(0)	63	1	121	122
01:45 PM	13	1	2	(0)	16	0	2	13	(0)	15	1	23	0	(0)	24	7	28	11	(3)	46	3	101	104
Total	53	8	5	(3)	66	2	10	39	(3)	51	3	127	4	(2)	134	47	141	56	(5)	244	13	495	508
Grand Total	210	17	23	(6)	250	8	28	184	(12)	220	18	550	12	(7)	580	168	522	270	(14)	960	39	2010	2049
Apprch %	84	6.8	9.2			3.6	12.7	83.6			3.1	94.8	2.1			17.5	54.4	28.1					
Total %	10.4	0.8	1.1		12.4	0.4	1.4	9.2		10.9	0.9	27.4	0.6		28.9	8.4	26	13.4		47.8	1.9	98.1	
P. Veh	208	17	15		246	8	27	184		231	18	549	12		586	167	522	268		971	0	0	2034
% P. Veh	99	100	65.2	100	96.1	100	96.4	100	100	99.6	100	99.8	100	100	99.8	99.4	100	99.3	100	99.7	0	0	99.3
Trucks	2	0	0		2	0	1	0		1	0	0	0		0	1	0	2		3	0	0	6
% Trucks	1	0	0	0	0.8	0	3.6	0	0	0.4	0	0	0	0	0	0.6	0	0.7	0	0.3	0	0	0.3
Buses	0	0	8		8	0	0	0		0	0	1	0		1	0	0	0		0	0	0	9
% Buses	0	0	34.8	0	3.1	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0	0	0	0	0	0.4





	Highview Dr. E/B				Highview Dr. W/B				Manor Rd. N/B				Manor Rd. S/B				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:15 AM																	
11:15 AM	22	0	2	24	1	3	14	18	0	43	0	43	12	34	25	71	156
11:30 AM	14	1	2	17	0	0	13	13	1	33	0	34	8	38	22	68	132
11:45 AM	15	4	0	19	1	2	11	14	1	31	0	32	15	33	12	60	125
12:00 PM	16	1	1	18	0	0	10	10	1	41	2	44	11	40	26	77	149
Total Volume	67	6	5	78	2	5	48	55	3	148	2	153	46	145	85	276	562
% App. Total	85.9	7.7	6.4		3.6	9.1	87.3		2	96.7	1.3		16.7	52.5	30.8		
PHF	.761	.375	.625	.813	.500	.417	.857	.764	.750	.860	.250	.869	.767	.906	.817	.896	.901
P. Veh	67	6	3	76	2	5	48	55	3	148	2	153	46	145	85	276	560
% P. Veh	100	100	60.0	97.4	100	100	100	100	100	100	100	100	100	100	100	100	99.6
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2
% Buses	0	0	40.0	2.6	0	0	0	0	0	0	0	0	0	0	0	0	0.4

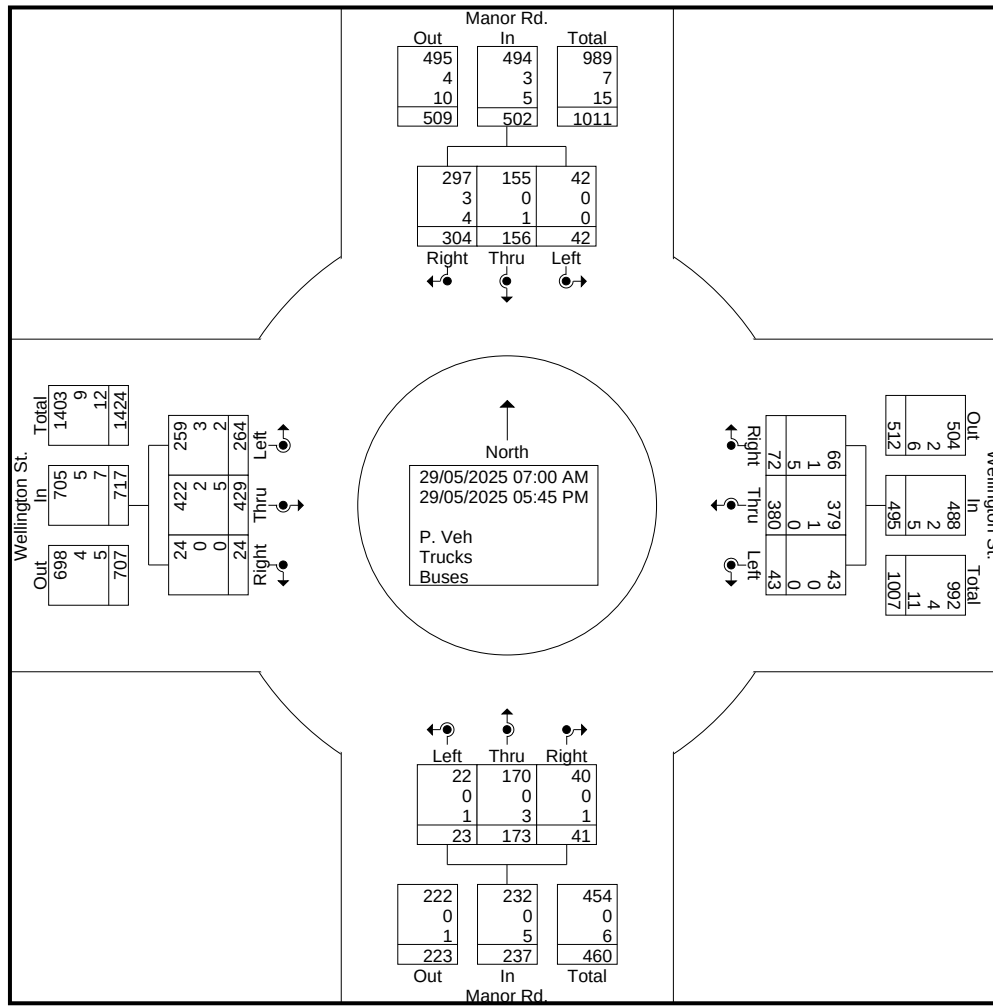


Date: 29 May 2025
 Counted By: Kristian R. / A. Blata
 Weather Conditions: Cloudy
 Manor Rd. at Wellington St.

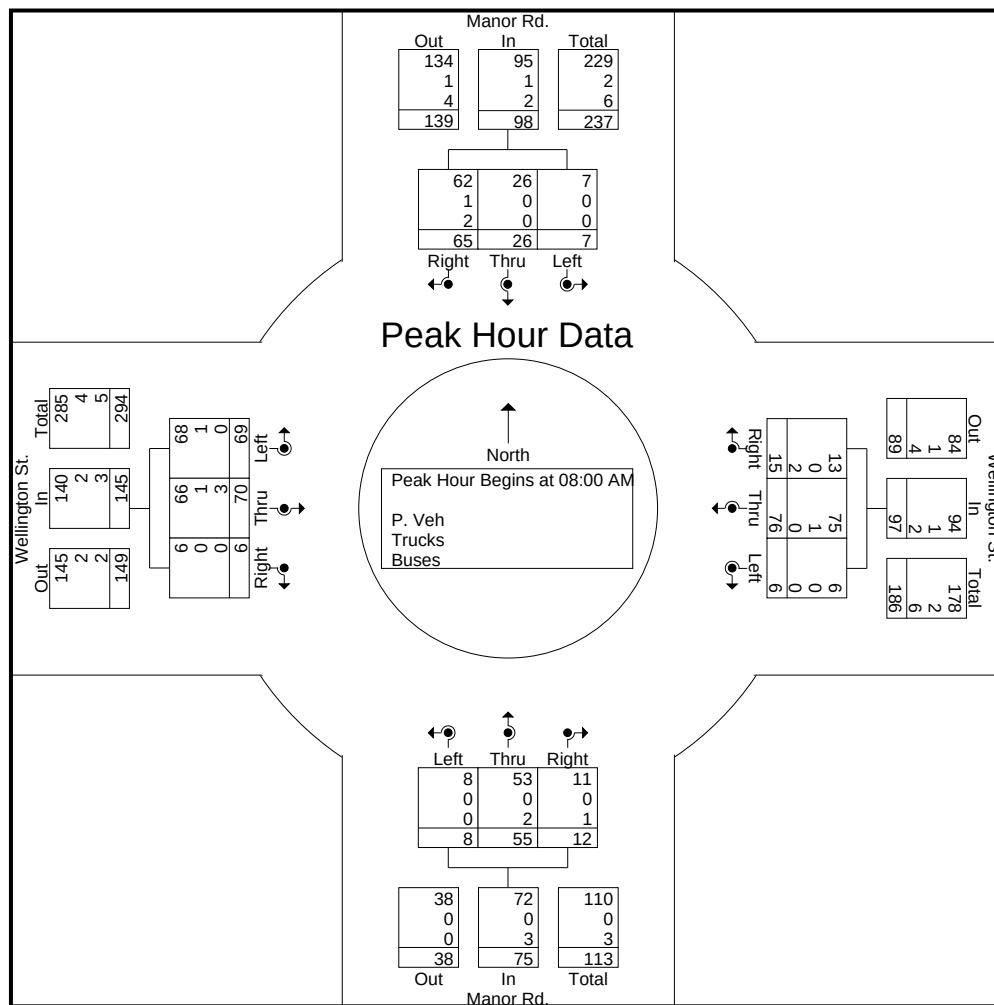
Groups Printed- P. Veh - Trucks - Buses

	Wellington St. E/B					Wellington St. W/B					Manor Rd. N/B					Manor Rd. S/B					Exclu. Total	Inclu. Total	Int. Total
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total			
07:00 AM	7	14	0	0	21	0	9	4	0	13	1	17	1	0	19	3	3	7	0	13	0	66	66
07:15 AM	13	13	1	0	27	1	12	1	0	14	0	23	2	0	25	2	6	8	0	16	0	82	82
07:30 AM	12	14	1	0	27	3	22	5	0	30	0	12	1	0	13	1	6	9	0	16	0	86	86
07:45 AM	19	22	0	0	41	2	10	2	0	14	1	14	1	0	16	1	10	11	0	22	0	93	93
Total	51	63	2	0	116	6	53	12	0	71	2	66	5	0	73	7	25	35	0	67	0	327	327
08:00 AM	21	13	3	0	37	1	19	4	0	24	1	10	2	0	13	2	4	14	0	20	0	94	94
08:15 AM	18	17	1	0	36	2	14	3	0	19	2	18	2	0	22	2	12	16	1	30	1	107	108
08:30 AM	14	22	1	0	37	2	18	3	0	23	3	9	6	0	18	1	6	13	0	20	0	98	98
08:45 AM	16	18	1	0	35	1	25	5	0	31	2	18	2	0	22	2	4	22	0	28	0	116	116
Total	69	70	6	0	145	6	76	15	0	97	8	55	12	0	75	7	26	65	1	98	1	415	416
04:00 PM	18	42	5	0	65	2	20	9	0	31	0	6	2	0	8	5	15	24	0	44	0	148	148
04:15 PM	28	35	1	0	64	1	25	4	0	30	2	8	4	0	14	2	8	29	0	39	0	147	147
04:30 PM	21	43	5	0	69	6	26	6	0	38	1	6	4	0	11	7	16	38	0	61	0	179	179
04:45 PM	16	34	0	0	50	3	37	3	0	43	2	8	2	0	12	3	16	28	0	47	0	152	152
Total	83	154	11	0	248	12	108	22	0	142	5	28	12	0	45	17	55	119	0	191	0	626	626
05:00 PM	16	36	2	0	54	5	42	7	0	54	2	9	5	0	16	4	16	25	0	45	0	169	169
05:15 PM	14	42	1	0	57	7	34	5	0	46	5	7	2	0	14	3	6	15	0	24	0	141	141
05:30 PM	16	29	0	0	45	4	38	4	0	46	0	3	2	0	5	2	24	23	1	49	1	145	146
05:45 PM	15	35	2	0	52	3	29	7	0	39	1	5	3	0	9	2	4	22	0	28	0	128	128
Total	61	142	5	0	208	19	143	23	0	185	8	24	12	0	44	11	50	85	1	146	1	583	584
Grand Total	264	429	24	0	717	43	380	72	0	495	23	173	41	0	237	42	156	304	2	502	2	1951	1953
Apprch %	36.8	59.8	3.3			8.7	76.8	14.5			9.7	73	17.3			8.4	31.1	60.6					
Total %	13.5	22	1.2		36.8	2.2	19.5	3.7		25.4	1.2	8.9	2.1		12.1	2.2	8	15.6		25.7	0.1	99.9	
P. Veh	259	422	24		705	43	379	66		488	22	170	40		232	42	155	297		496	0	0	1921
% P. Veh	98.1	98.4	100	0	98.3	100	99.7	91.7	0	98.6	95.7	98.3	97.6	0	97.9	100	99.4	97.7	100	98.4	0	0	98.4
Trucks	3	2	0		5	0	1	1		2	0	0	0		0	0	0	3		3	0	0	10
% Trucks	1.1	0.5	0	0	0.7	0	0.3	1.4	0	0.4	0	0	0	0	0	0	0	1	0	0.6	0	0	0.5
Buses	2	5	0		7	0	0	5		5	1	3	1		5	0	1	4		5	0	0	22
% Buses	0.8	1.2	0	0	1	0	0	6.9	0	1	4.3	1.7	2.4	0	2.1	0	0.6	1.3	0	1	0	0	1.1





	Wellington St. E/B				Wellington St. W/B				Manor Rd. N/B				Manor Rd. S/B				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	21	13	3	37	1	19	4	24	1	10	2	13	2	4	14	20	94
08:15 AM	18	17	1	36	2	14	3	19	2	18	2	22	2	12	16	30	107
08:30 AM	14	22	1	37	2	18	3	23	3	9	6	18	1	6	13	20	98
08:45 AM	16	18	1	35	1	25	5	31	2	18	2	22	2	4	22	28	116
Total Volume	69	70	6	145	6	76	15	97	8	55	12	75	7	26	65	98	415
% App. Total	47.6	48.3	4.1		6.2	78.4	15.5		10.7	73.3	16		7.1	26.5	66.3		
PHF	.821	.795	.500	.980	.750	.760	.750	.782	.667	.764	.500	.852	.875	.542	.739	.817	.894
P. Veh	68	66	6	140	6	75	13	94	8	53	11	72	7	26	62	95	401
% P. Veh	98.6	94.3	100	96.6	100	98.7	86.7	96.9	100	96.4	91.7	96.0	100	100	95.4	96.9	96.6
Trucks	1	1	0	2	0	1	0	1	0	0	0	0	0	0	1	1	4
% Trucks	1.4	1.4	0	1.4	0	1.3	0	1.0	0	0	0	0	0	0	1.5	1.0	1.0
Buses	0	3	0	3	0	0	2	2	0	2	1	3	0	0	2	2	10
% Buses	0	4.3	0	2.1	0	0	13.3	2.1	0	3.6	8.3	4.0	0	0	3.1	2.0	2.4

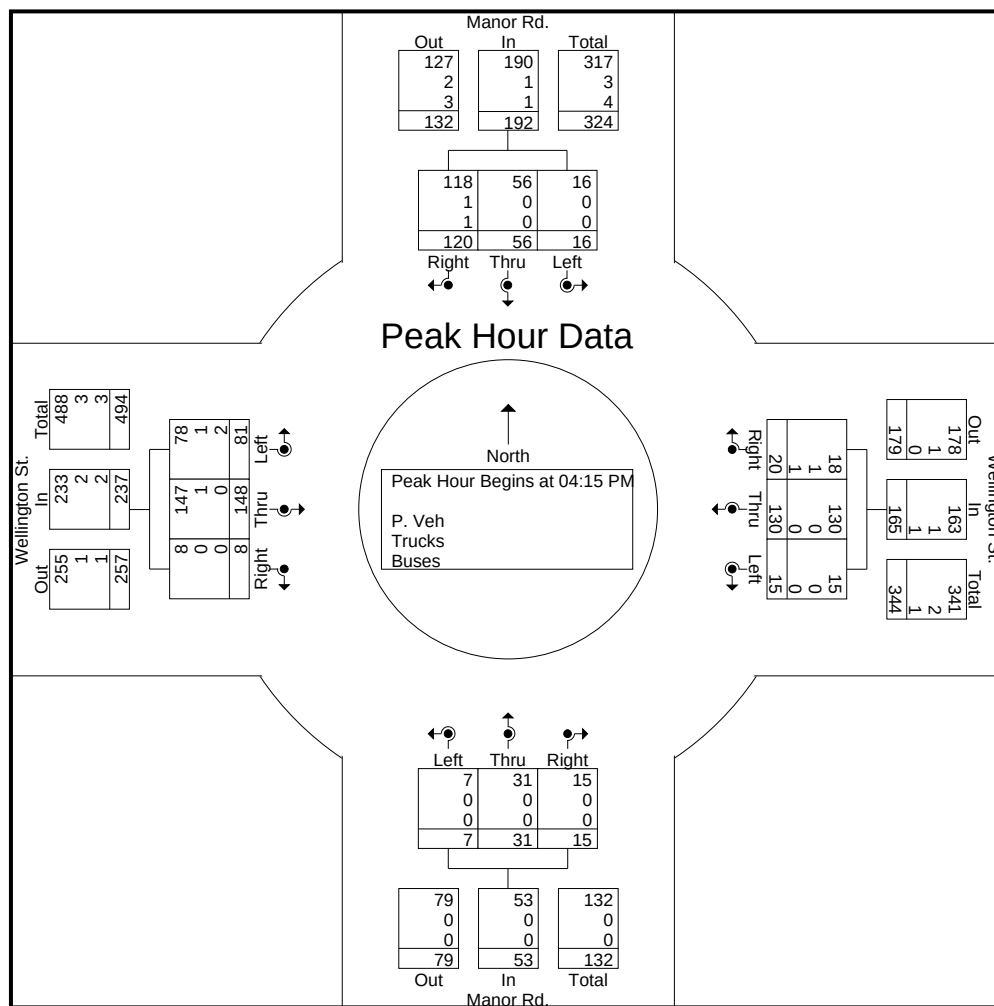


	Wellington St. E/B				Wellington St. W/B				Manor Rd. N/B				Manor Rd. S/B				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:15 PM

04:15 PM	28	35	1	64	1	25	4	30	2	8	4	14	2	8	29	39	147
04:30 PM	21	43	5	69	6	26	6	38	1	6	4	11	7	16	38	61	179
04:45 PM	16	34	0	50	3	37	3	43	2	8	2	12	3	16	28	47	152
05:00 PM	16	36	2	54	5	42	7	54	2	9	5	16	4	16	25	45	169
Total Volume	81	148	8	237	15	130	20	165	7	31	15	53	16	56	120	192	647
% App. Total	34.2	62.4	3.4		9.1	78.8	12.1		13.2	58.5	28.3		8.3	29.2	62.5		
PHF	.723	.860	.400	.859	.625	.774	.714	.764	.875	.861	.750	.828	.571	.875	.789	.787	.904
P. Veh	78	147	8	233	15	130	18	163	7	31	15	53	16	56	118	190	639
% P. Veh	96.3	99.3	100	98.3	100	100	90.0	98.8	100	100	100	100	100	100	98.3	99.0	98.8
Trucks	1	1	0	2	0	0	1	1	0	0	0	0	0	0	1	1	4
% Trucks	1.2	0.7	0	0.8	0	0	5.0	0.6	0	0	0	0	0	0	0.8	0.5	0.6
Buses	2	0	0	2	0	0	1	1	0	0	0	0	0	0	1	1	4
% Buses	2.5	0	0	0.8	0	0	5.0	0.6	0	0	0	0	0	0	0.8	0.5	0.6



Date: 31 May 2025

Counted By: Kristian R. / A. Blata

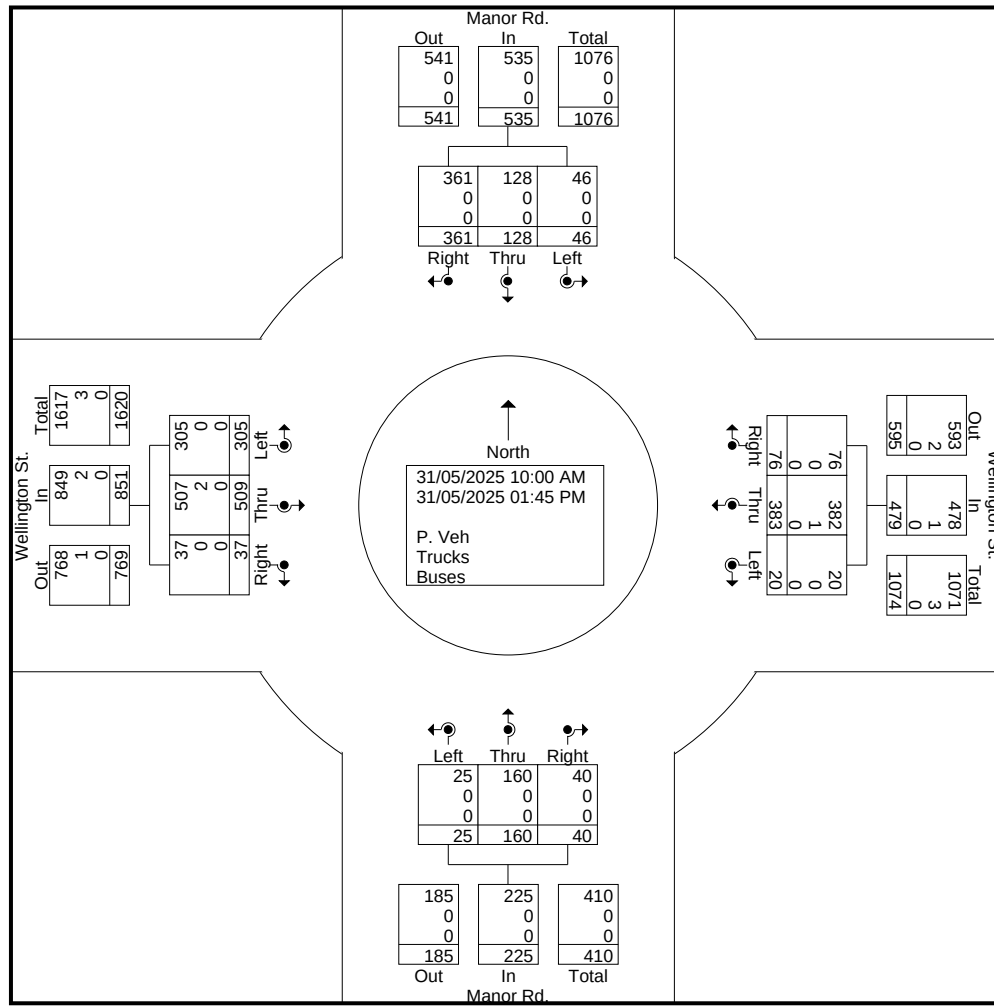
Weather Conditions: Cloudy

Manor Rd. at Wellington St.

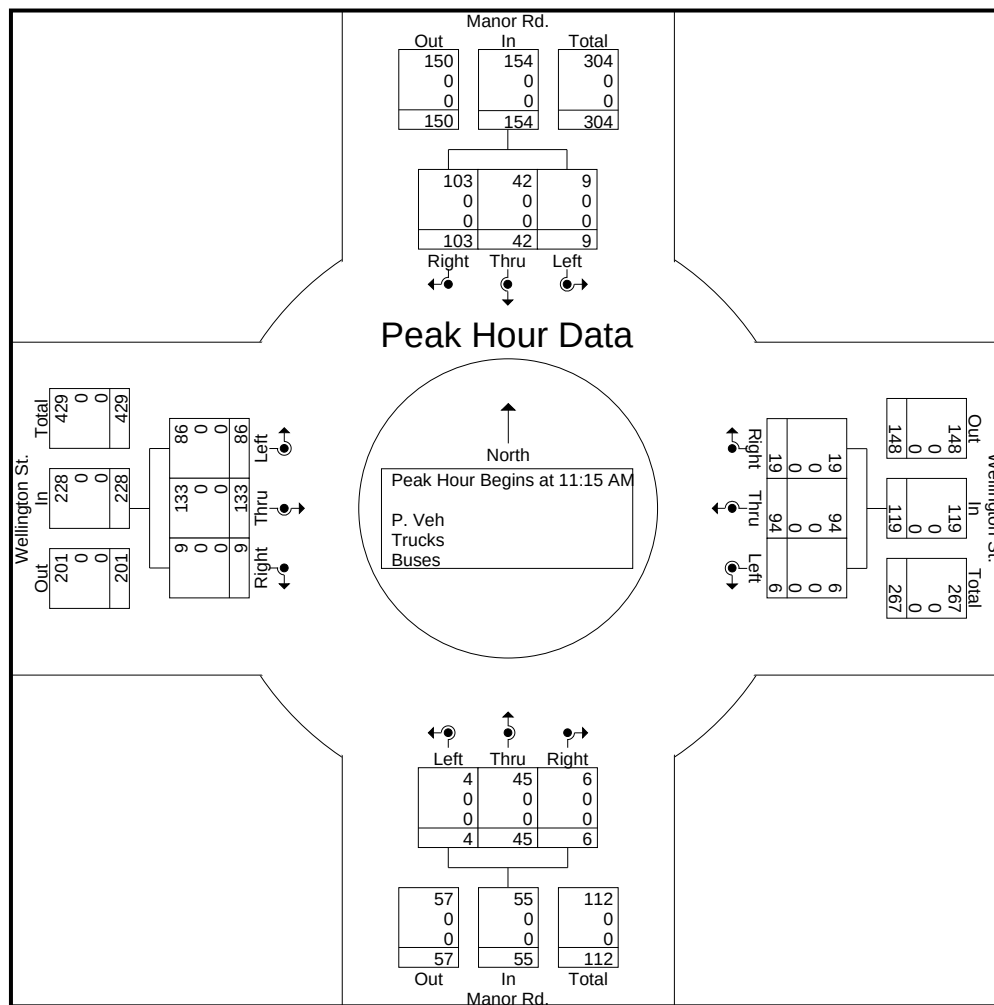
Groups Printed- P. Veh - Trucks - Buses

	Wellington St. E/B					Wellington St. W/B					Manor Rd. N/B					Manor Rd. S/B					Exclu. Total	Inclu. Total	Int. Total
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total			
10:00 AM	21	30	1	0	52	1	25	8	0	34	4	11	2	0	17	5	10	15	0	30	0	133	133
10:15 AM	27	25	0	0	52	3	21	7	0	31	2	6	1	0	9	4	7	15	1	26	1	118	119
10:30 AM	18	25	0	0	43	2	18	7	0	27	1	3	4	0	8	0	5	16	0	21	0	99	99
10:45 AM	15	25	2	1	42	0	33	7	0	40	2	13	1	0	16	6	5	25	0	36	1	134	135
Total	81	105	3	1	189	6	97	29	0	132	9	33	8	0	50	15	27	71	1	113	2	484	486
11:00 AM	16	44	0	0	60	2	24	4	0	30	2	8	3	0	13	3	6	19	0	28	0	131	131
11:15 AM	19	39	2	0	60	1	22	7	0	30	2	15	1	0	18	3	13	22	0	38	0	146	146
11:30 AM	19	30	1	0	50	3	20	3	0	26	1	14	1	0	16	0	13	30	0	43	0	135	135
11:45 AM	17	34	3	0	54	1	28	5	0	34	1	8	1	0	10	3	7	26	0	36	0	134	134
Total	71	147	6	0	224	7	94	19	0	120	6	45	6	0	57	9	39	97	0	145	0	546	546
12:00 PM	31	30	3	1	64	1	24	4	0	29	0	8	3	0	11	3	9	25	0	37	1	141	142
12:15 PM	15	22	3	1	40	0	25	5	0	30	2	10	8	0	20	1	11	22	0	34	1	124	125
12:30 PM	18	36	2	1	56	1	27	5	0	33	1	9	2	0	12	3	6	23	1	32	2	133	135
12:45 PM	20	33	4	0	57	3	34	3	1	40	2	10	0	0	12	4	9	22	0	35	1	144	145
Total	84	121	12	3	217	5	110	17	1	132	5	37	13	0	55	11	35	92	1	138	5	542	547
01:00 PM	29	40	5	0	74	2	15	3	0	20	0	13	4	0	17	1	7	27	0	35	0	146	146
01:15 PM	14	33	7	0	54	0	19	4	0	23	0	10	2	0	12	2	8	26	0	36	0	125	125
01:30 PM	12	29	2	0	43	0	26	1	0	27	4	10	2	0	16	4	5	23	0	32	0	118	118
01:45 PM	14	34	2	0	50	0	22	3	0	25	1	12	5	0	18	4	7	25	0	36	0	129	129
Total	69	136	16	0	221	2	82	11	0	95	5	45	13	0	63	11	27	101	0	139	0	518	518
Grand Total	305	509	37	4	851	20	383	76	1	479	25	160	40	0	225	46	128	361	2	535	7	2090	2097
Apprch %	35.8	59.8	4.3			4.2	80	15.9			11.1	71.1	17.8			8.6	23.9	67.5					
Total %	14.6	24.4	1.8		40.7	1	18.3	3.6		22.9	1.2	7.7	1.9		10.8	2.2	6.1	17.3		25.6	0.3	99.7	
P. Veh	305	507	37		853	20	382	76		479	25	160	40		225	46	128	361		537	0	0	2094
% P. Veh	100	99.6	100	100	99.8	100	99.7	100	100	99.8	100	100	100	0	100	100	100	100	100	100	0	0	99.9
Trucks	0	2	0		2	0	1	0		1	0	0	0		0	0	0	0		0	0	0	3
% Trucks	0	0.4	0	0	0.2	0	0.3	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0.1
Buses	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0





	Wellington St. E/B				Wellington St. W/B				Manor Rd. N/B				Manor Rd. S/B				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:15 AM																	
11:15 AM	19	39	2	60	1	22	7	30	2	15	1	18	3	13	22	38	146
11:30 AM	19	30	1	50	3	20	3	26	1	14	1	16	0	13	30	43	135
11:45 AM	17	34	3	54	1	28	5	34	1	8	1	10	3	7	26	36	134
12:00 PM	31	30	3	64	1	24	4	29	0	8	3	11	3	9	25	37	141
Total Volume	86	133	9	228	6	94	19	119	4	45	6	55	9	42	103	154	556
% App. Total	37.7	58.3	3.9		5	79	16		7.3	81.8	10.9		5.8	27.3	66.9		
PHF	.694	.853	.750	.891	.500	.839	.679	.875	.500	.750	.500	.764	.750	.808	.858	.895	.952
P. Veh	86	133	9	228	6	94	19	119	4	45	6	55	9	42	103	154	556
% P. Veh	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Appendix C

ITE TRIP GENERATION MANUAL – 12TH EDITION REFERENCES

Multifamily Housing (Mid-Rise) Not Close to Rail Transit (221)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 20

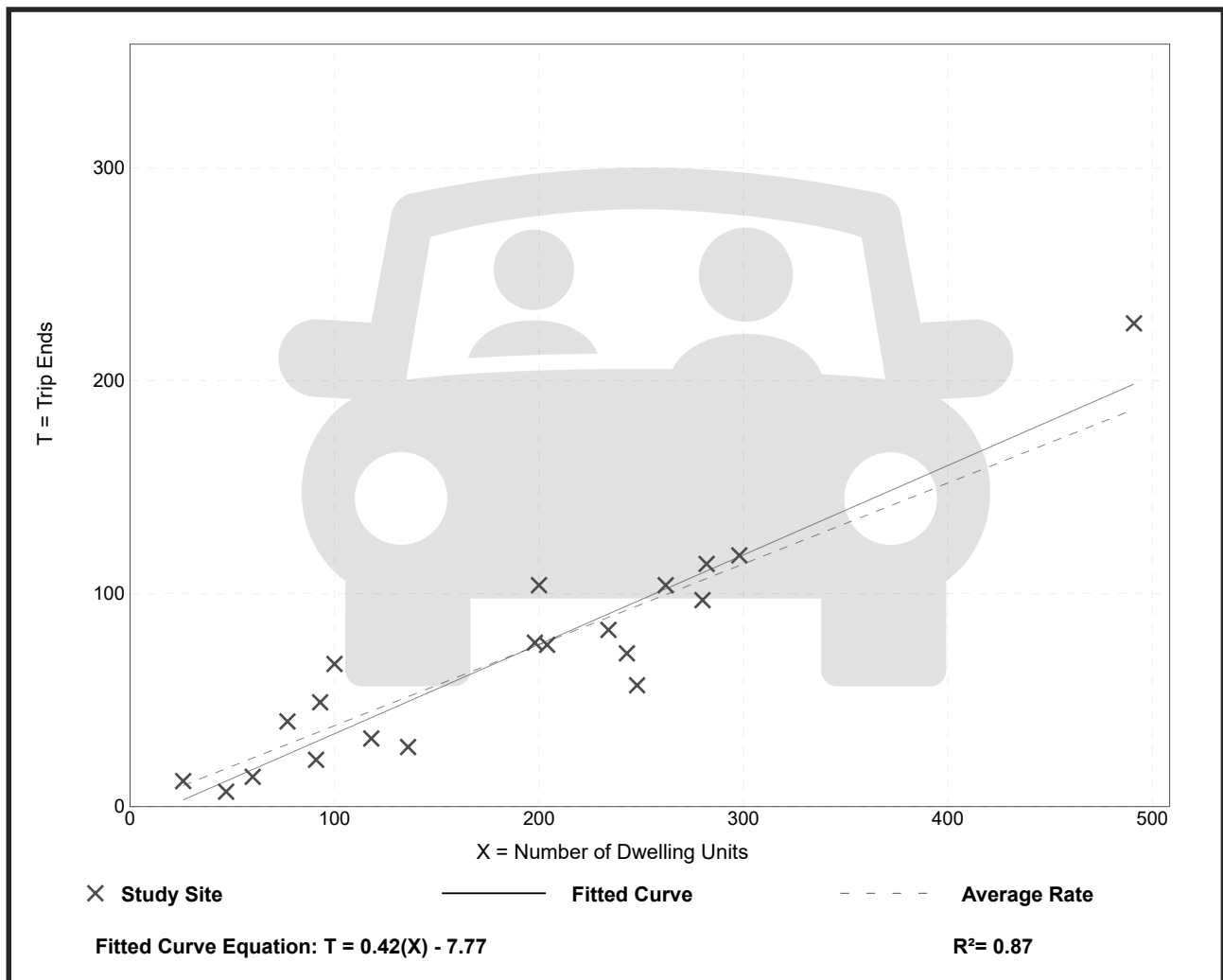
Avg. Num. of Dwelling Units: 184

Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.38	0.15 - 0.67	0.10

Data Plot and Equation



Multifamily Housing (Mid-Rise) Not Close to Rail Transit (221)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 21

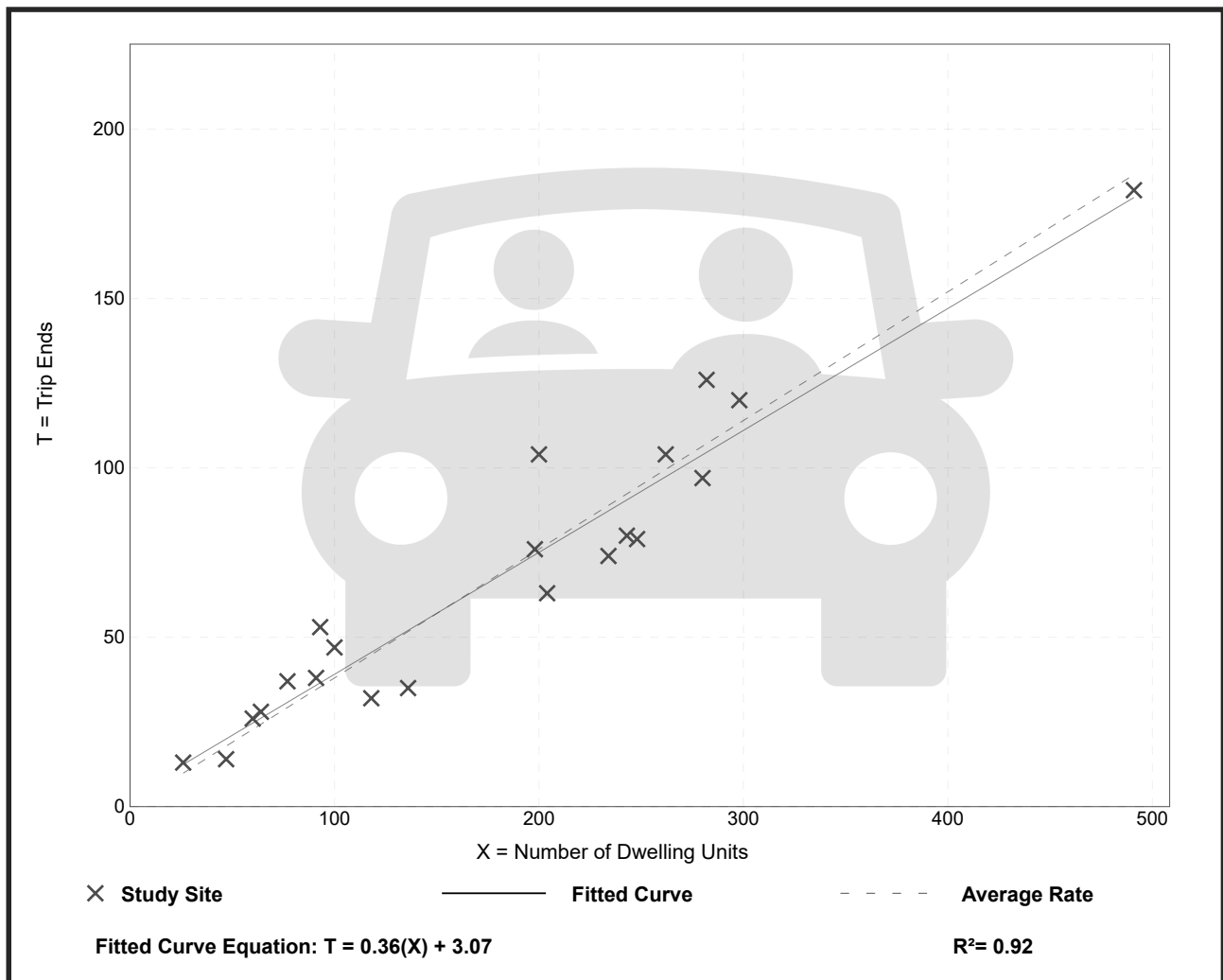
Avg. Num. of Dwelling Units: 179

Directional Distribution: 64% entering, 36% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.38	0.26 - 0.57	0.07

Data Plot and Equation



Multifamily Housing (Mid-Rise) Not Close to Rail Transit (221)

Vehicle Trip Ends vs: Dwelling Units
On a: Saturday, Peak Hour of Generator

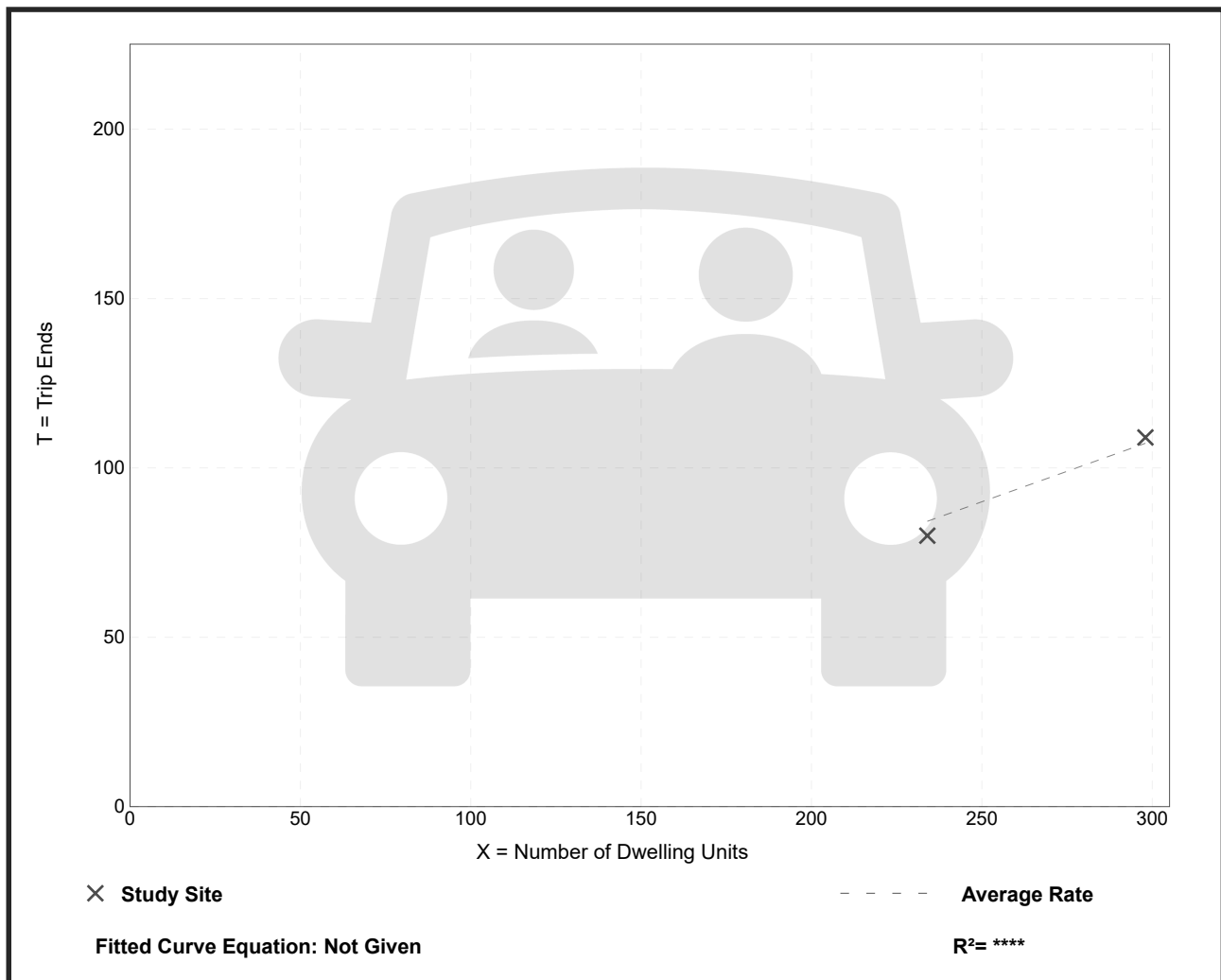
Setting/Location: General Urban/Suburban
Number of Studies: 2
Avg. Num. of Dwelling Units: 266
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.36	0.34 - 0.37	*

Data Plot and Equation

Caution – Small Sample Size



Proposed Site Development Trip Generation and Distribution

Project: 417 Wellington Street

Site: St. Thomas, ON

Assumed Land Use (1): Multifamily Housing (Mid-Rise) - ITE No. 221

Average Vehicle Trip Ends vs.: Dwelling Unit

ITE Trip Generation Data collected on a: Weekday / Saturday

AM Peak Hour:

0.38

 = Average Rate

23
77

 % Entering
% Exiting

PM Peak Hour:

0.38

 = Average Rate

64
36

 % Entering
% Exiting

Saturday Peak Hour:

0.36

 = Average Rate

51
49

 % Entering
% Exiting

Assumed Land Use (1): Multifamily Housing (Mid-Rise) - ITE No. 221				
	Dwelling Unit	Trips Generated	Trips Entering	Trips Exiting
AM Peak	232	88	20	68
PM Peak	232	88	56	32
Saturday Peak	232	84	43	41

Total Trips		
	Trips Entering	Trips Exiting
AM Peak	20	68
PM Peak	56	32
Saturday Peak	43	41

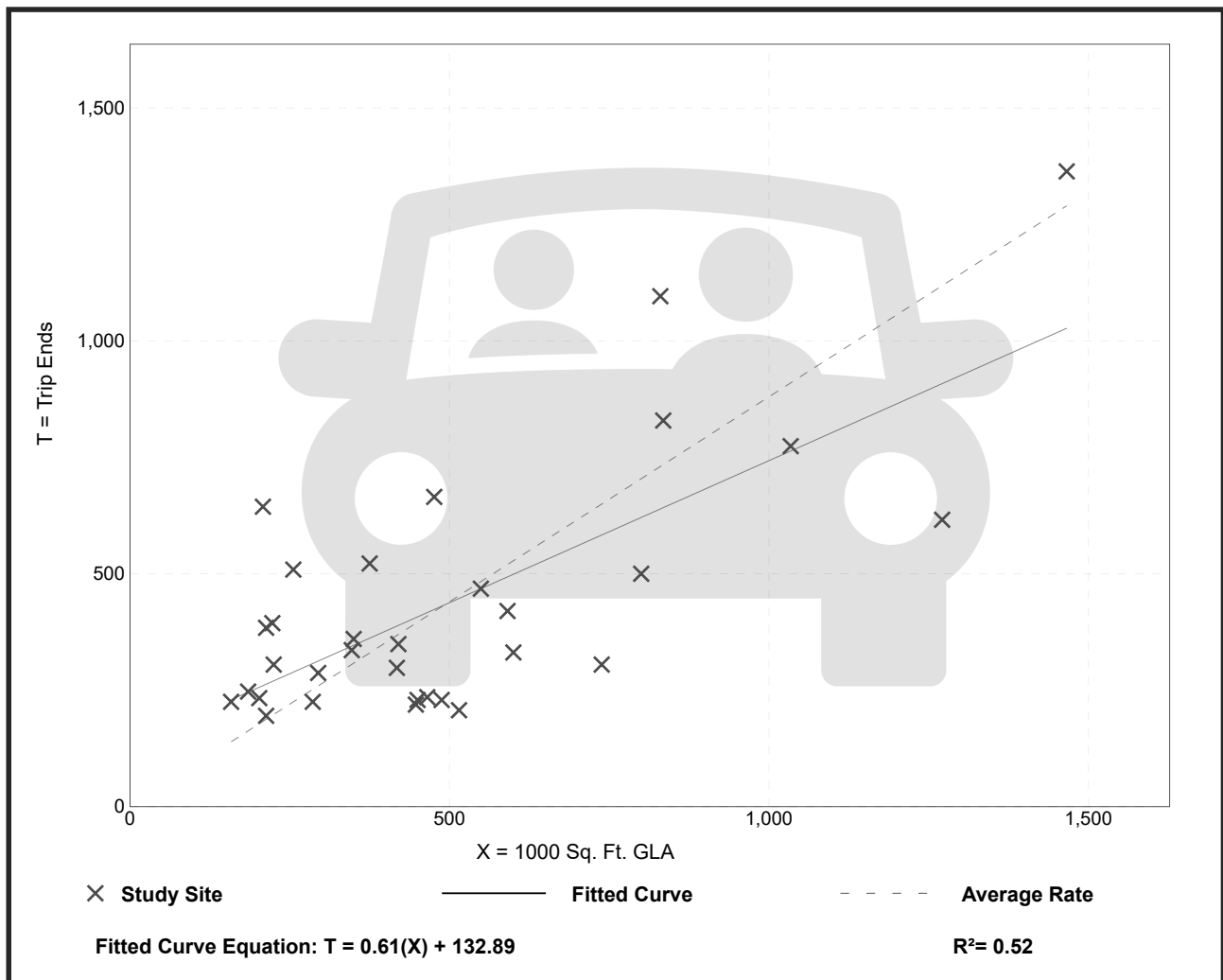
Shopping Center (>150k) (820)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 7 and 9 a.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 32
 Avg. 1000 Sq. Ft. GLA: 498
 Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
0.88	0.40 - 3.10	0.45

Data Plot and Equation



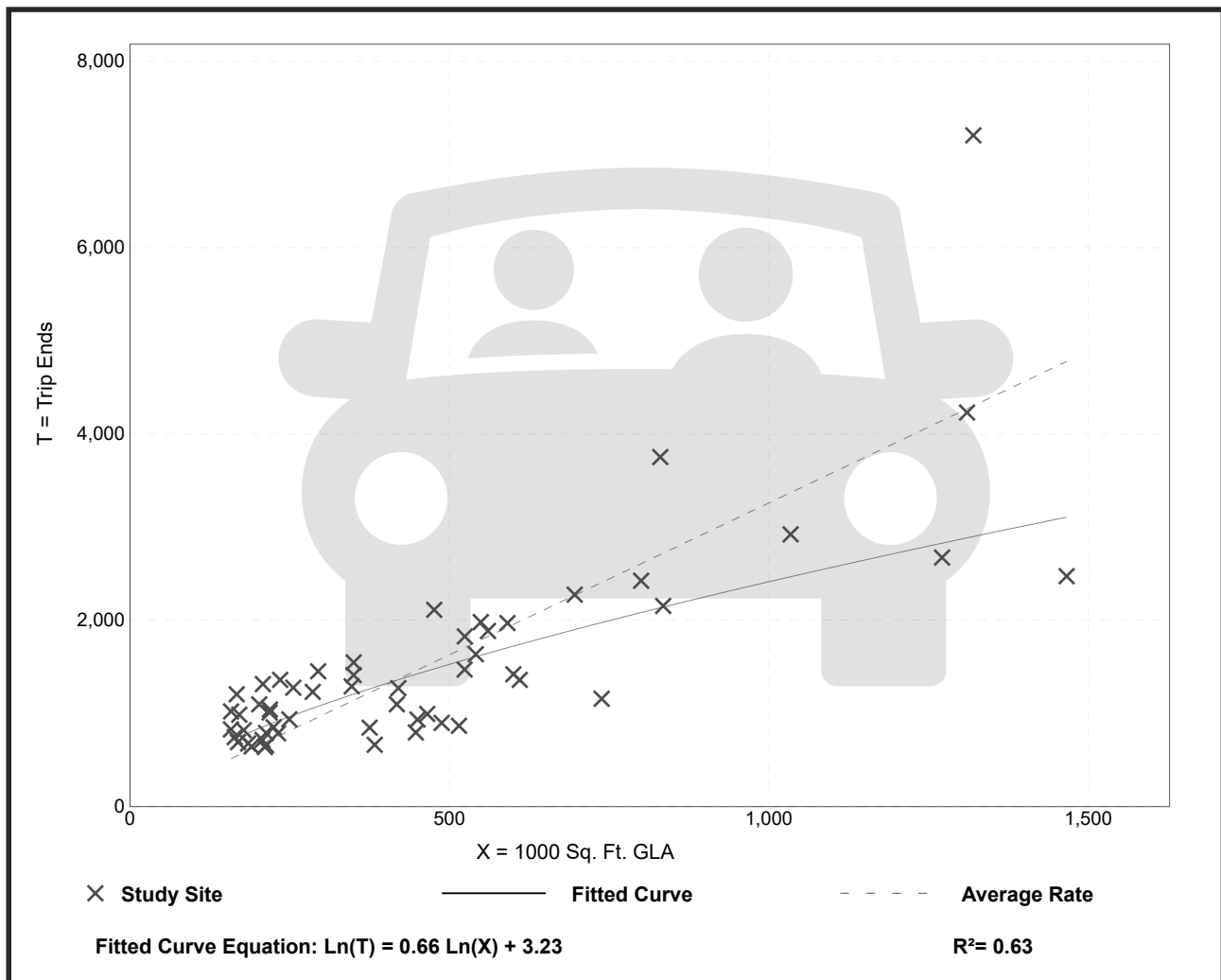
Shopping Center (>150k) (820)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 4 and 6 p.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 55
 Avg. 1000 Sq. Ft. GLA: 460
 Directional Distribution: 49% entering, 51% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
3.26	1.57 - 7.22	1.25

Data Plot and Equation



Shopping Center (>150k) (820)

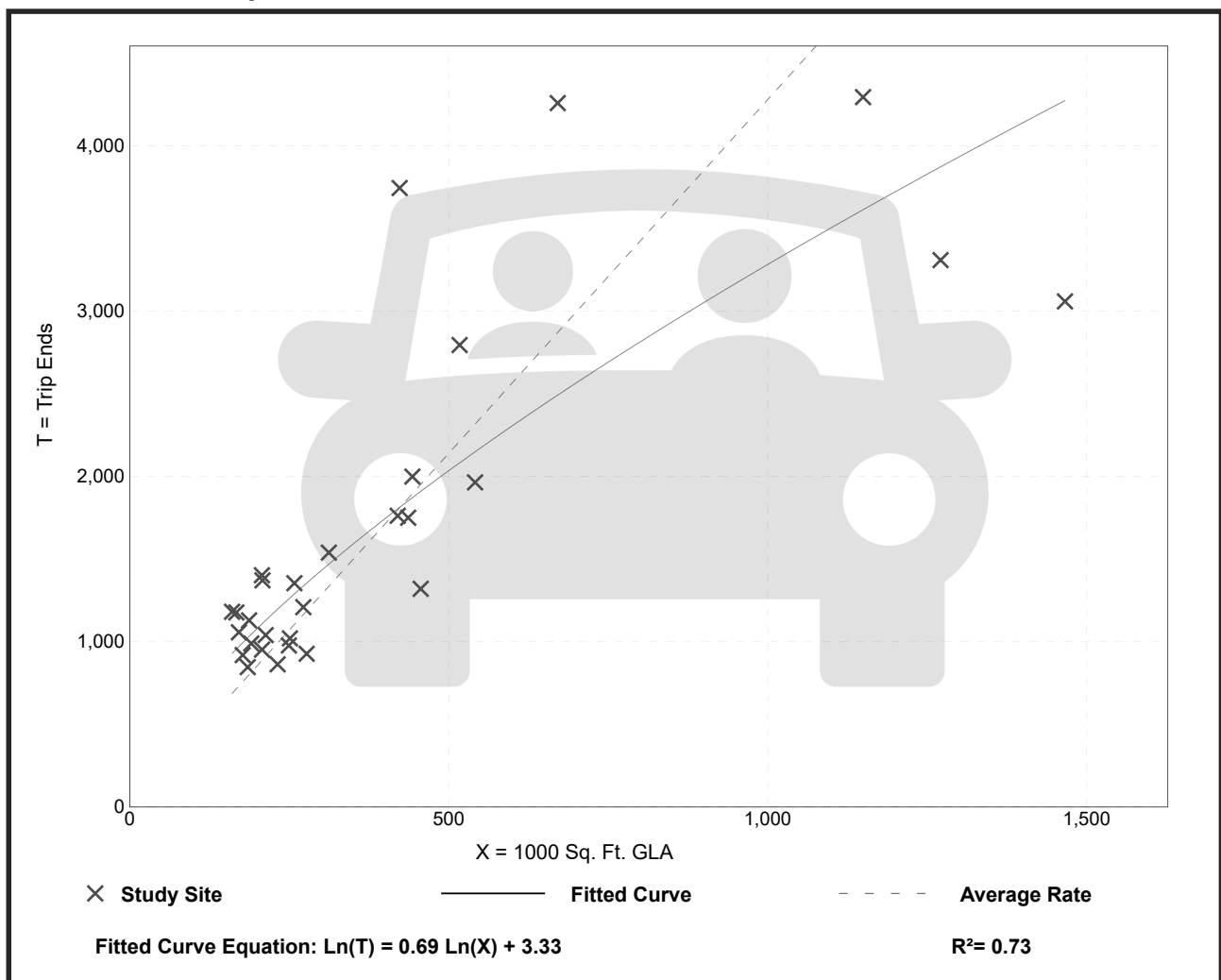
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 29
Avg. 1000 Sq. Ft. GLA: 404
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
4.28	2.09 - 8.85	1.68

Data Plot and Equation



Proposed Site Development Trip Generation and Distribution

Project: 417 Wellington Street

Site: St. Thomas, ON

Assumed Land Use (2): Shopping Center (>150k) - ITE No. 820

Average Vehicle Trip Ends vs.: 1000 Sq. Ft. GLA

ITE Trip Generation Data collected on a: Weekday / Saturday

AM Peak Hour:

0.88

 = Average Rate

62
38

 % Entering
% Exiting

PM Peak Hour:

3.26

 = Average Rate

48
52

 % Entering
% Exiting

Saturday Peak Hour:

4.28

 = Average Rate

52
48

 % Entering
% Exiting

Assumed Land Use (2): Shopping Center (>150k) - ITE No. 820 (Proposed)				
	1000 Sq. Ft. GLA	Trips Generated	Trips Entering	Trips Exiting
AM Peak	36.334	32	20	12
PM Peak	36.334	118	57	61
Saturday Peak	36.334	156	81	75

Total Trips		
	Trips Entering	Trips Exiting
AM Peak	20	12
PM Peak	57	61
Saturday Peak	81	75

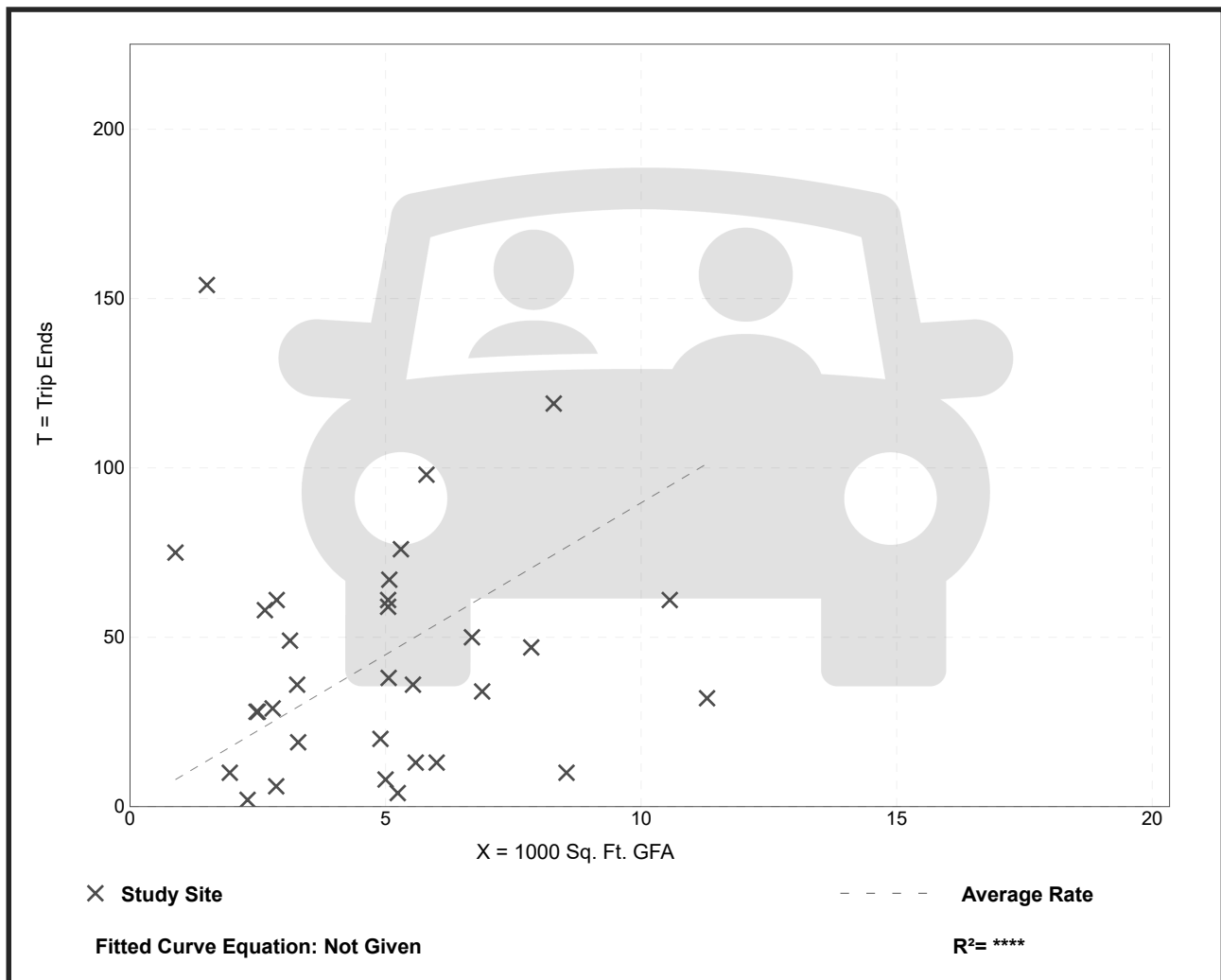
High-Turnover (Sit-Down) Restaurant (932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 7 and 9 a.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 32
 Avg. 1000 Sq. Ft. GFA: 5
 Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
8.97	0.76 - 102.39	12.35

Data Plot and Equation



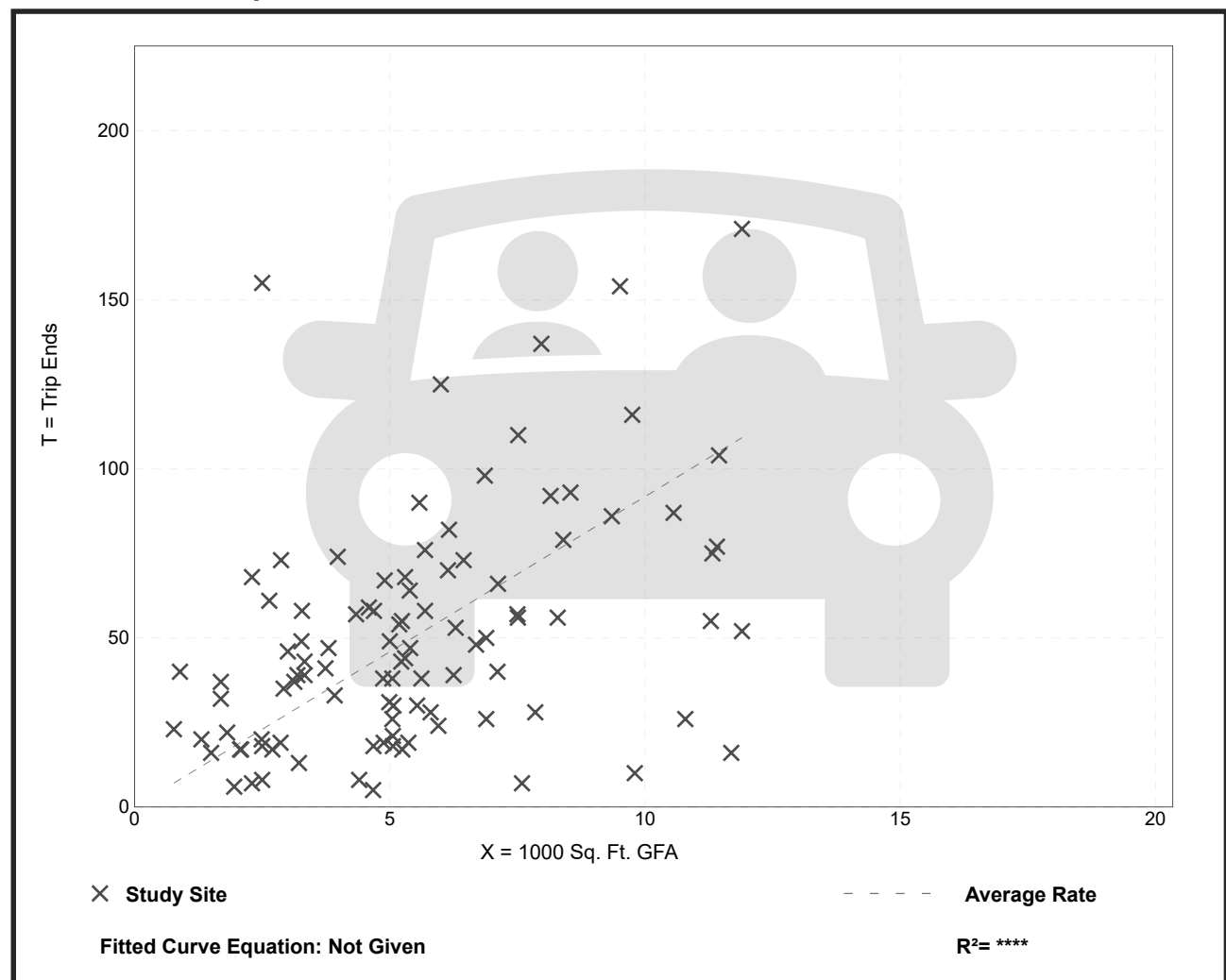
High-Turnover (Sit-Down) Restaurant (932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 4 and 6 p.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 100
 Avg. 1000 Sq. Ft. GFA: 5
 Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.18	0.92 - 62.00	6.36

Data Plot and Equation



High-Turnover (Sit-Down) Restaurant (932)

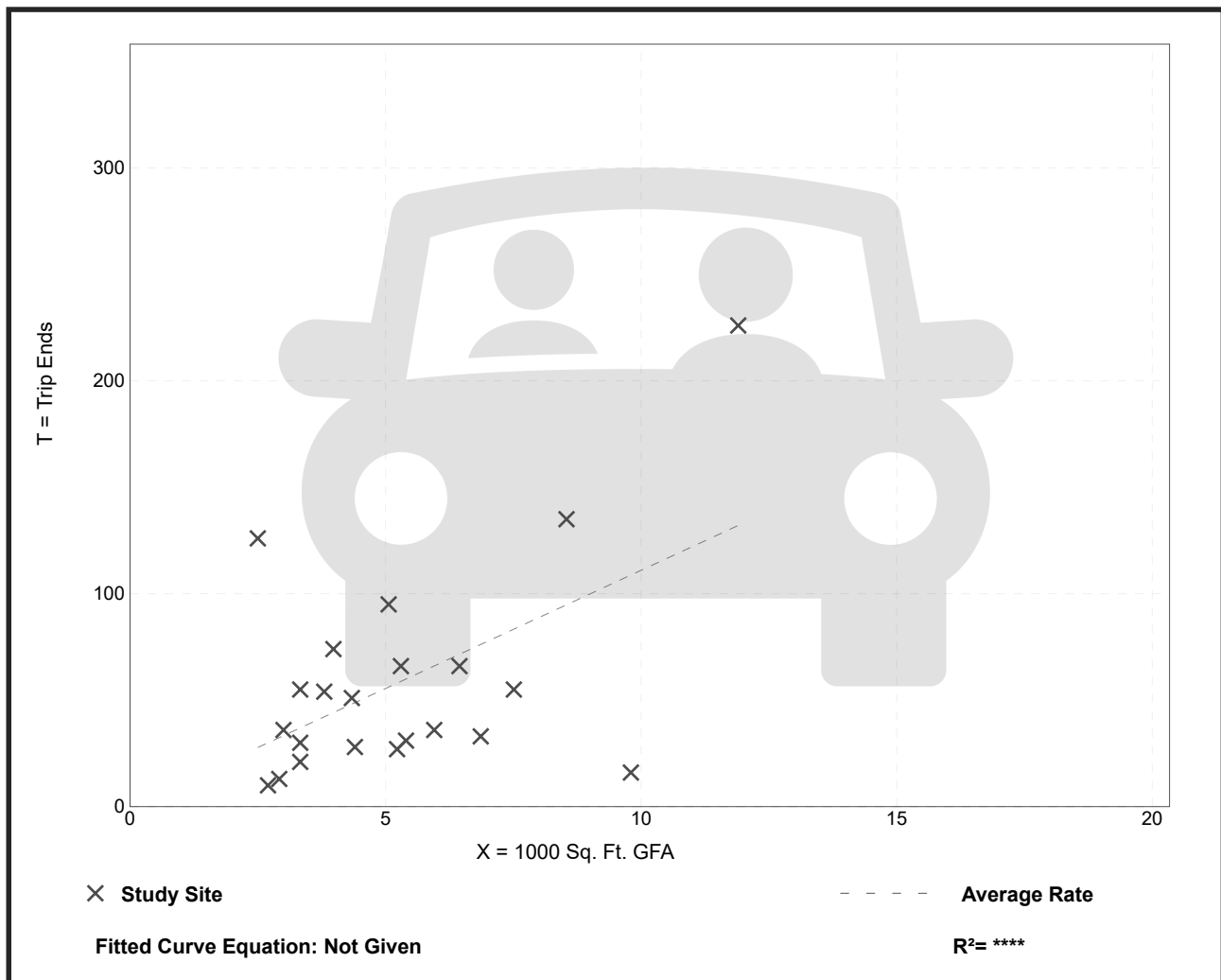
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 22
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
11.10	1.63 - 50.40	8.34

Data Plot and Equation



Existing Site Development Trip Generation and Distribution

Project: 417 Wellington Street

Site: St. Thomas, ON

Assumed Land Use (1): High-Turnover (Sit-Down) Restaurant - ITE No. 932

Average Vehicle Trip Ends vs.: 1000 Sq. Ft. GFA

ITE Trip Generation Data collected on a: Weekday / Saturday

AM Peak Hour:

8.97

 = Average Rate

55
45

 % Entering
% Exiting

PM Peak Hour:

9.18

 = Average Rate

61
39

 % Entering
% Exiting

Saturday Peak Hour:

11.1

 = Average Rate

51
49

 % Entering
% Exiting

Existing Land Use (1): High-Turnover (Sit-Down) Restaurant - ITE No. 932				
	1000 Sq. Ft. GFA	Trips Generated	Trips Entering	Trips Exiting
AM Peak	5	45	25	20
PM Peak	5	46	28	18
Saturday Peak	5	56	29	27

Total Trips		
	Trips Entering	Trips Exiting
AM Peak	25	20
PM Peak	28	18
Saturday Peak	29	27

Site Development Trip Generation and Distribution

Project: 417 Wellington Street

Site: St. Thomas, ON

Assumed Land Use (1): Multifamily Housing (Mid-Rise) - ITE No. 221				
	Dwelling Unit	Trips Generated	Trips Entering	Trips Exiting
AM Peak	232	88	20	68
PM Peak	232	88	56	32
Saturday Peak	232	84	43	41

Assumed Land Use (2): Shopping Center (>150k) - ITE No. 820				
	1000 Sq. Ft. GLA	Trips Generated	Trips Entering	Trips Exiting
AM Peak	36.334	32	20	12
PM Peak	36.334	118	57	61
Saturday Peak	36.334	156	81	75

Total Trips		
	Trips Entering	Trips Exiting
AM Peak	40	80
PM Peak	113	93
Saturday Peak	124	116

Existing Land Use (1): High-Turnover (Sit-Down) Restaurant - ITE No. 932 (to be demolished)				
	1000 Sq. Ft. GFA	Trips Generated	Trips Entering	Trips Exiting
AM Peak	5	45	25	20
PM Peak	5	46	28	18
Saturday Peak	5	56	29	27

Total Post-Development Trips		
	Trips Entering	Trips Exiting
AM Peak	15	60
PM Peak	85	75
Saturday Peak	95	89

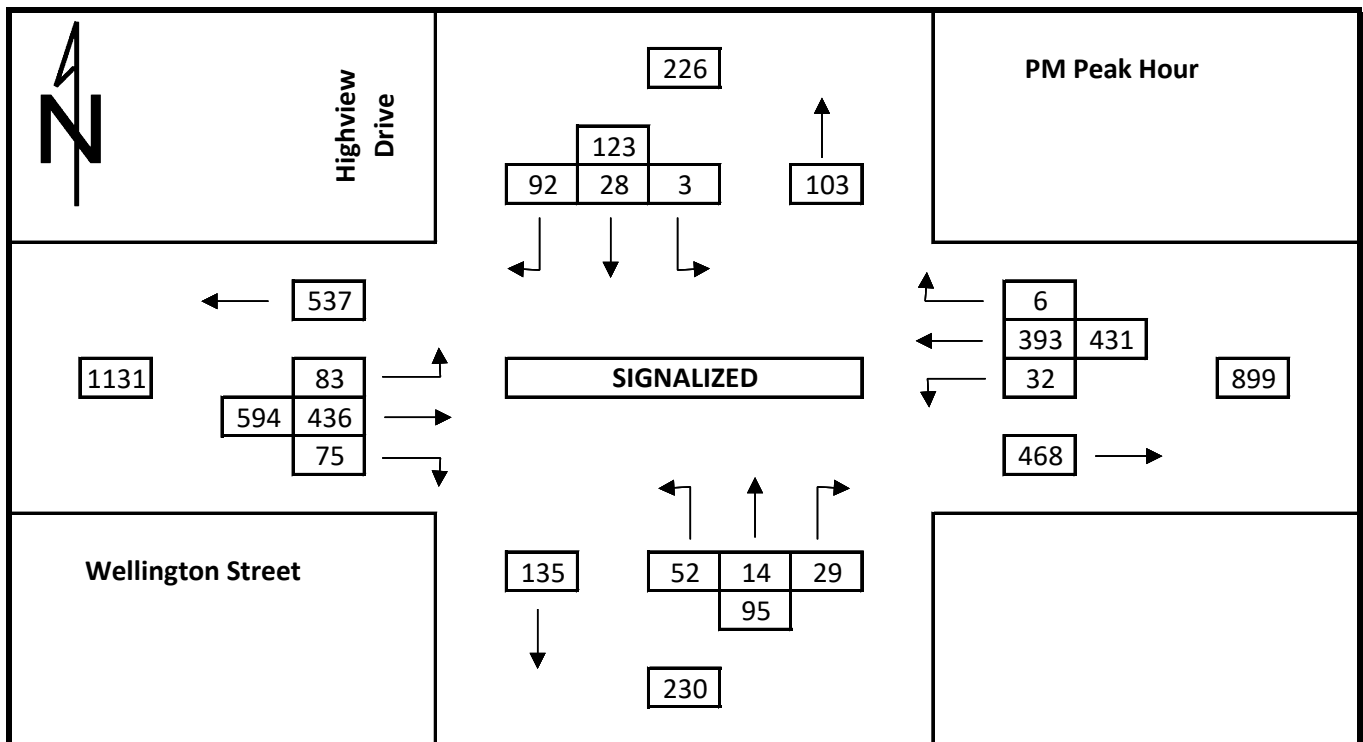
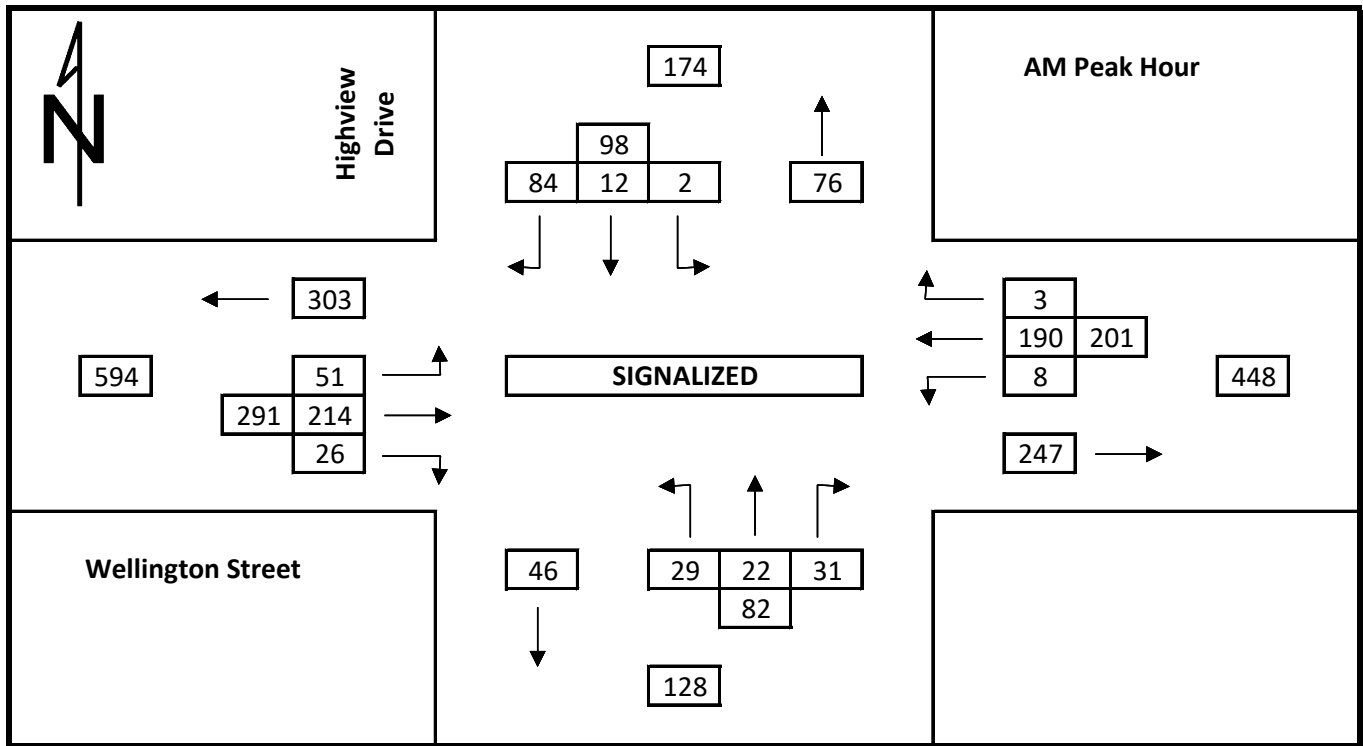
Appendix D

TRAFFIC PROJECTION FIGURES

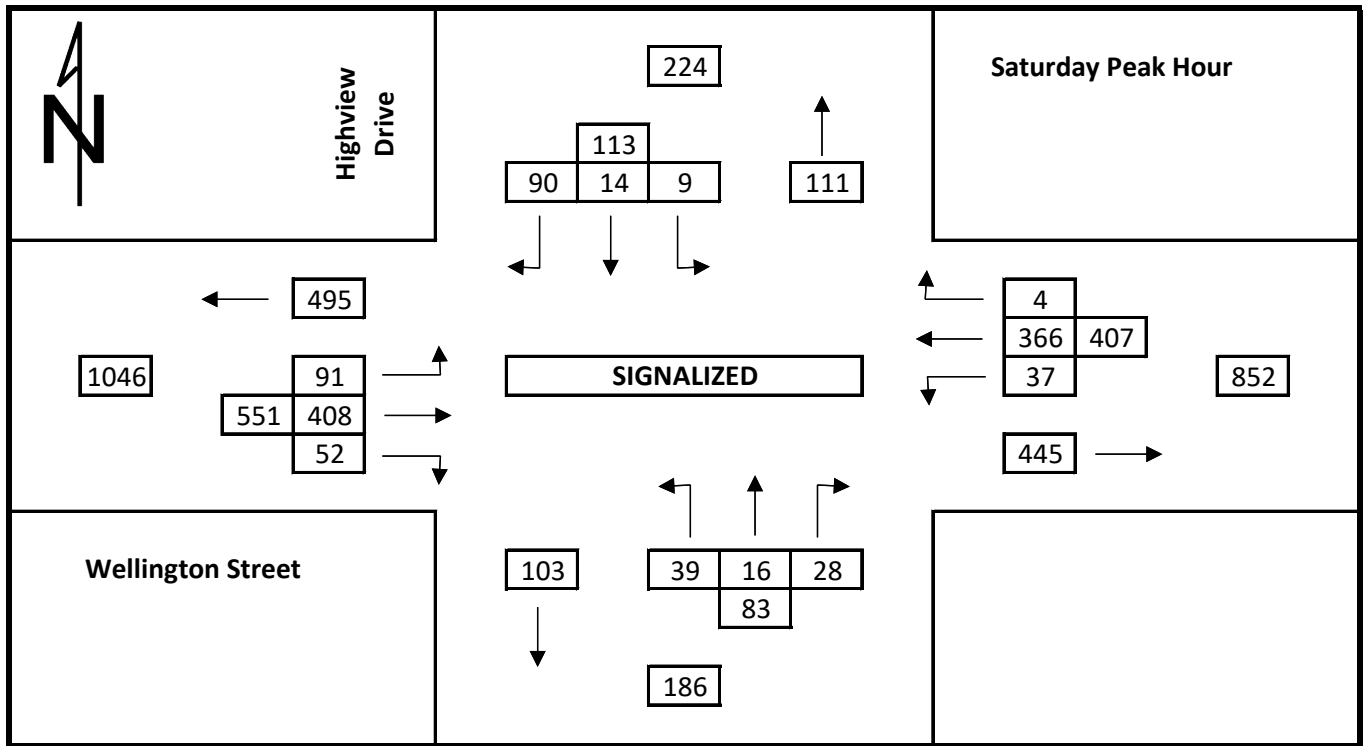
**Highview Drive at Wellington Street
Stokes Road / Mall Access at Wellington Street
Manor Road at Highview Drive
Manor Road at Wellington Street**

Existing Traffic Counts

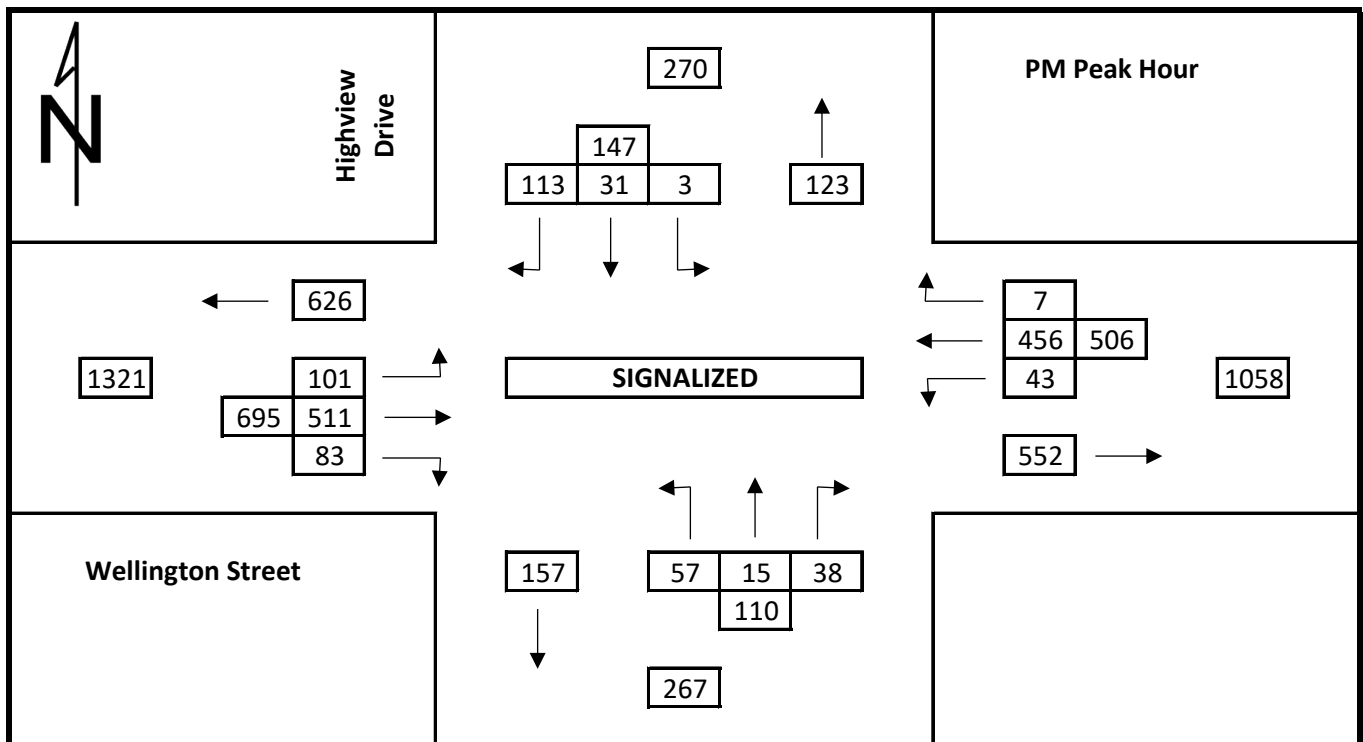
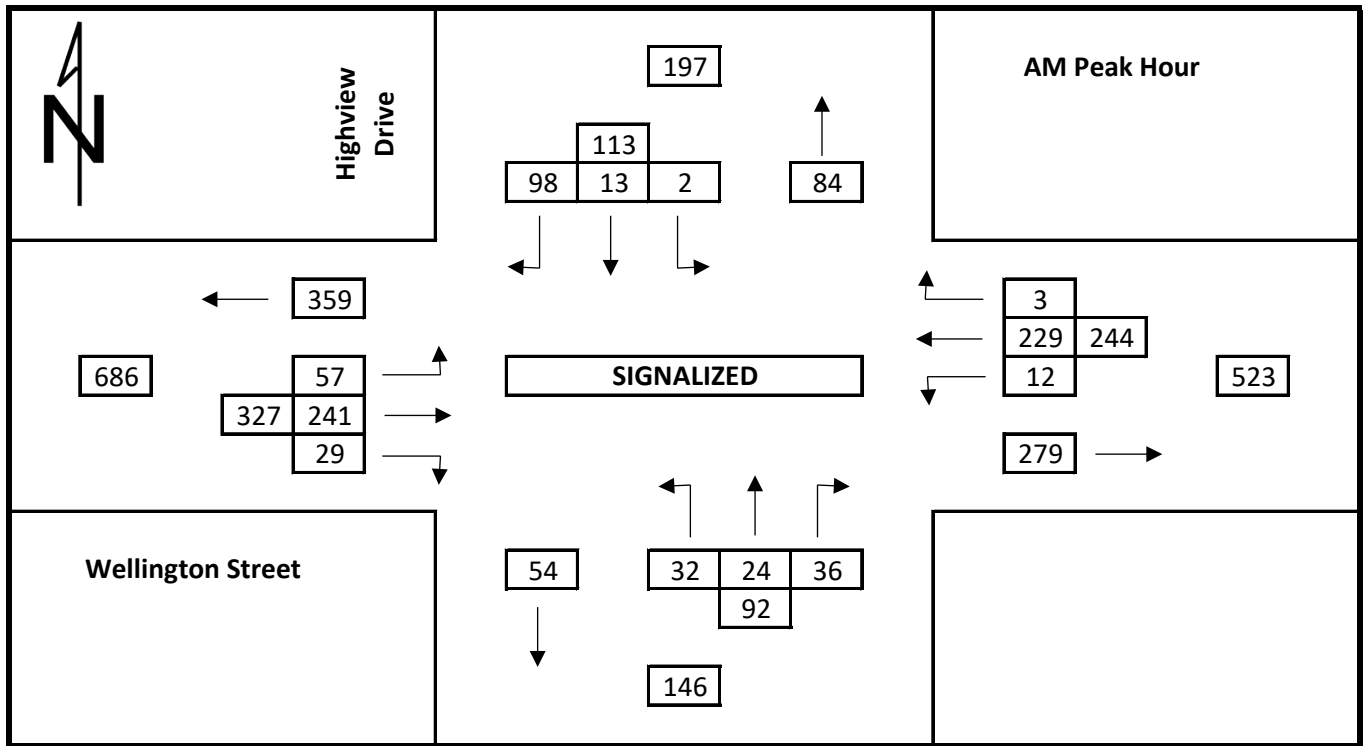
Highview Drive at Wellington Street



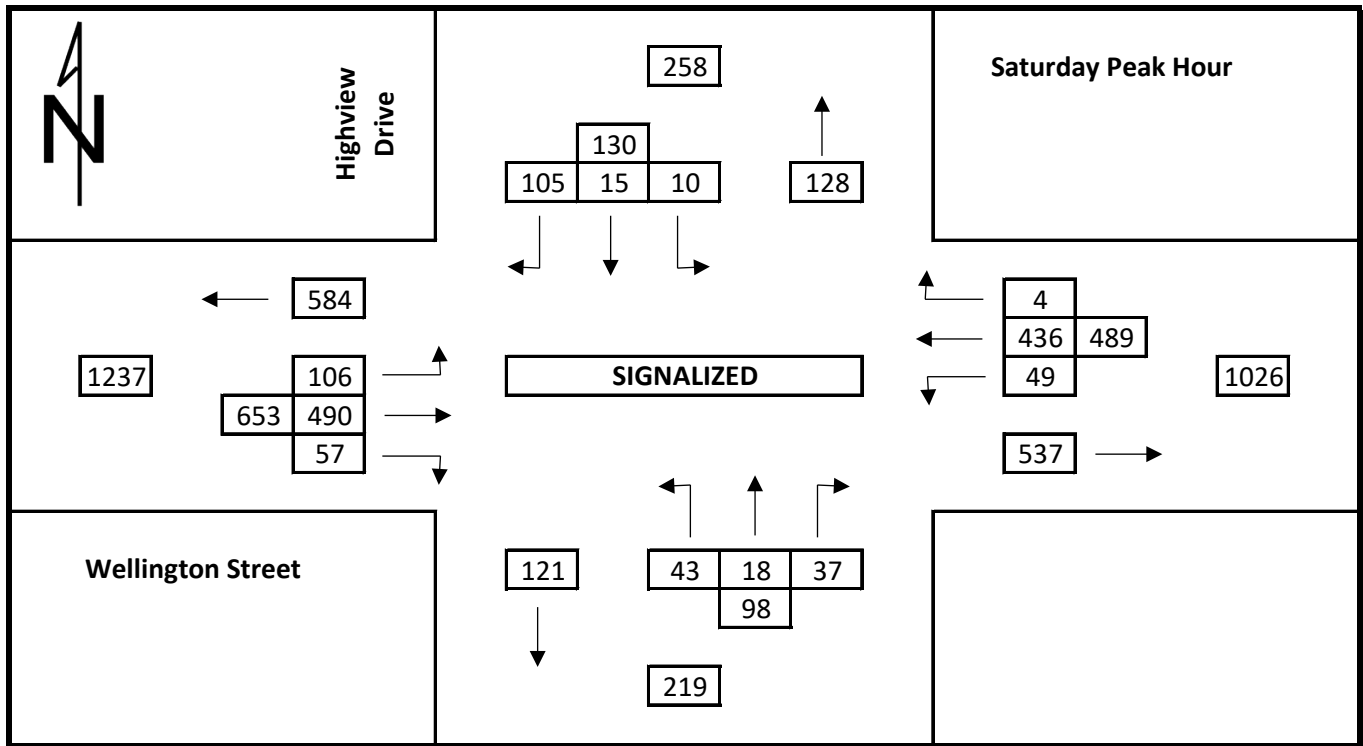
Existing Traffic Counts
Highview Drive at Wellington Street



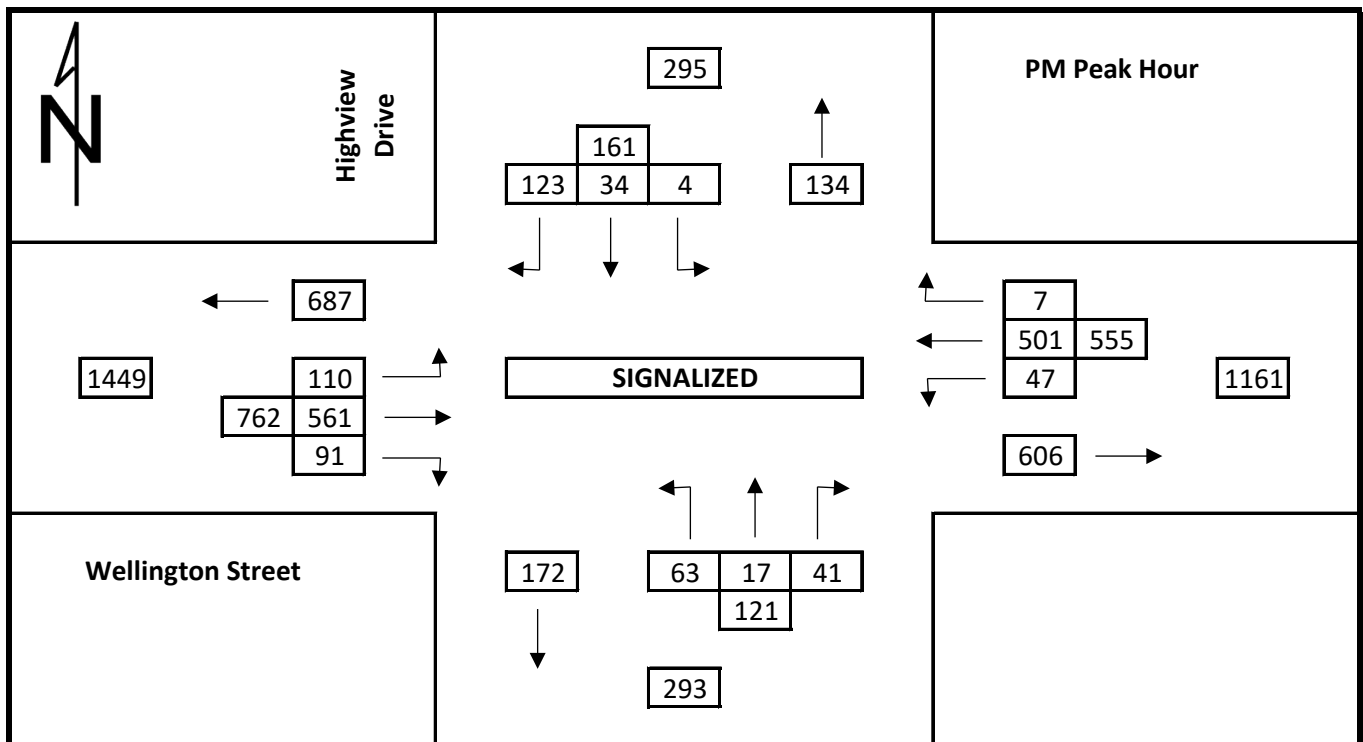
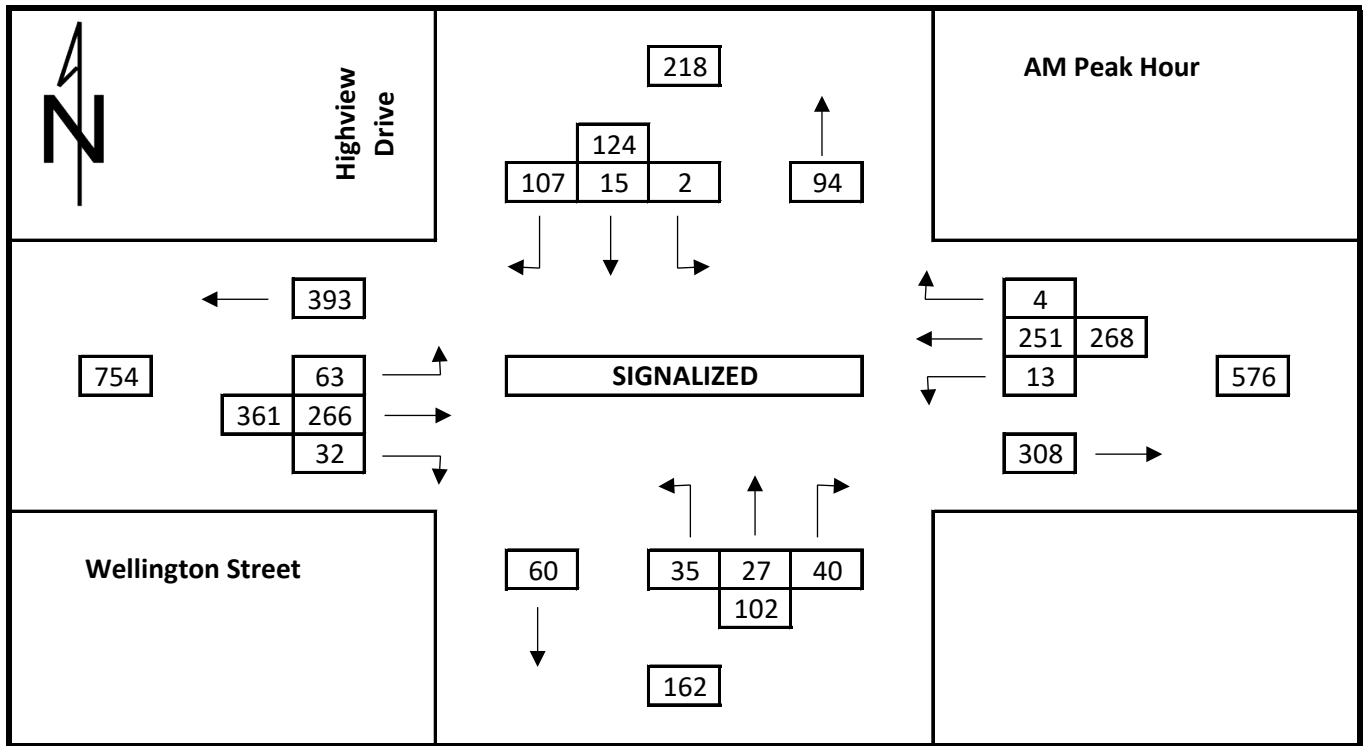
Total Traffic 2030
Highview Drive at Wellington Street



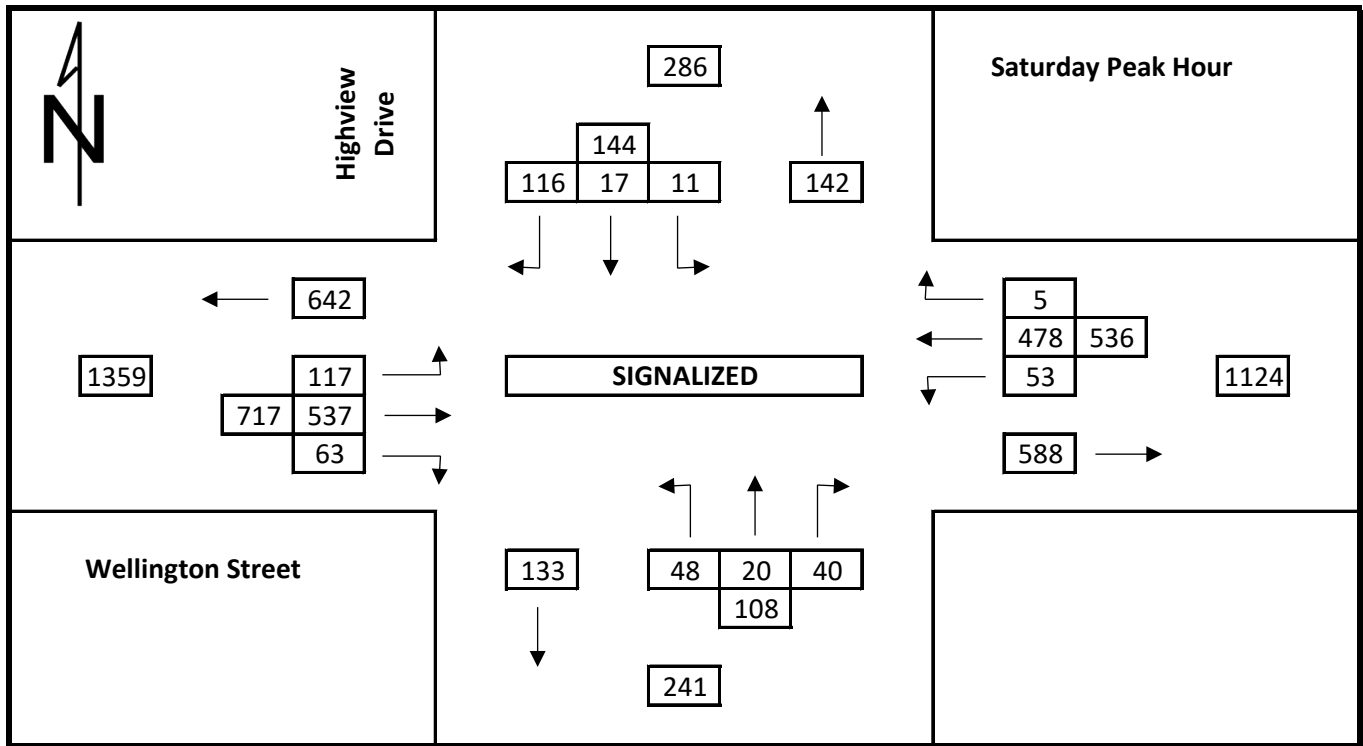
Total Traffic 2030
Highview Drive at Wellington Street



Total Traffic 2035
Highview Drive at Wellington Street

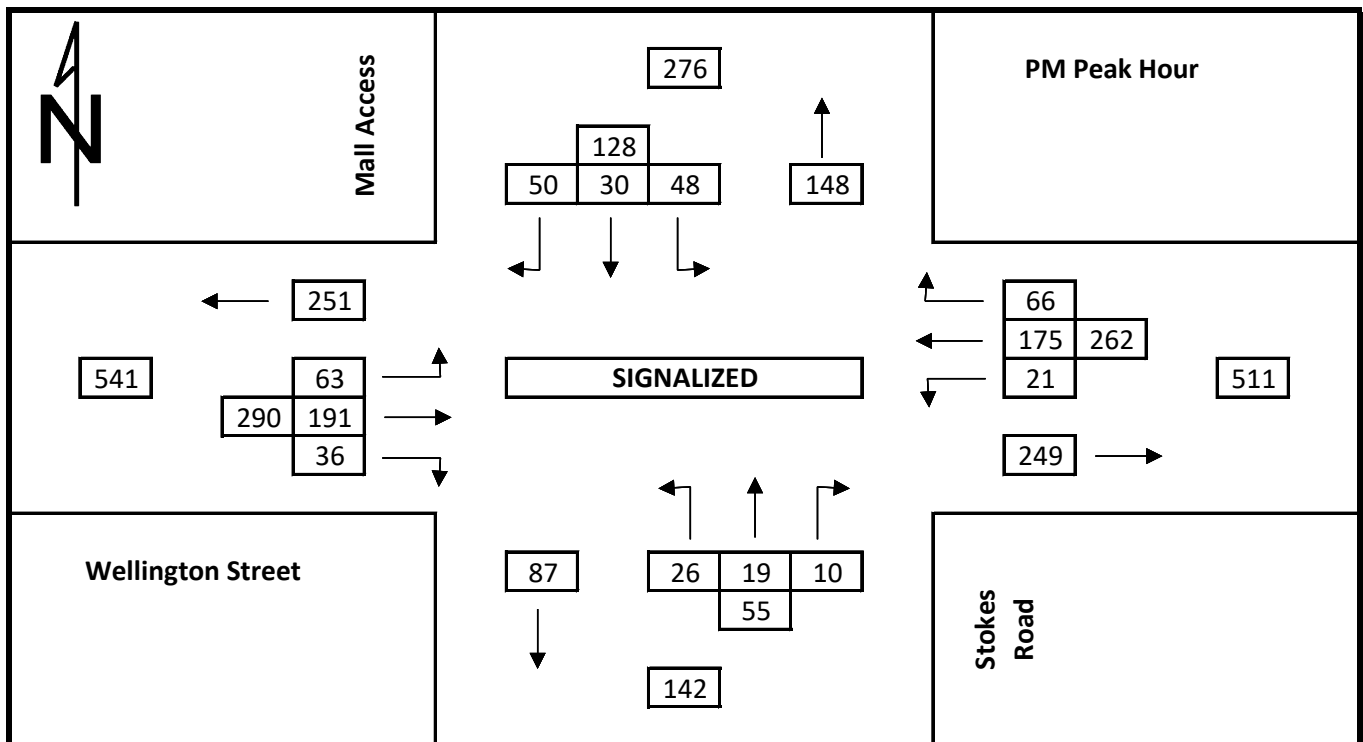
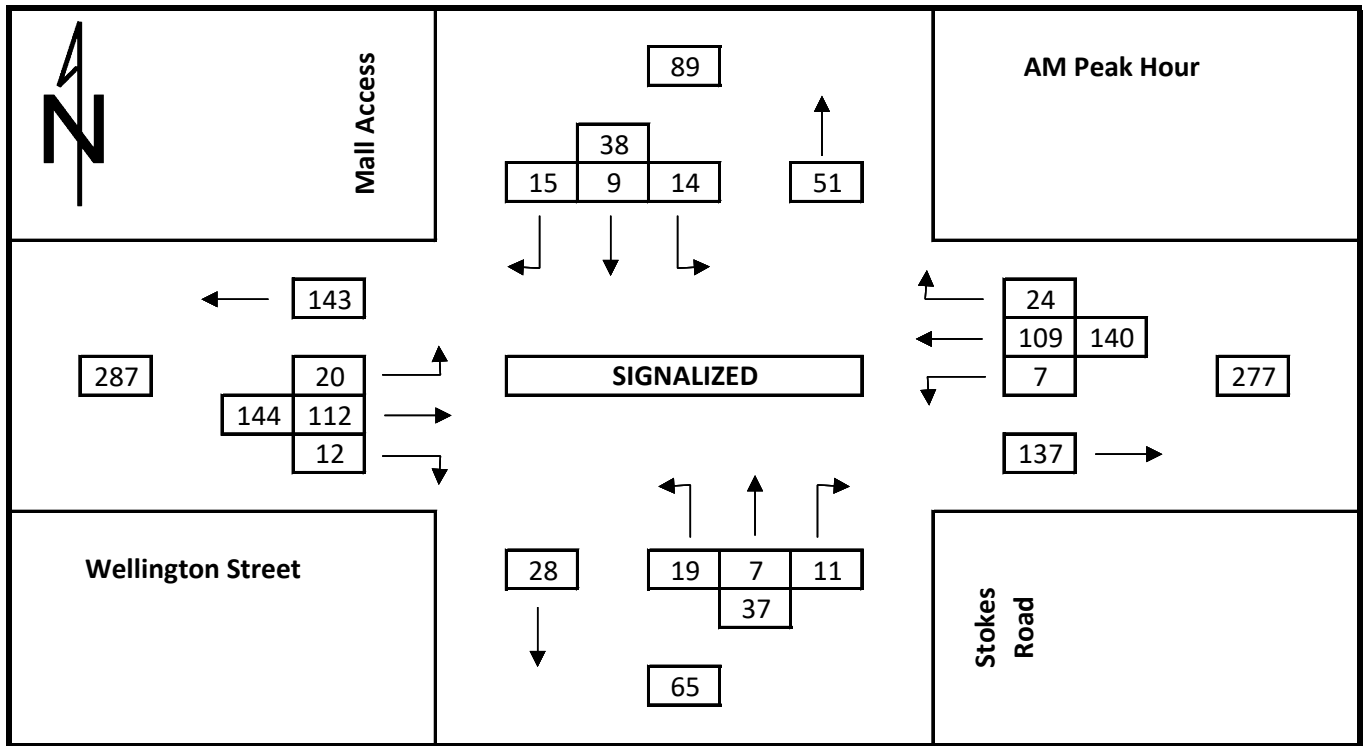


Total Traffic 2035
Highview Drive at Wellington Street

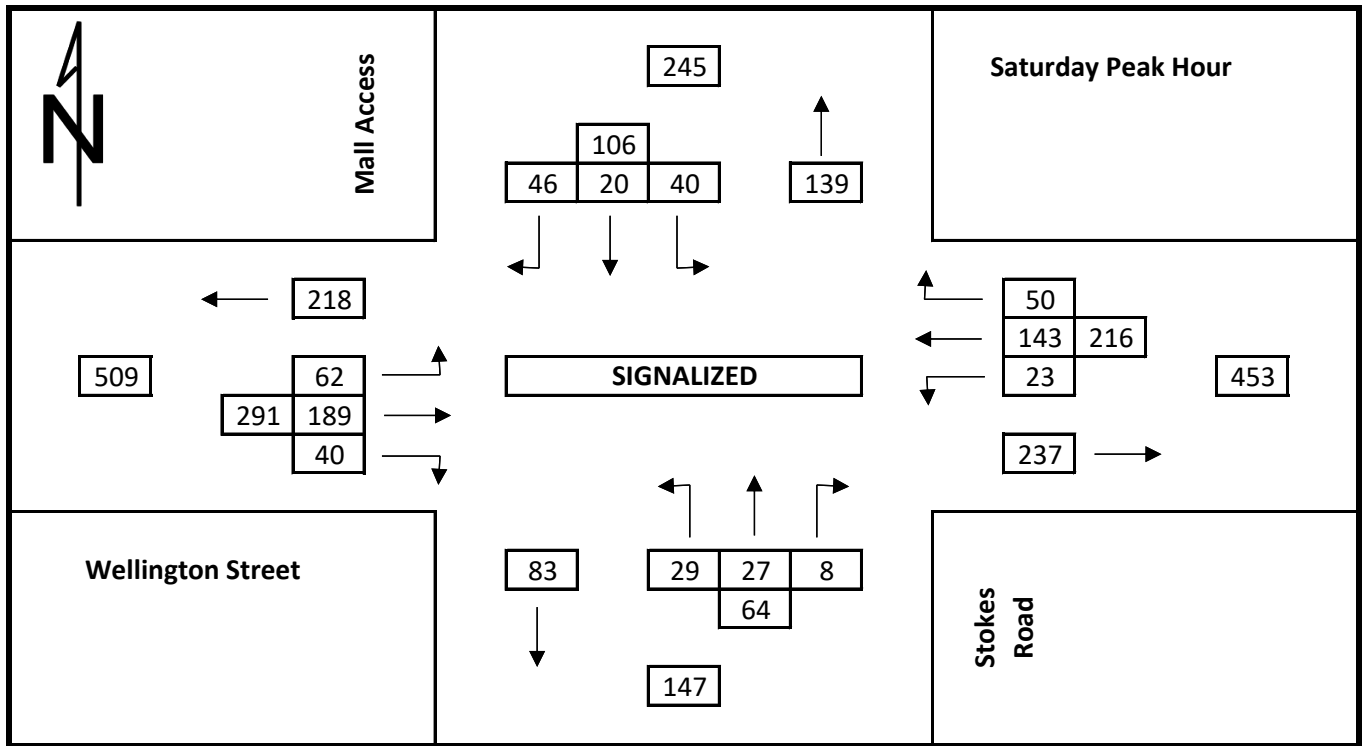


Existing Traffic Counts

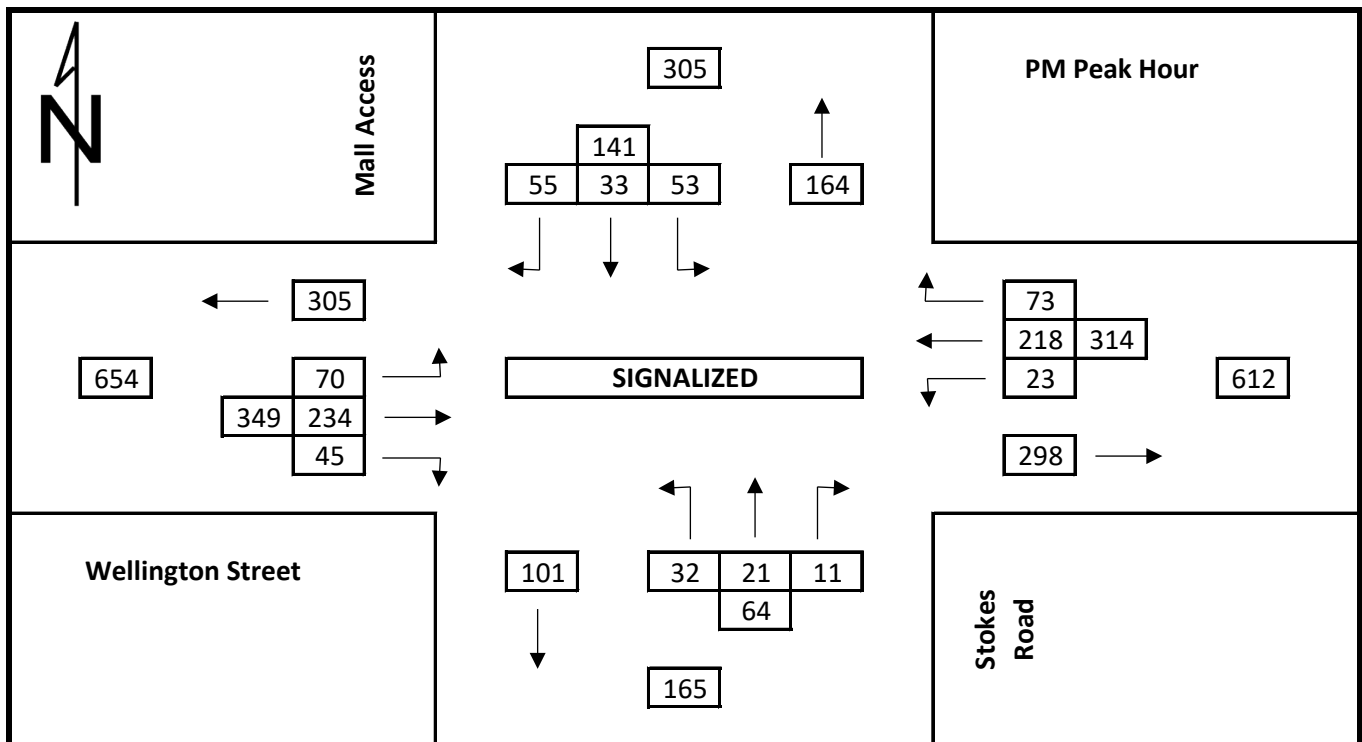
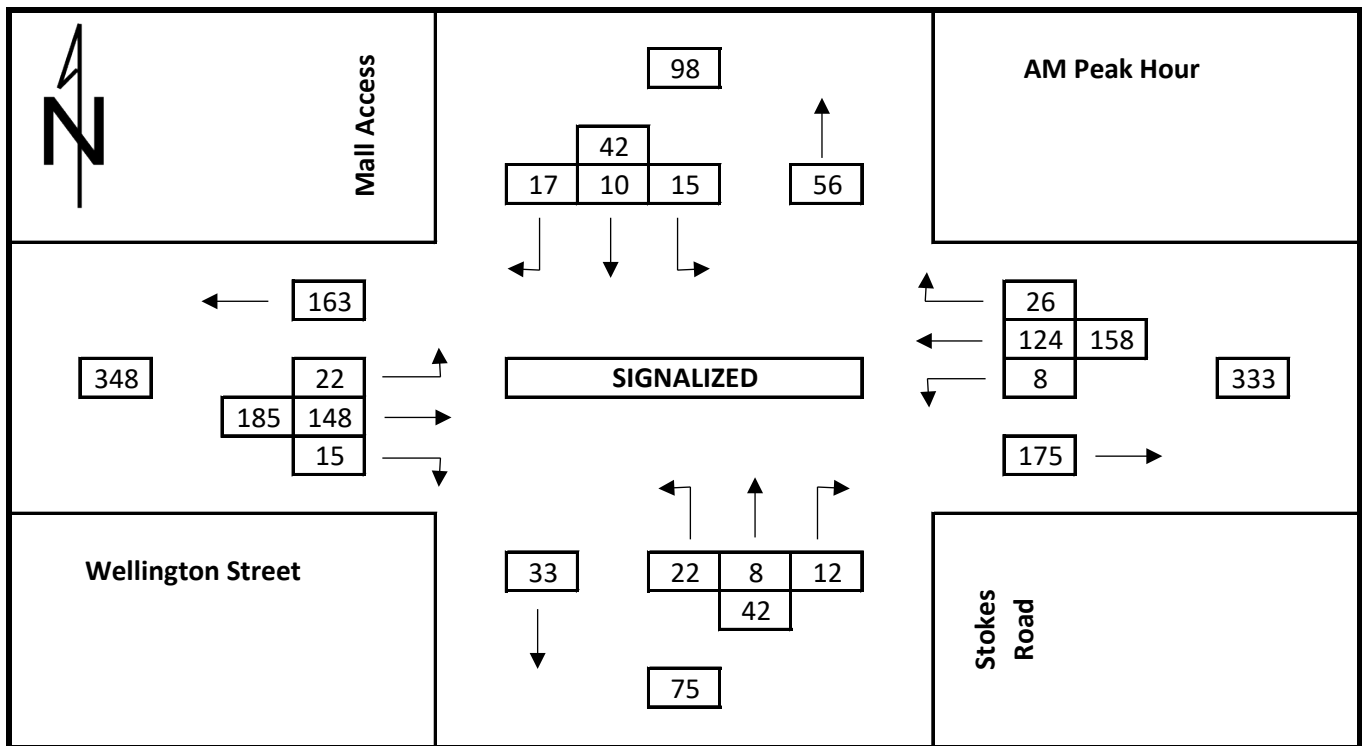
Stokes Road / Mall Access at Wellington Street



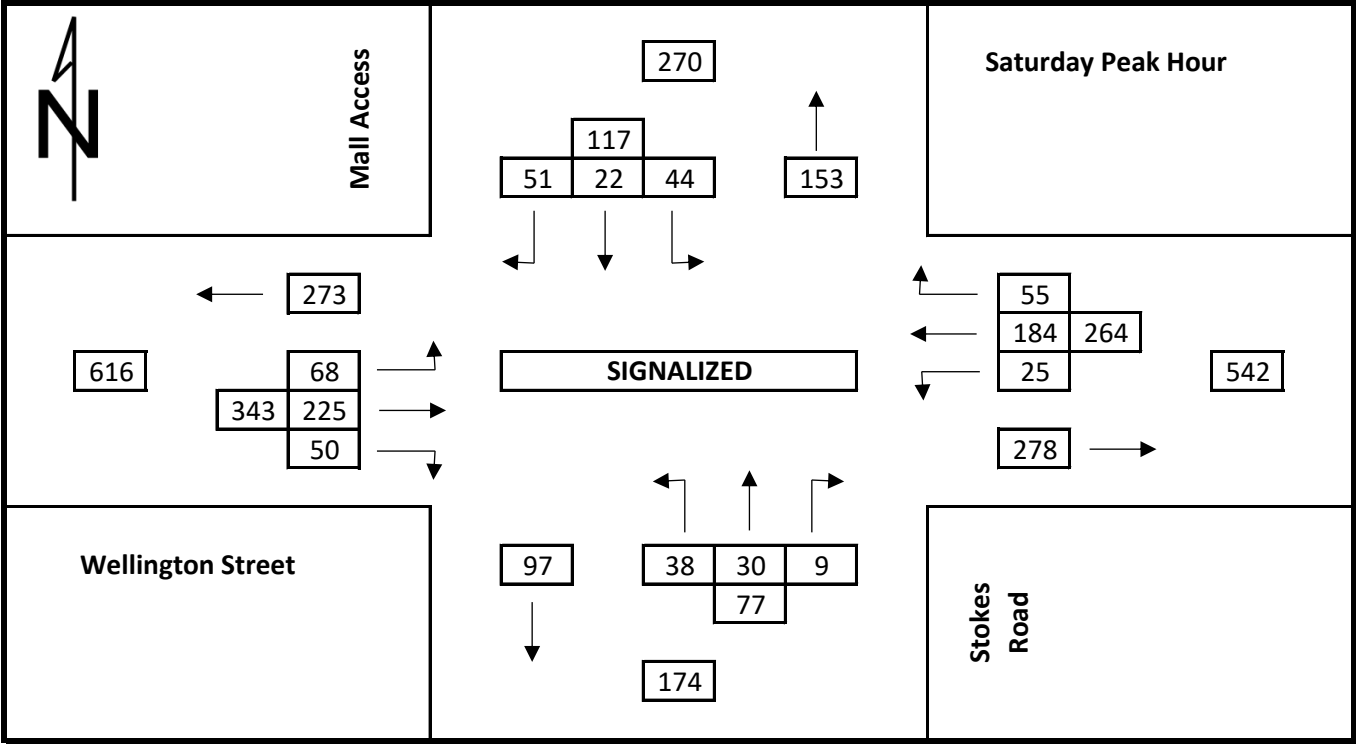
Existing Traffic Counts
Stokes Road / Mall Access at Wellington Street



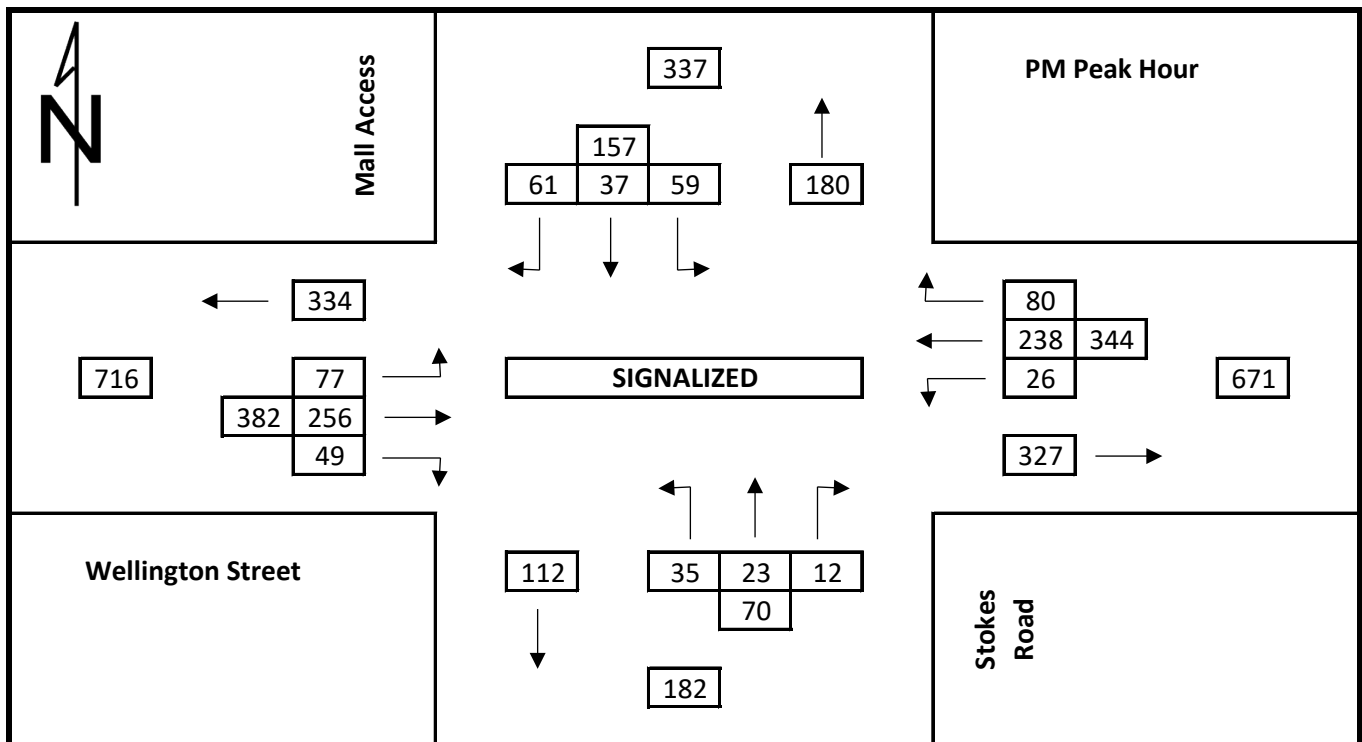
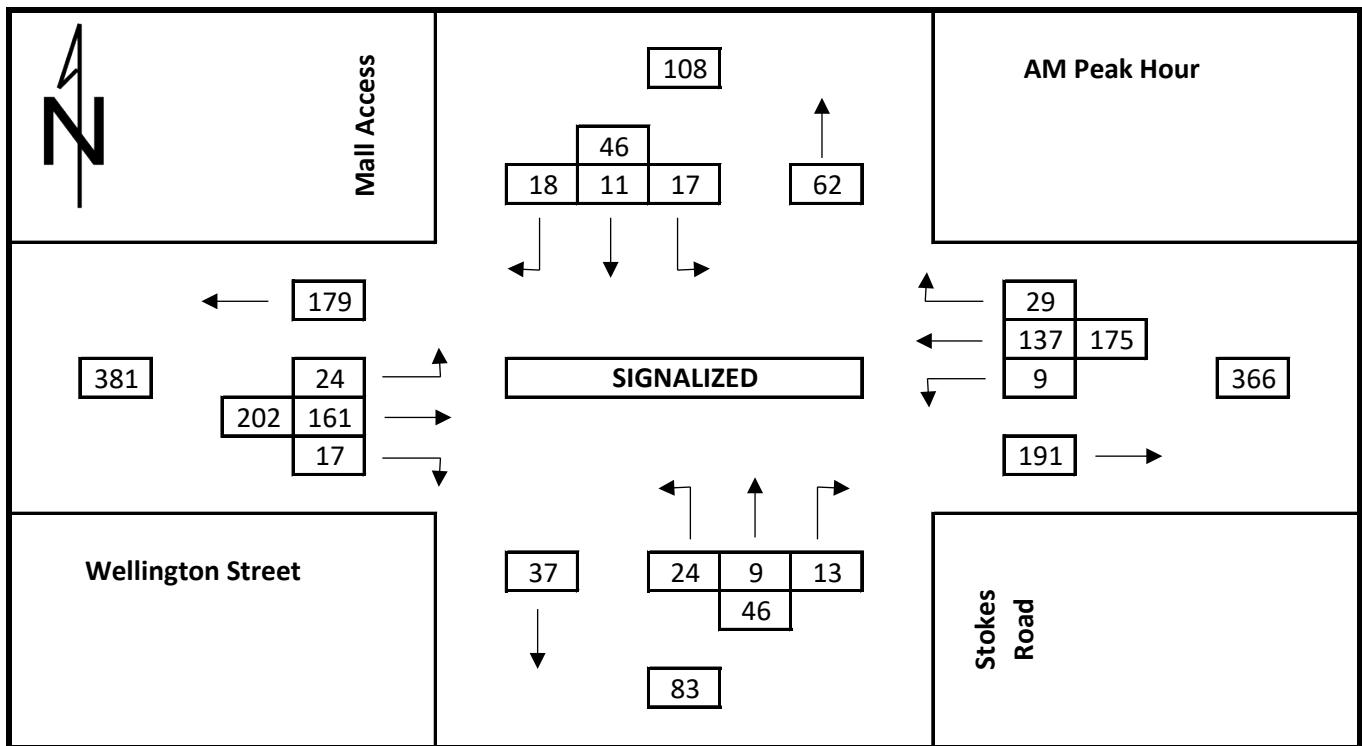
Total Traffic 2030
Stokes Road / Mall Access at Wellington Street



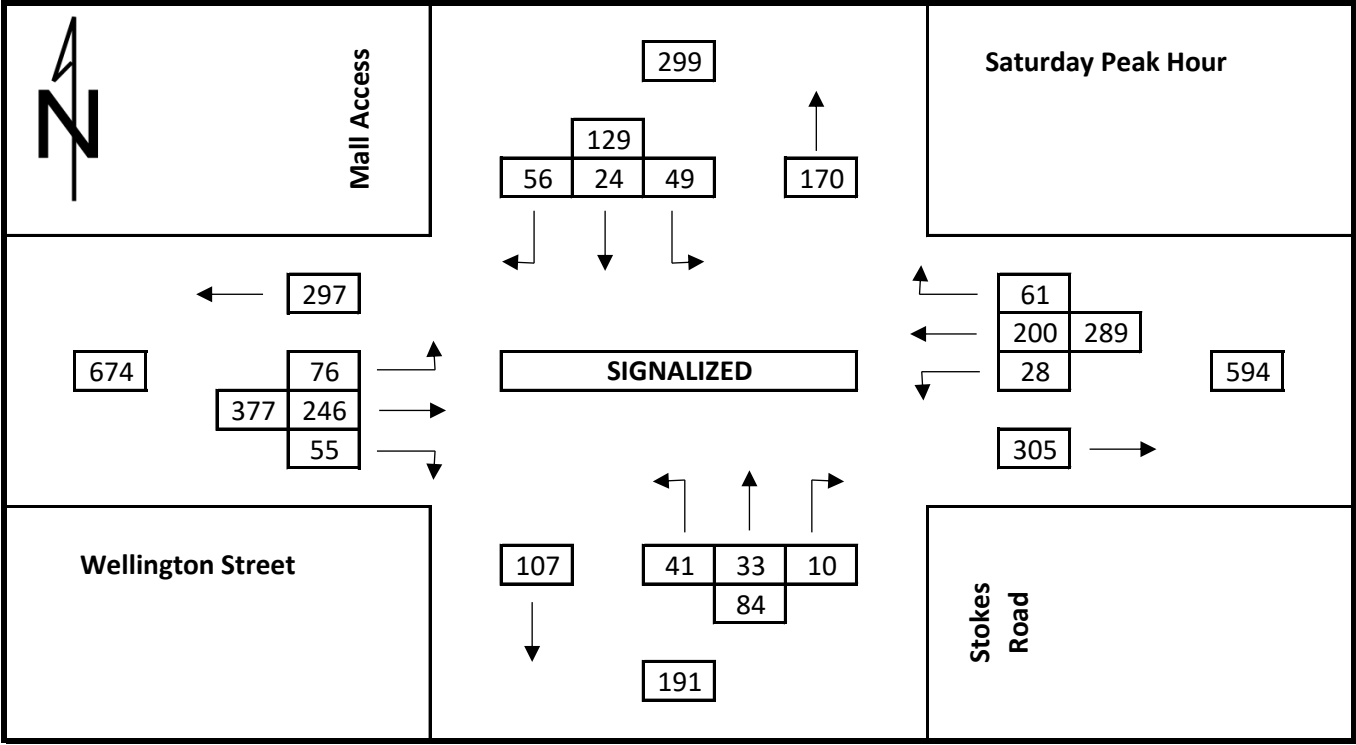
Total Traffic 2030
Stokes Road / Mall Access at Wellington Street



Total Traffic 2035
Stokes Road / Mall Access at Wellington Street

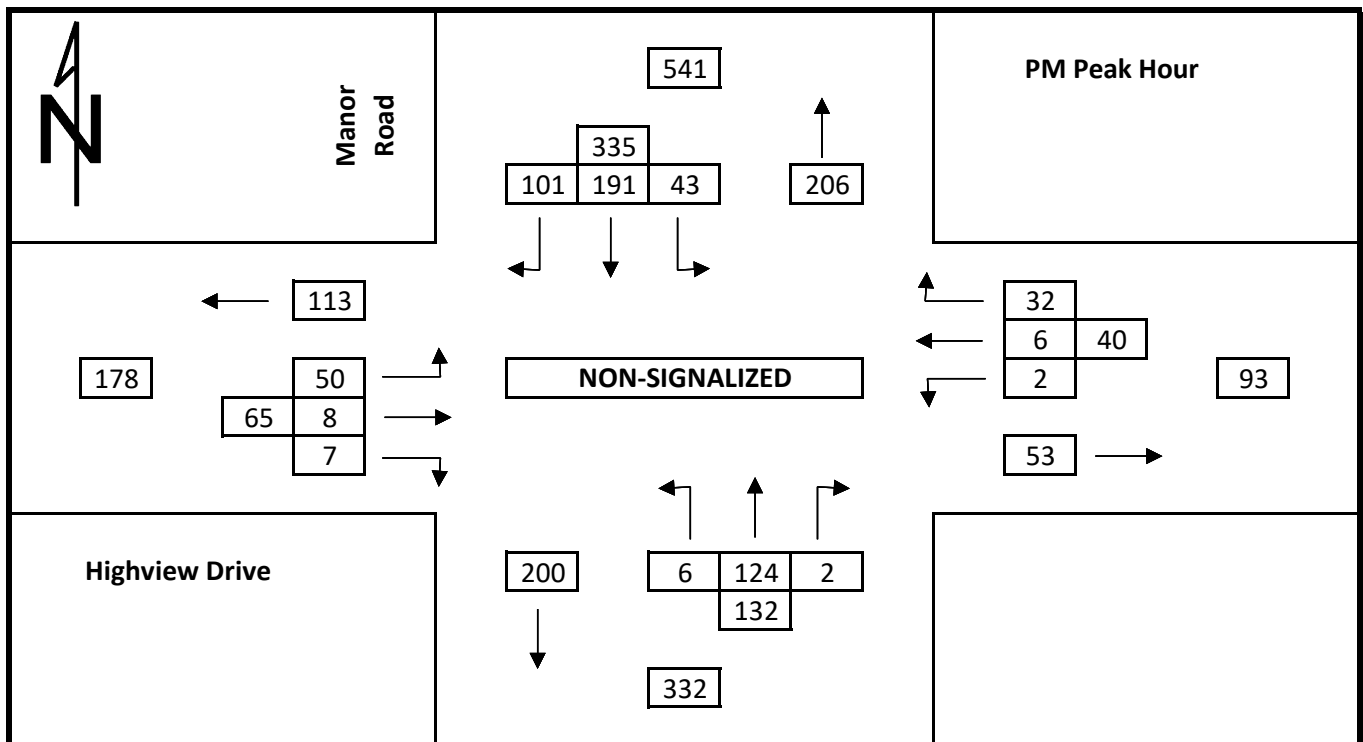
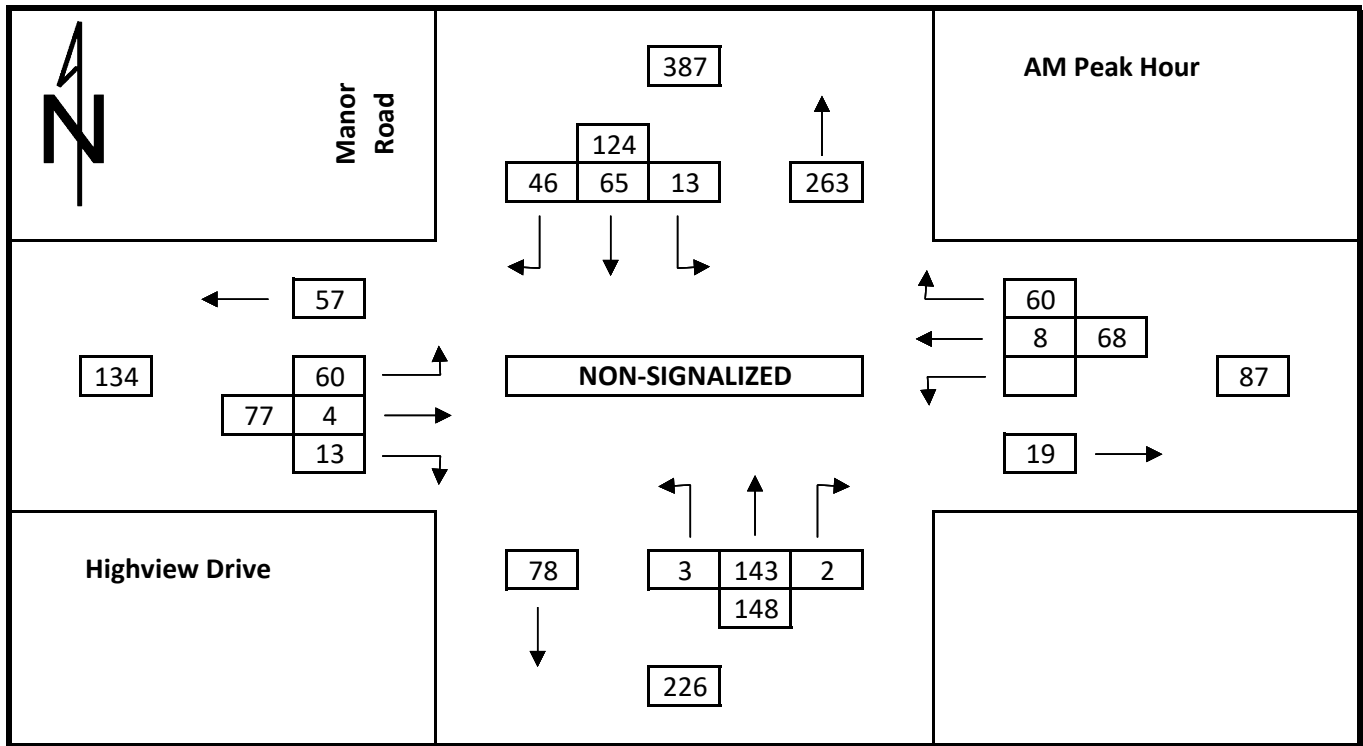


Total Traffic 2035
Stokes Road / Mall Access at Wellington Street

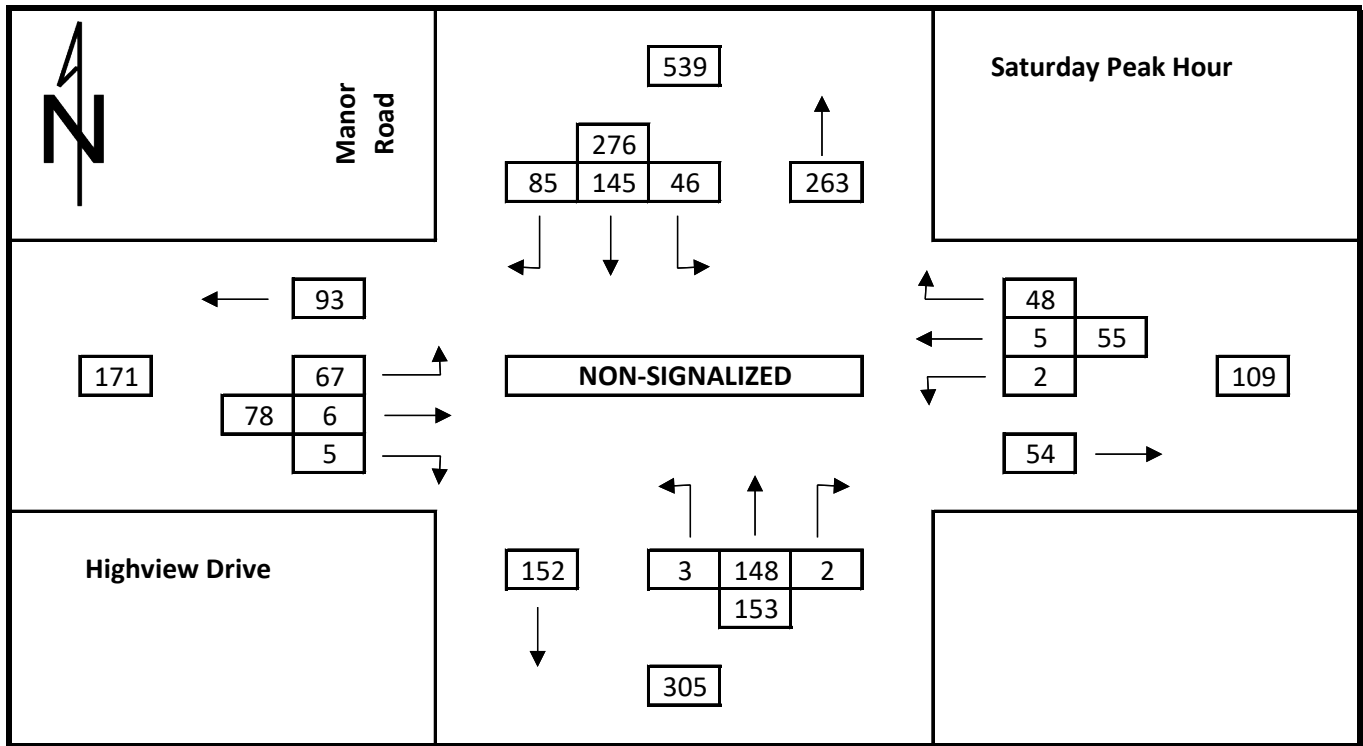


Existing Traffic Counts

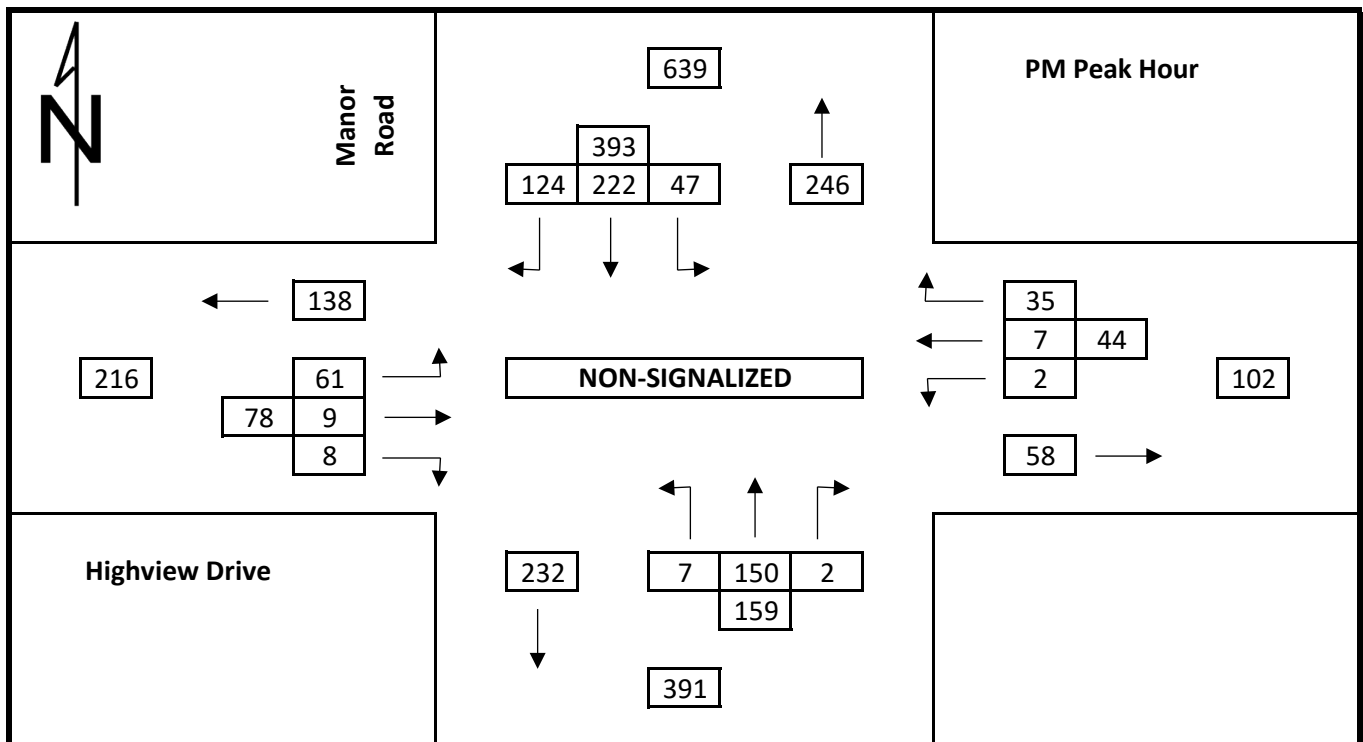
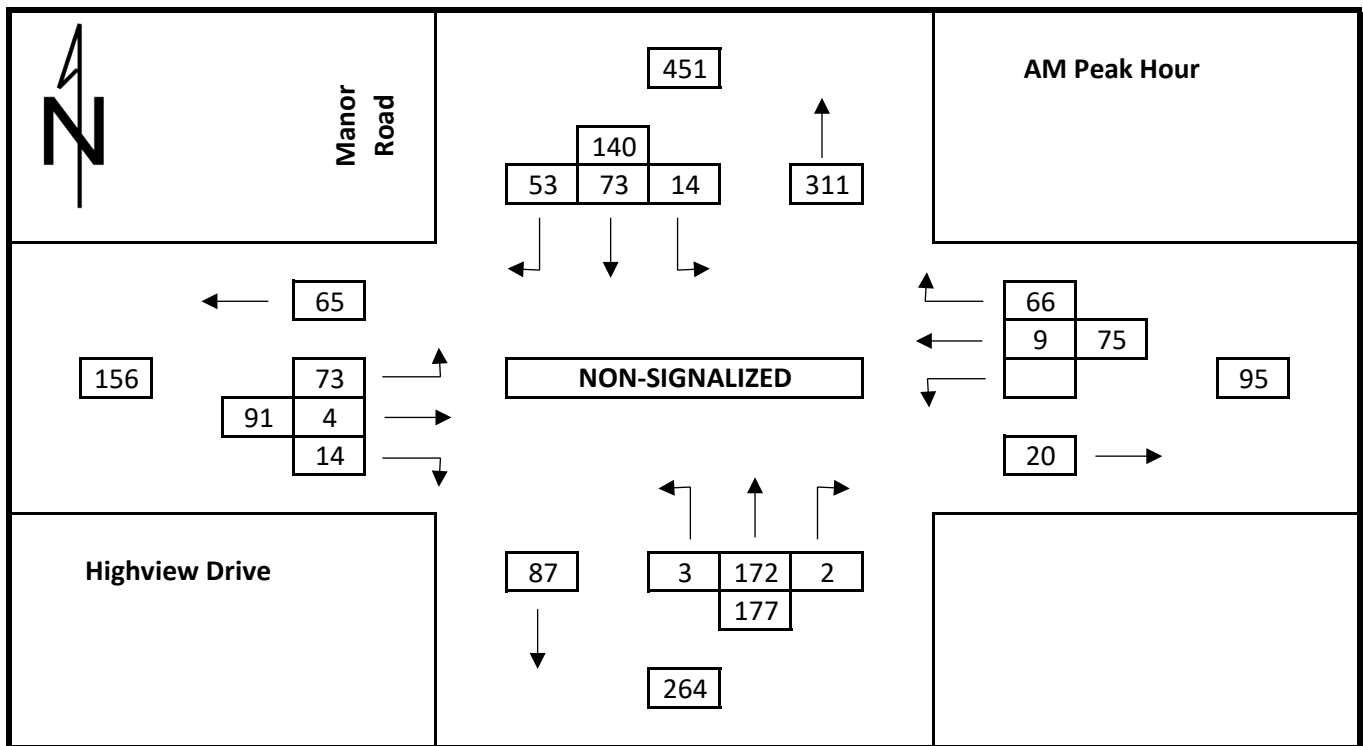
Manor Road at Highview Drive



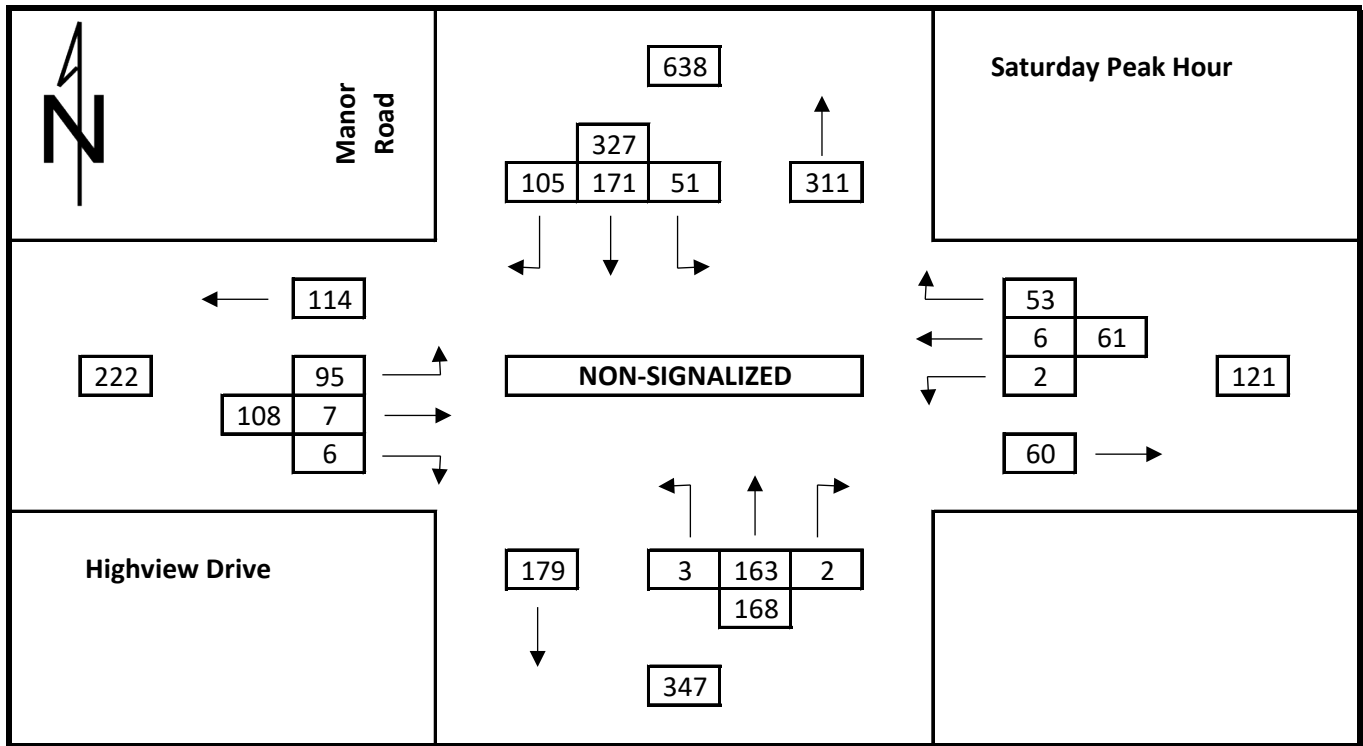
Existing Traffic Counts
Manor Road at Highview Drive



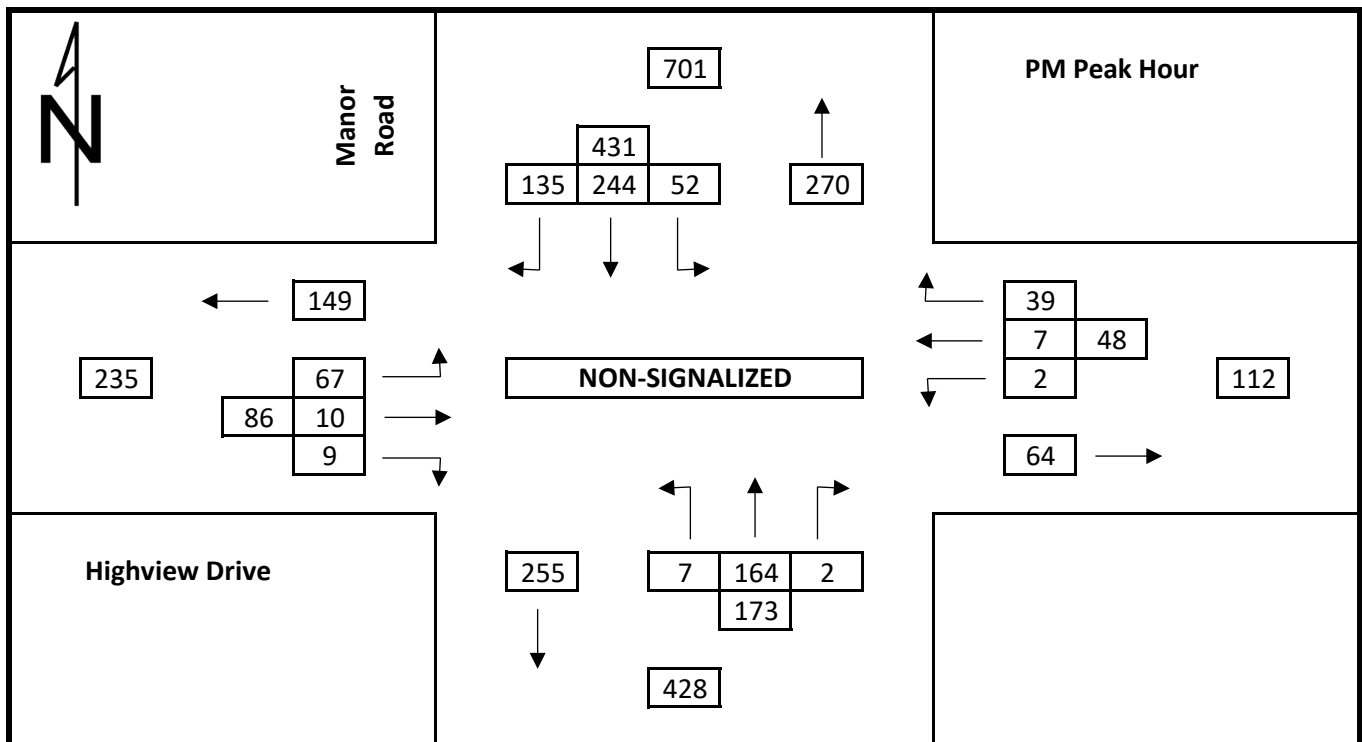
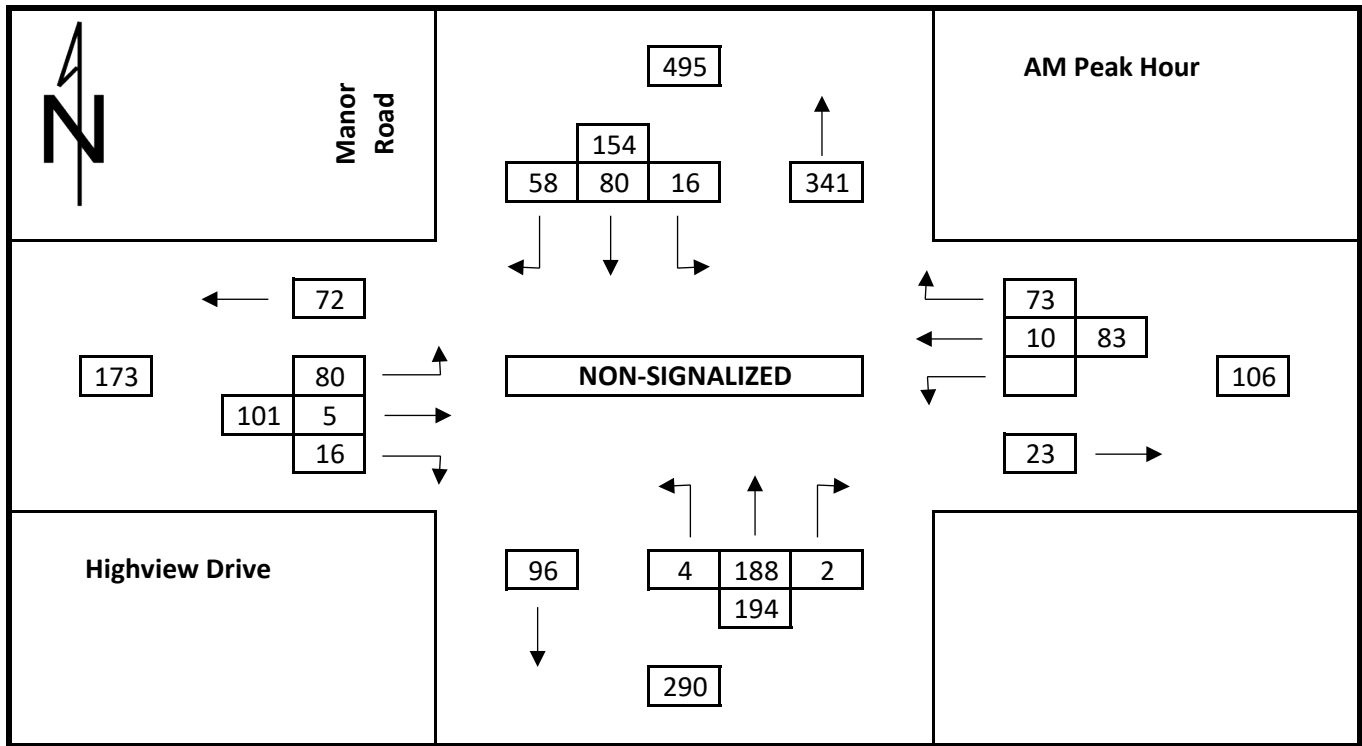
Total Traffic 2030
 Manor Road at Highview Drive



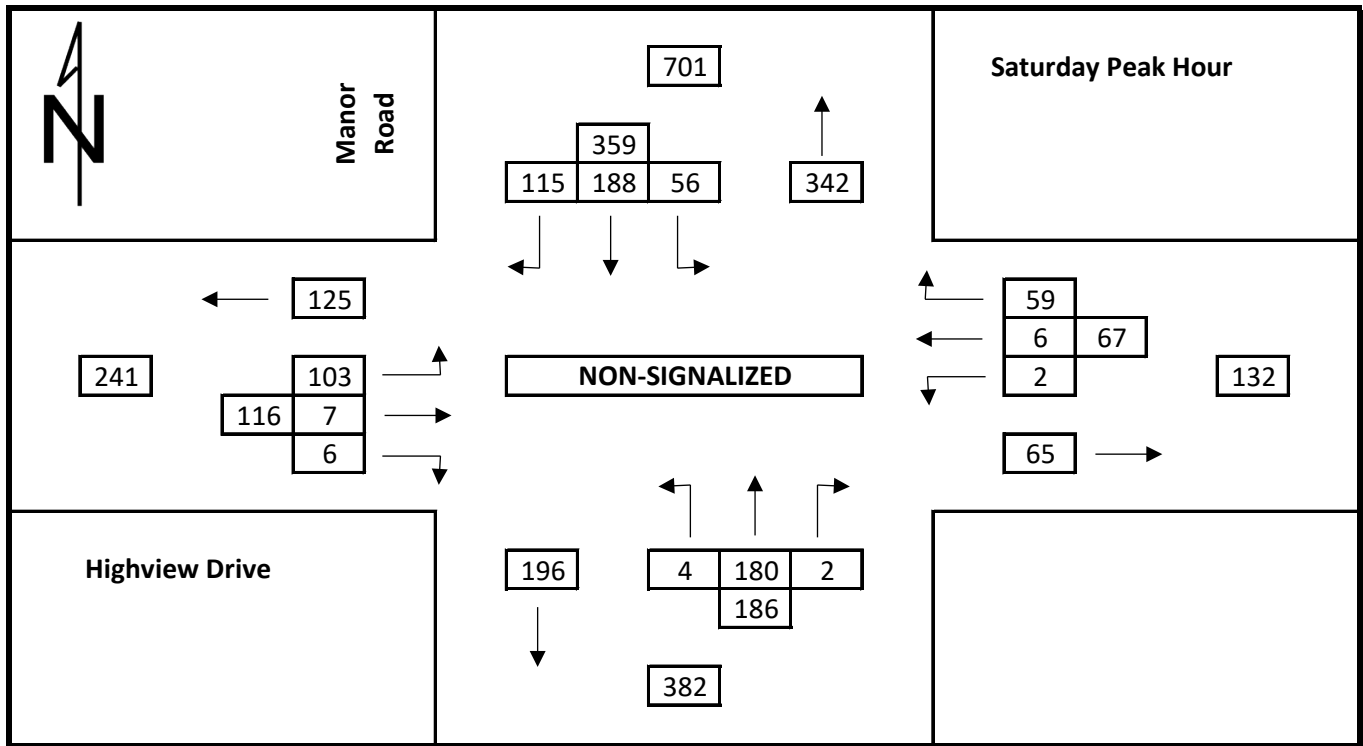
Total Traffic 2030
Manor Road at Highview Drive



Total Traffic 2035
 Manor Road at Highview Drive

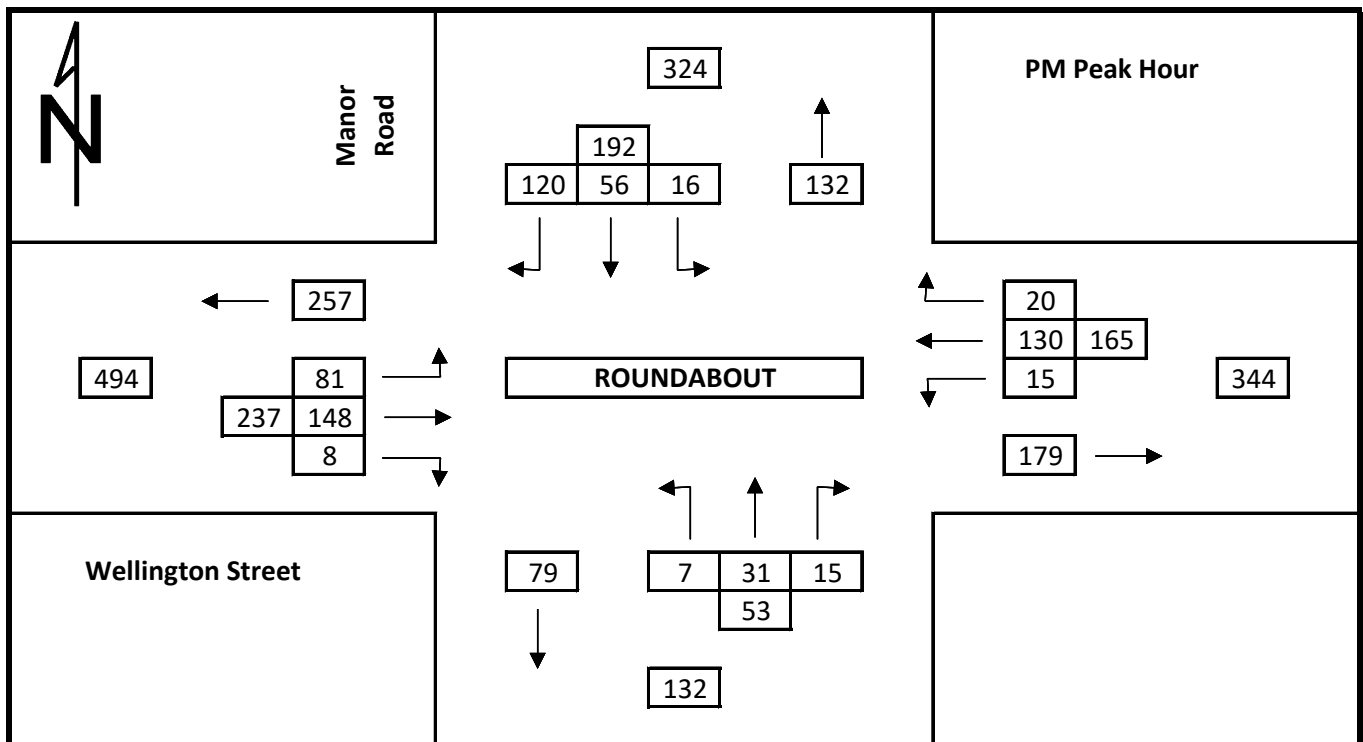
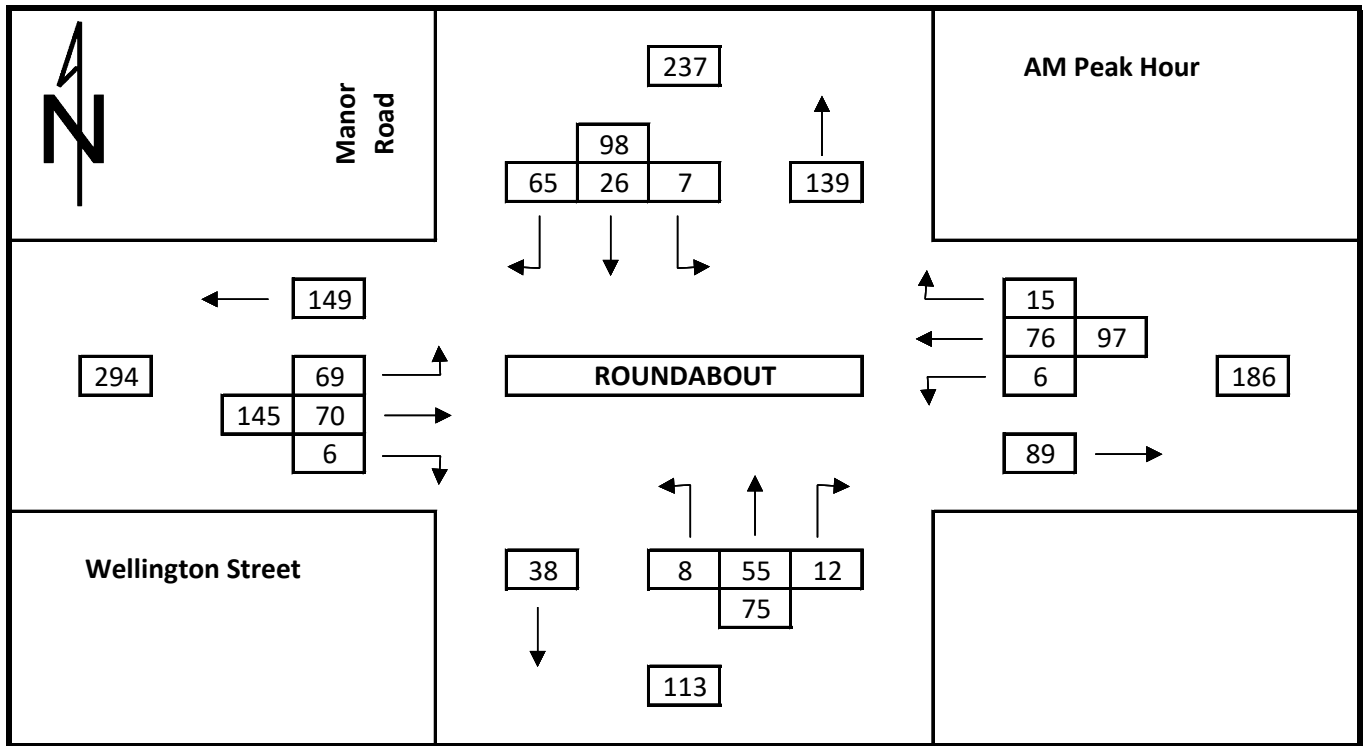


Total Traffic 2035
Manor Road at Highview Drive

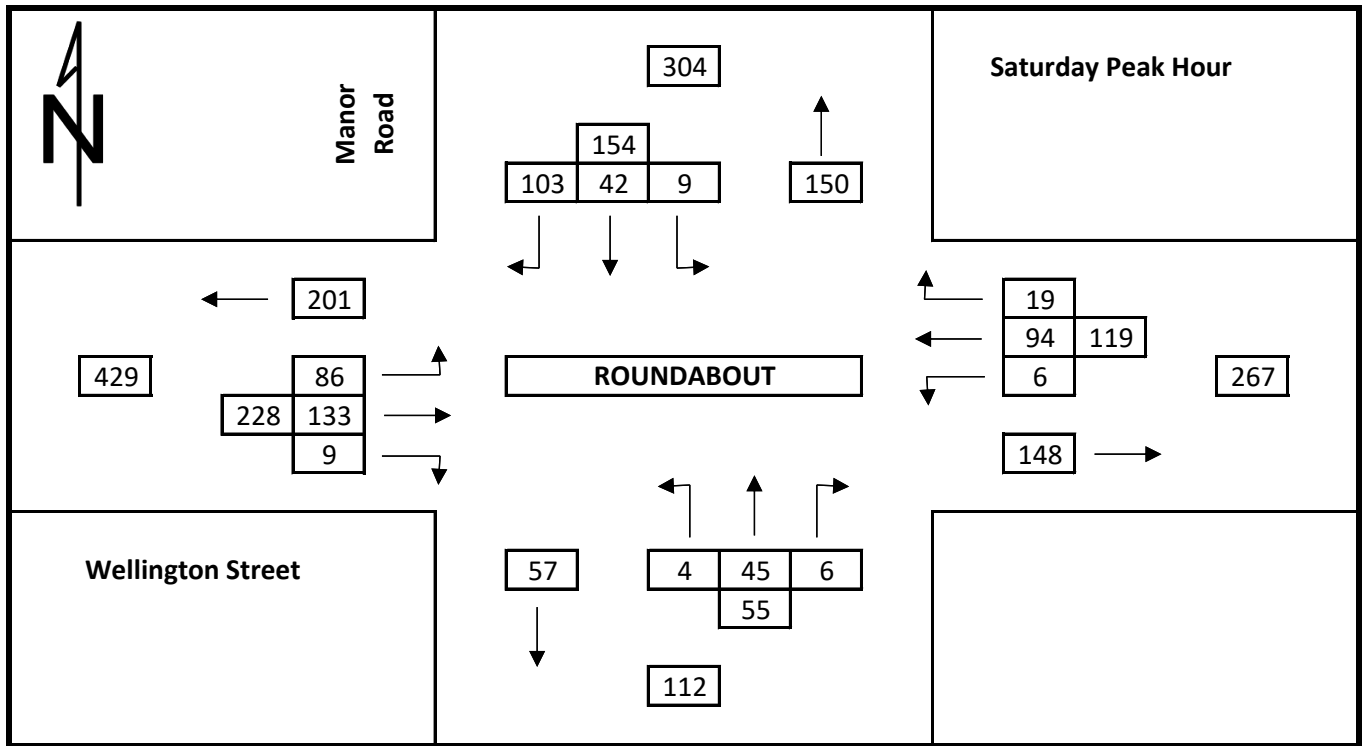


Existing Traffic Counts

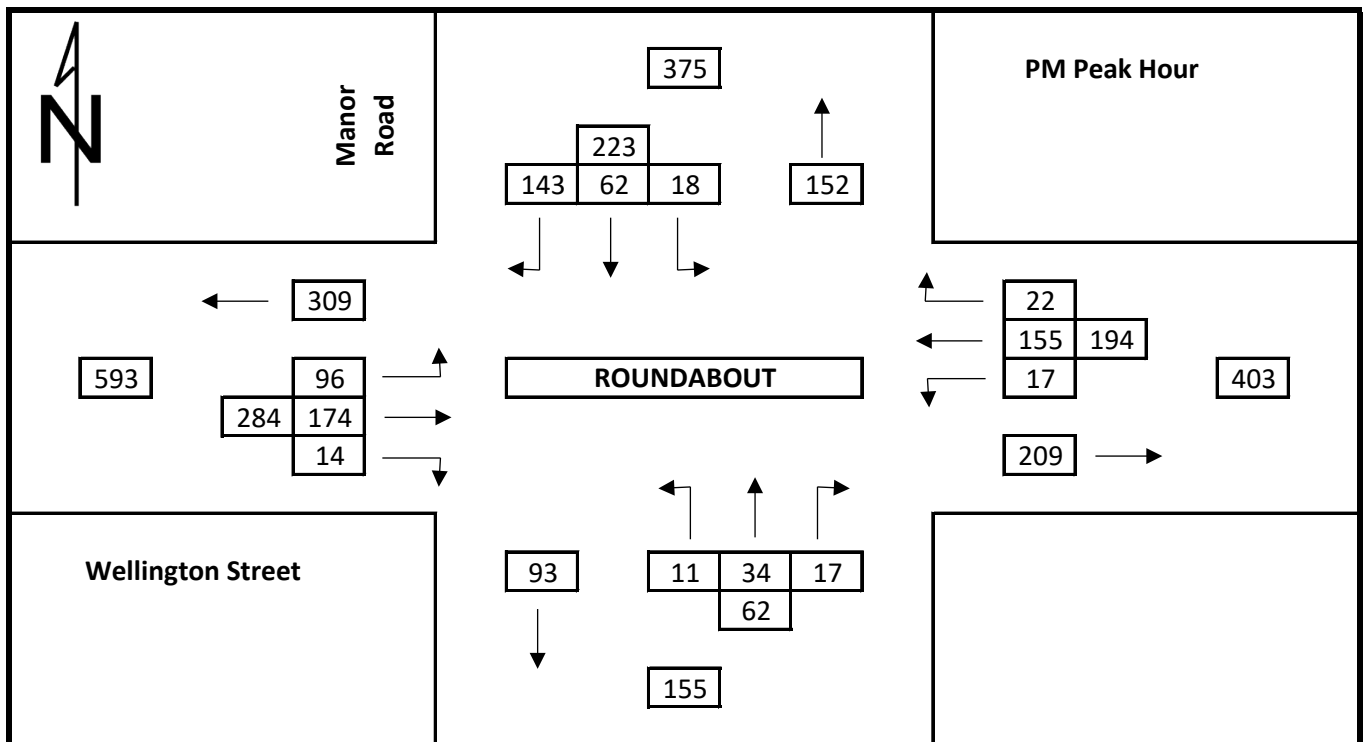
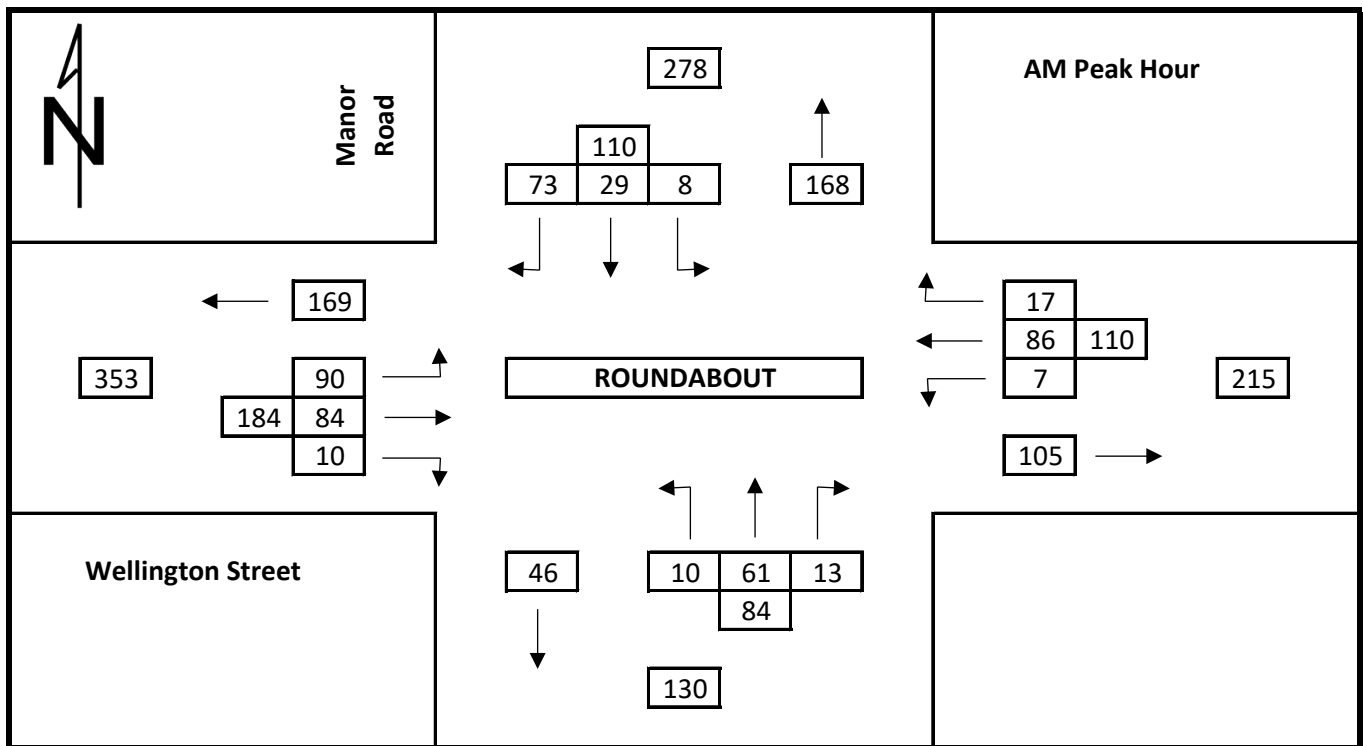
Manor Road at Wellington Street



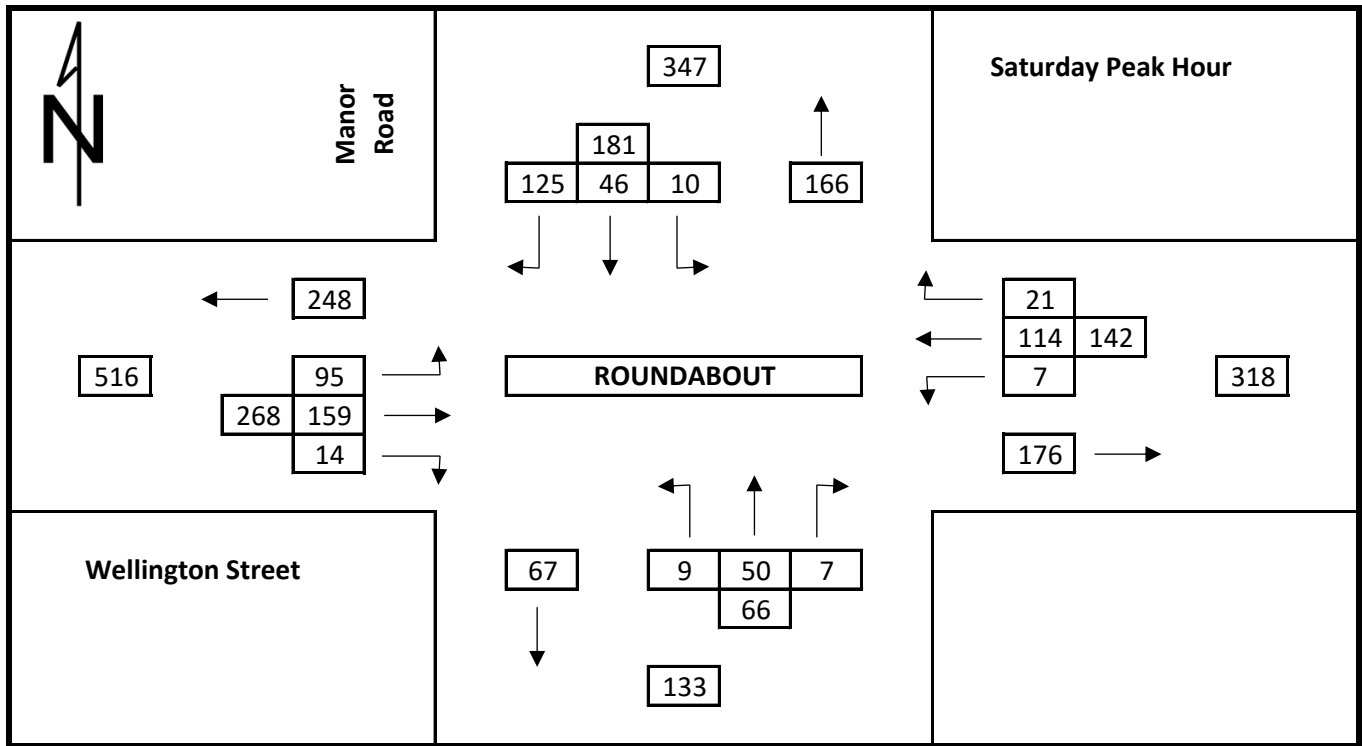
Existing Traffic Counts
Manor Road at Wellington Street



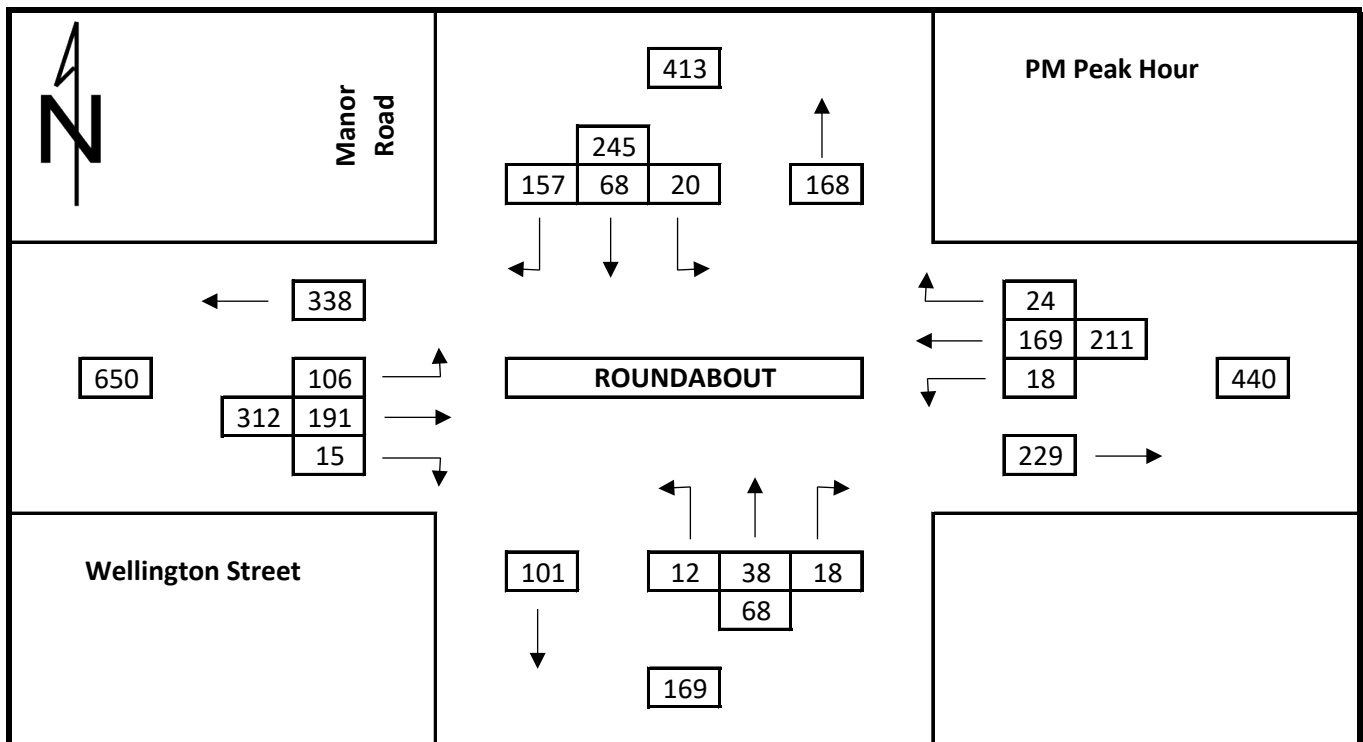
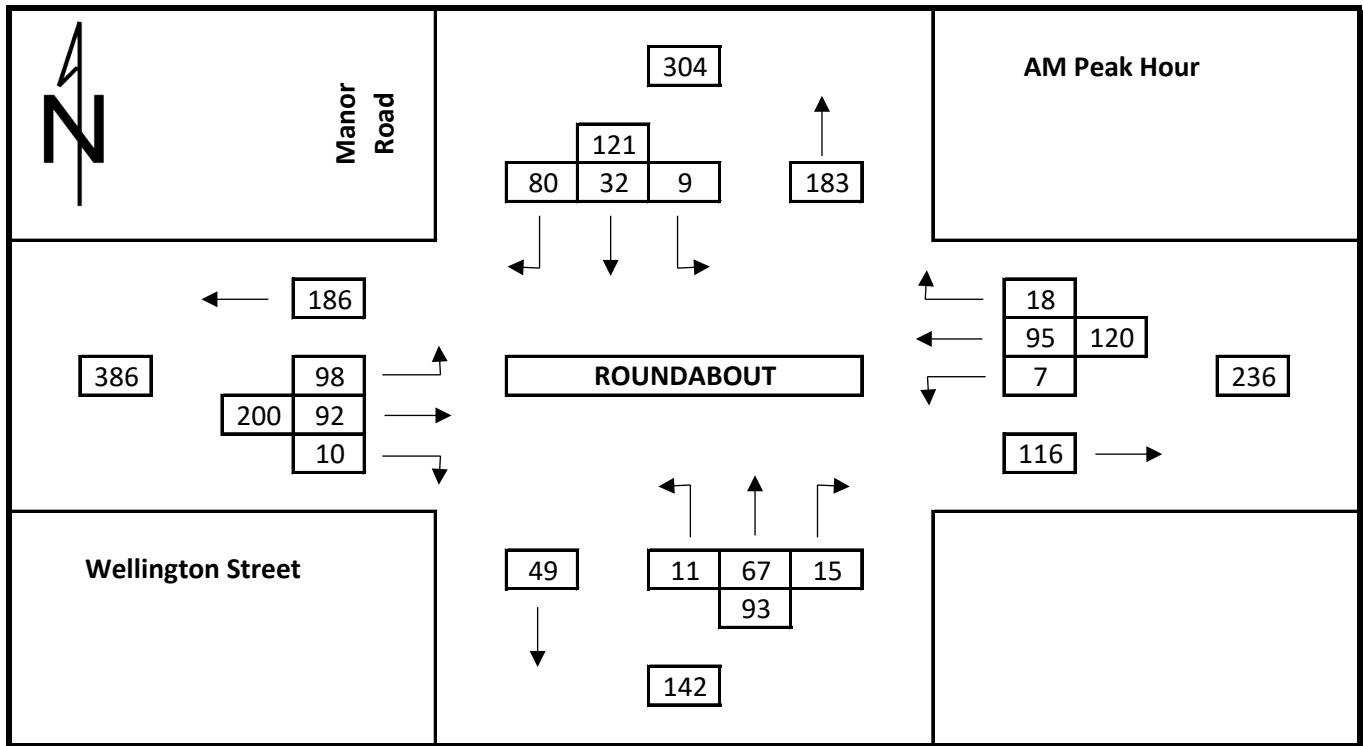
Total Traffic 2030
 Manor Road at Wellington Street



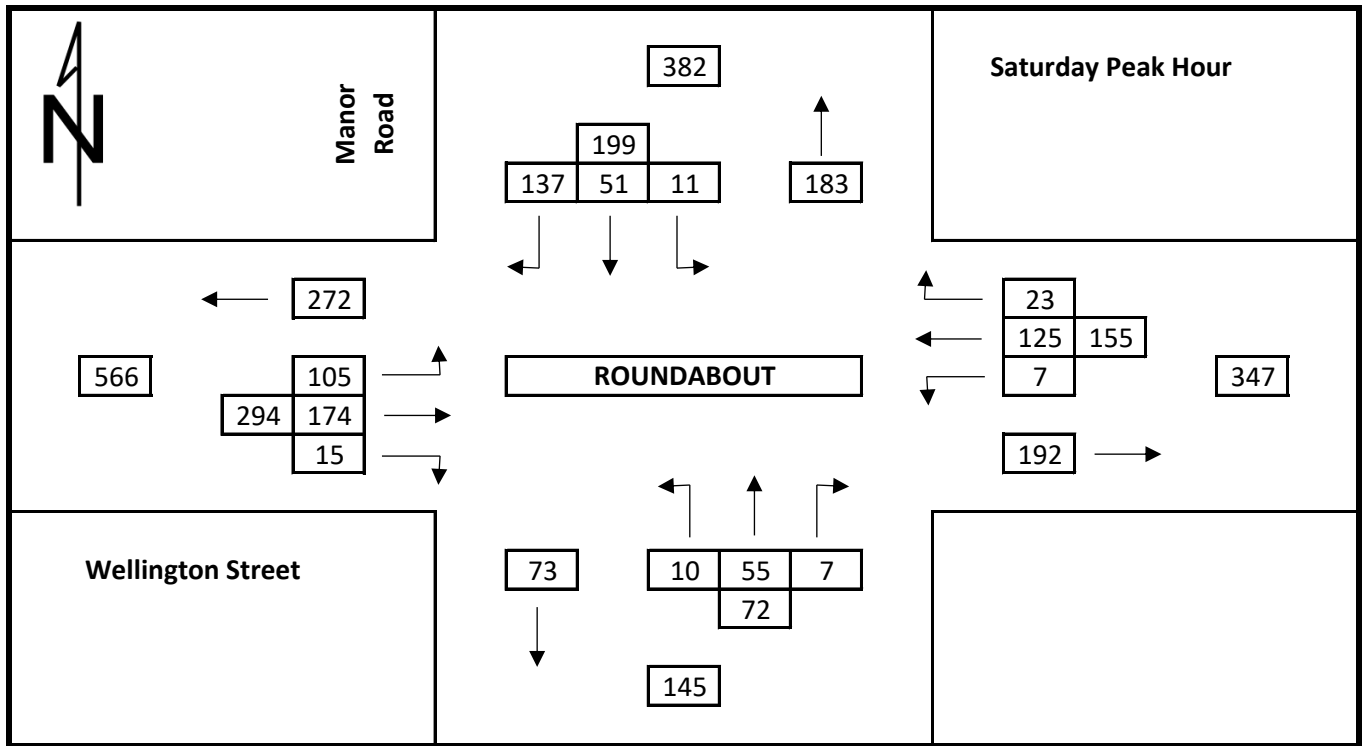
Total Traffic 2030
Manor Road at Wellington Street



Total Traffic 2035
 Manor Road at Wellington Street



Total Traffic 2035
Manor Road at Wellington Street



Appendix E

DETAILED MODELLING RESULTS

**Highview Drive at Wellington Street
Stokes Road / Mall Access at Wellington Street
Manor Road at Highview Drive
Manor Road at Wellington Street**

Wellington St. at Highview Dr.
St. Thomas, ON

Existing Traffic (AM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	214	26	8	190	3	29	22	31	2	12	84
Future Volume (vph)	51	214	26	8	190	3	29	22	31	2	12	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	64.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (m)	0.0			17.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Frt		0.984			0.998			0.943				0.850
Flt Protected	0.950			0.950				0.983			0.993	
Satd. Flow (prot)	1630	3499	0	1789	3522	0	0	3245	0	0	1765	1512
Flt Permitted	0.620			0.591				0.857			0.937	
Satd. Flow (perm)	1063	3499	0	1113	3522	0	0	2829	0	0	1666	1512
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			2			34				91
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		110.0			77.6			88.2			56.8	
Travel Time (s)		7.9			5.6			6.4			4.1	
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
Heavy Vehicles (%)	12%	2%	8%	2%	3%	34%	4%	5%	4%	2%	9%	8%
Adj. Flow (vph)	55	233	28	9	207	3	32	24	34	2	13	91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	55	261	0	9	210	0	0	90	0	0	15	91
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		4
Detector Phase	2	2		2	2		4	4		4	4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	37.1	37.1		37.1	37.1		31.7	31.7		31.7	31.7	31.7
Total Split (s)	45.1	45.1		45.1	45.1		39.7	39.7		39.7	39.7	39.7
Total Split (%)	53.2%	53.2%		53.2%	53.2%		46.8%	46.8%		46.8%	46.8%	46.8%
Maximum Green (s)	39.0	39.0		39.0	39.0		34.0	34.0		34.0	34.0	34.0
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.8	2.8		2.8	2.8		2.4	2.4		2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.1	6.1		6.1	6.1			5.7			5.7	5.7
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Ped	Ped		Ped	Ped		None	None		None	None	None
Walk Time (s)	9.0	9.0		9.0	9.0		8.0	8.0		8.0	8.0	8.0
Flash Don't Walk (s)	22.0	22.0		22.0	22.0		18.0	18.0		18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effect Green (s)	36.2	36.2		36.2	36.2			8.1			8.1	8.1
Actuated g/C Ratio	0.69	0.69		0.69	0.69			0.16			0.16	0.16
v/c Ratio	0.07	0.11		0.01	0.09			0.19			0.06	0.29
Control Delay (s/veh)	4.5	3.8		4.0	4.0			14.3			18.9	8.3
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0

Wellington St. at Highview Dr.
St. Thomas, ON

Existing Traffic (AM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	4.5	3.8		4.0	4.0			14.3			18.9	8.3
LOS	A	A		A	A			B			B	A
Approach Delay (s/veh)		3.9			4.0			14.3			9.8	
Approach LOS		A			A			B			A	
Queue Length 50th (m)	1.9	4.0		0.3	3.4			2.4			1.3	0.0
Queue Length 95th (m)	5.3	7.4		1.4	6.5			7.4			5.4	9.8
Internal Link Dist (m)		86.0			53.6			64.2			32.8	
Turn Bay Length (m)	64.0			60.0								
Base Capacity (vph)	850	2802		890	2817			1860			1088	1019
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.06	0.09		0.01	0.07			0.05			0.01	0.09

Intersection Summary

Area Type: Other

Cycle Length: 84.8

Actuated Cycle Length: 52.1

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.29

Intersection Signal Delay (s/veh): 6.0

Intersection LOS: A

Intersection Capacity Utilization 36.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Highview Dr. & Wellington St.



Wellington St. at Highview Dr.
St. Thomas, ON

Existing Traffic (PM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	436	75	32	393	6	52	14	29	3	28	92
Future Volume (vph)	83	436	75	32	393	6	52	14	29	3	28	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	64.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (m)	0.0			17.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Frt		0.978			0.998			0.954				0.850
Flt Protected	0.950			0.950				0.973			0.995	
Satd. Flow (prot)	1755	3500	0	1755	3571	0	0	3302	0	0	1874	1601
Flt Permitted	0.500			0.444				0.811			0.953	
Satd. Flow (perm)	924	3500	0	820	3571	0	0	2752	0	0	1795	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			2			32				100
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		110.0			77.6			88.2			56.8	
Travel Time (s)		8.3			5.8			6.6			4.3	
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
Heavy Vehicles (%)	4%	2%	2%	4%	2%	2%	2%	2%	4%	2%	2%	2%
Adj. Flow (vph)	90	474	82	35	427	7	57	15	32	3	30	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	556	0	35	434	0	0	104	0	0	33	100
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		4
Detector Phase	2	2		2	2		4	4		4	4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	37.1	37.1		37.1	37.1		31.7	31.7		31.7	31.7	31.7
Total Split (s)	45.1	45.1		45.1	45.1		39.7	39.7		39.7	39.7	39.7
Total Split (%)	53.2%	53.2%		53.2%	53.2%		46.8%	46.8%		46.8%	46.8%	46.8%
Maximum Green (s)	39.0	39.0		39.0	39.0		34.0	34.0		34.0	34.0	34.0
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.8	2.8		2.8	2.8		2.4	2.4		2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.1	6.1		6.1	6.1			5.7			5.7	5.7
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Ped	Ped		Ped	Ped		None	None		None	None	None
Walk Time (s)	9.0	9.0		9.0	9.0		8.0	8.0		8.0	8.0	8.0
Flash Don't Walk (s)	22.0	22.0		22.0	22.0		18.0	18.0		18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effect Green (s)	35.2	35.2		35.2	35.2			8.1			8.1	8.1
Actuated g/C Ratio	0.69	0.69		0.69	0.69			0.16			0.16	0.16
v/c Ratio	0.14	0.23		0.06	0.18			0.23			0.12	0.30
Control Delay (s/veh)	5.1	4.2		4.5	4.2			15.4			19.5	8.0
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0

Wellington St. at Highview Dr.
St. Thomas, ON

Existing Traffic (PM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	5.1	4.2		4.5	4.2			15.4			19.5	8.0
LOS	A	A		A	A			B			B	A
Approach Delay (s/veh)		4.3			4.3			15.4			10.8	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	3.0	9.6		1.1	7.6			3.0			2.7	0.0
Queue Length 95th (m)	7.8	15.5		3.7	12.6			8.4			8.5	9.7
Internal Link Dist (m)		86.0			53.6			64.2			32.8	
Turn Bay Length (m)	64.0			60.0								
Base Capacity (vph)	750	2847		665	2899			1837			1191	1096
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.12	0.20		0.05	0.15			0.06			0.03	0.09

Intersection Summary

Area Type: Other

Cycle Length: 84.8

Actuated Cycle Length: 51.2

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.30

Intersection Signal Delay (s/veh): 5.8

Intersection LOS: A

Intersection Capacity Utilization 45.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Highview Dr. & Wellington St.



Wellington St. at Highview Dr.
St. Thomas, ON

Existing Traffic (Saturday Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	408	52	37	366	4	39	16	28	9	14	90
Future Volume (vph)	91	408	52	37	366	4	39	16	28	9	14	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	64.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (m)	0.0			17.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Frt		0.983			0.999			0.949				0.850
Flt Protected	0.950			0.950				0.977			0.980	
Satd. Flow (prot)	1789	3518	0	1772	3575	0	0	3272	0	0	1846	1601
Flt Permitted	0.515			0.469				0.829			0.828	
Satd. Flow (perm)	970	3518	0	875	3575	0	0	2776	0	0	1559	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			2			30				98
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		110.0			77.6			88.2			56.8	
Travel Time (s)		8.3			5.8			6.6			4.3	
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
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	3%	7%	2%	2%	2%	2%
Adj. Flow (vph)	99	443	57	40	398	4	42	17	30	10	15	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	99	500	0	40	402	0	0	89	0	0	25	98
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		4
Detector Phase	2	2		2	2		4	4		4	4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	37.1	37.1		37.1	37.1		31.7	31.7		31.7	31.7	31.7
Total Split (s)	45.1	45.1		45.1	45.1		39.7	39.7		39.7	39.7	39.7
Total Split (%)	53.2%	53.2%		53.2%	53.2%		46.8%	46.8%		46.8%	46.8%	46.8%
Maximum Green (s)	39.0	39.0		39.0	39.0		34.0	34.0		34.0	34.0	34.0
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.8	2.8		2.8	2.8		2.4	2.4		2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.1	6.1		6.1	6.1			5.7			5.7	5.7
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Ped	Ped		Ped	Ped		None	None		None	None	None
Walk Time (s)	9.0	9.0		9.0	9.0		8.0	8.0		8.0	8.0	8.0
Flash Don't Walk (s)	22.0	22.0		22.0	22.0		18.0	18.0		18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effect Green (s)	35.8	35.8		35.8	35.8			8.0			8.0	8.0
Actuated g/C Ratio	0.69	0.69		0.69	0.69			0.15			0.15	0.15
v/c Ratio	0.15	0.20		0.07	0.16			0.20			0.10	0.30
Control Delay (s/veh)	5.0	4.1		4.5	4.1			14.9			19.6	8.0
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0

Wellington St. at Highview Dr.
St. Thomas, ON

Existing Traffic (Saturday Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	5.0	4.1		4.5	4.1			14.9			19.6	8.0
LOS	A	A		A	A			B			B	A
Approach Delay (s/veh)		4.3			4.2			14.9			10.4	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	3.3	8.6		1.2	7.0			2.6			2.0	0.0
Queue Length 95th (m)	8.2	13.8		3.9	11.5			7.7			7.1	9.7
Internal Link Dist (m)		86.0			53.6			64.2			32.8	
Turn Bay Length (m)	64.0			60.0								
Base Capacity (vph)	780	2836		704	2878			1836			1025	1086
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.13	0.18		0.06	0.14			0.05			0.02	0.09

Intersection Summary

Area Type: Other

Cycle Length: 84.8

Actuated Cycle Length: 51.7

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.30

Intersection Signal Delay (s/veh): 5.6

Intersection LOS: A

Intersection Capacity Utilization 43.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Highview Dr. & Wellington St.



Wellington St. at Highview Dr.
St. Thomas, ON

Total Traffic 2030 (AM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	241	29	12	229	3	32	24	36	2	13	98
Future Volume (vph)	57	241	29	12	229	3	32	24	36	2	13	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	64.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (m)	0.0			17.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Frt		0.984			0.998			0.941				0.850
Flt Protected	0.950			0.950				0.983			0.994	
Satd. Flow (prot)	1630	3499	0	1789	3524	0	0	3238	0	0	1766	1512
Flt Permitted	0.596			0.572				0.858			0.939	
Satd. Flow (perm)	1022	3499	0	1077	3524	0	0	2827	0	0	1668	1512
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			2			39				107
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		110.0			77.6			88.2			130.2	
Travel Time (s)		7.9			5.6			6.4			9.4	
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
Heavy Vehicles (%)	12%	2%	8%	2%	3%	34%	4%	5%	4%	2%	9%	8%
Adj. Flow (vph)	62	262	32	13	249	3	35	26	39	2	14	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	294	0	13	252	0	0	100	0	0	16	107
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		4
Detector Phase	2	2		2	2		4	4		4	4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	37.1	37.1		37.1	37.1		31.7	31.7		31.7	31.7	31.7
Total Split (s)	46.8	46.8		46.8	46.8		38.0	38.0		38.0	38.0	38.0
Total Split (%)	55.2%	55.2%		55.2%	55.2%		44.8%	44.8%		44.8%	44.8%	44.8%
Maximum Green (s)	40.7	40.7		40.7	40.7		32.3	32.3		32.3	32.3	32.3
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.8	2.8		2.8	2.8		2.4	2.4		2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.1	6.1		6.1	6.1			5.7			5.7	5.7
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Ped	Ped		Ped	Ped		None	None		None	None	None
Walk Time (s)	9.0	9.0		9.0	9.0		8.0	8.0		8.0	8.0	8.0
Flash Don't Walk (s)	22.0	22.0		22.0	22.0		18.0	18.0		18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effect Green (s)	35.5	35.5		35.5	35.5			8.1			8.1	8.1
Actuated g/C Ratio	0.69	0.69		0.69	0.69			0.16			0.16	0.16
v/c Ratio	0.09	0.12		0.02	0.10			0.21			0.06	0.33
Control Delay (s/veh)	4.6	3.8		4.1	4.0			14.0			18.9	8.2
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0

Wellington St. at Highview Dr.
St. Thomas, ON

Total Traffic 2030 (AM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	4.6	3.8		4.1	4.0			14.0			18.9	8.2
LOS	A	A		A	A			B			B	A
Approach Delay (s/veh)		4.0			4.0			14.0			9.6	
Approach LOS		A			A			B			A	
Queue Length 50th (m)	2.1	4.6		0.4	4.2			2.6			1.4	0.0
Queue Length 95th (m)	6.0	8.4		1.9	7.7			7.9			5.6	10.6
Internal Link Dist (m)		86.0			53.6			64.2			106.2	
Turn Bay Length (m)	64.0			60.0								
Base Capacity (vph)	852	2923		898	2941			1788			1046	988
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.07	0.10		0.01	0.09			0.06			0.02	0.11

Intersection Summary

Area Type: Other

Cycle Length: 84.8

Actuated Cycle Length: 51.5

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay (s/veh): 6.0

Intersection LOS: A

Intersection Capacity Utilization 37.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Highview Dr. & Wellington St.



Wellington St. at Highview Dr.
St. Thomas, ON

Total Traffic 2030 (PM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	511	83	43	456	7	57	15	38	3	31	113
Future Volume (vph)	101	511	83	43	456	7	57	15	38	3	31	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	64.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (m)	0.0			17.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Frt		0.979			0.998			0.948				0.850
Flt Protected	0.950			0.950				0.975			0.996	
Satd. Flow (prot)	1755	3503	0	1755	3571	0	0	3285	0	0	1876	1601
Flt Permitted	0.467			0.407				0.809			0.965	
Satd. Flow (perm)	863	3503	0	752	3571	0	0	2726	0	0	1818	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			2			41				123
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		110.0			77.6			88.2			125.7	
Travel Time (s)		8.3			5.8			6.6			9.4	
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
Heavy Vehicles (%)	4%	2%	2%	4%	2%	2%	2%	2%	4%	2%	2%	2%
Adj. Flow (vph)	110	555	90	47	496	8	62	16	41	3	34	123
Shared Lane Traffic (%)												
Lane Group Flow (vph)	110	645	0	47	504	0	0	119	0	0	37	123
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		4
Detector Phase	2	2		2	2		4	4		4	4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	37.1	37.1		37.1	37.1		31.7	31.7		31.7	31.7	31.7
Total Split (s)	45.1	45.1		45.1	45.1		39.7	39.7		39.7	39.7	39.7
Total Split (%)	53.2%	53.2%		53.2%	53.2%		46.8%	46.8%		46.8%	46.8%	46.8%
Maximum Green (s)	39.0	39.0		39.0	39.0		34.0	34.0		34.0	34.0	34.0
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.8	2.8		2.8	2.8		2.4	2.4		2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.1	6.1		6.1	6.1			5.7			5.7	5.7
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Ped	Ped		Ped	Ped		None	None		None	None	None
Walk Time (s)	9.0	9.0		9.0	9.0		8.0	8.0		8.0	8.0	8.0
Flash Don't Walk (s)	22.0	22.0		22.0	22.0		18.0	18.0		18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effect Green (s)	34.6	34.6		34.6	34.6			8.5			8.5	8.5
Actuated g/C Ratio	0.63	0.63		0.63	0.63			0.15			0.15	0.15
v/c Ratio	0.20	0.29		0.10	0.22			0.26			0.13	0.35
Control Delay (s/veh)	5.7	4.9		5.0	4.8			15.2			20.4	8.0
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0

Wellington St. at Highview Dr.
St. Thomas, ON

Total Traffic 2030 (PM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	5.7	4.9		5.0	4.8			15.2			20.4	8.0
LOS	A	A		A	A			B			C	A
Approach Delay (s/veh)		5.0			4.8			15.2			10.9	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	3.8	11.6		1.5	9.1			3.3			3.0	0.0
Queue Length 95th (m)	10.3	20.0		5.1	15.9			9.7			9.8	11.2
Internal Link Dist (m)		86.0			53.6			64.2			101.7	
Turn Bay Length (m)	64.0			60.0								
Base Capacity (vph)	636	2589		554	2633			1717			1134	1045
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.17	0.25		0.08	0.19			0.07			0.03	0.12

Intersection Summary

Area Type: Other

Cycle Length: 84.8

Actuated Cycle Length: 55

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.35

Intersection Signal Delay (s/veh): 6.3

Intersection LOS: A

Intersection Capacity Utilization 48.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Highview Dr. & Wellington St.



Wellington St. at Highview Dr.
St. Thomas, ON

Total Traffic 2030 (Saturday Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	490	57	49	436	4	43	18	37	10	15	105
Future Volume (vph)	106	490	57	49	436	4	43	18	37	10	15	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	64.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (m)	0.0			17.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Frt		0.984			0.999			0.944				0.850
Flt Protected	0.950			0.950				0.979			0.980	
Satd. Flow (prot)	1789	3521	0	1772	3575	0	0	3263	0	0	1846	1601
Flt Permitted	0.479			0.427				0.834			0.817	
Satd. Flow (perm)	902	3521	0	796	3575	0	0	2780	0	0	1539	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			1			40				114
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		110.0			276.9			88.2			131.4	
Travel Time (s)		8.3			20.8			6.6			9.9	
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
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	3%	7%	2%	2%	2%	2%
Adj. Flow (vph)	115	533	62	53	474	4	47	20	40	11	16	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	595	0	53	478	0	0	107	0	0	27	114
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		4
Detector Phase	2	2		2	2		4	4		4	4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	37.1	37.1		37.1	37.1		31.7	31.7		31.7	31.7	31.7
Total Split (s)	45.1	45.1		45.1	45.1		39.7	39.7		39.7	39.7	39.7
Total Split (%)	53.2%	53.2%		53.2%	53.2%		46.8%	46.8%		46.8%	46.8%	46.8%
Maximum Green (s)	39.0	39.0		39.0	39.0		34.0	34.0		34.0	34.0	34.0
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.8	2.8		2.8	2.8		2.4	2.4		2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.1	6.1		6.1	6.1			5.7			5.7	5.7
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Ped	Ped		Ped	Ped		None	None		None	None	None
Walk Time (s)	9.0	9.0		9.0	9.0		8.0	8.0		8.0	8.0	8.0
Flash Don't Walk (s)	22.0	22.0		22.0	22.0		18.0	18.0		18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effect Green (s)	35.3	35.3		35.3	35.3			8.2			8.2	8.2
Actuated g/C Ratio	0.69	0.69		0.69	0.69			0.16			0.16	0.16
v/c Ratio	0.19	0.25		0.10	0.19			0.23			0.11	0.33
Control Delay (s/veh)	5.5	4.4		4.9	4.4			14.4			19.7	7.9
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0

Wellington St. at Highview Dr.
St. Thomas, ON

Total Traffic 2030 (Saturday Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	5.5	4.4		4.9	4.4			14.4			19.7	7.9
LOS	A	A		A	A			B			B	A
Approach Delay (s/veh)		4.6			4.4			14.4			10.2	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	3.9	10.6		1.7	8.5			2.9			2.2	0.0
Queue Length 95th (m)	10.0	17.5		5.2	14.3			8.6			7.5	10.4
Internal Link Dist (m)		86.0			252.9			64.2			107.4	
Turn Bay Length (m)	64.0			60.0								
Base Capacity (vph)	730	2855		645	2896			1854			1019	1099
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.16	0.21		0.08	0.17			0.06			0.03	0.10

Intersection Summary

Area Type: Other

Cycle Length: 84.8

Actuated Cycle Length: 51.3

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay (s/veh): 5.8

Intersection LOS: A

Intersection Capacity Utilization 46.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Highview Dr. & Wellington St.



Wellington St. at Highview Dr.
St. Thomas, ON

Total Traffic 2035 (AM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	266	32	13	251	4	35	27	40	2	15	107
Future Volume (vph)	63	266	32	13	251	4	35	27	40	2	15	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	64.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (m)	0.0			17.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Frt		0.984			0.998			0.941				0.850
Flt Protected	0.950			0.950				0.983			0.994	
Satd. Flow (prot)	1630	3499	0	1789	3521	0	0	3238	0	0	1765	1512
Flt Permitted	0.581			0.556				0.854			0.954	
Satd. Flow (perm)	997	3499	0	1047	3521	0	0	2813	0	0	1693	1512
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			2			43				116
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		110.0			276.9			88.2			130.2	
Travel Time (s)		7.9			19.9			6.4			9.4	
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
Heavy Vehicles (%)	12%	2%	8%	2%	3%	34%	4%	5%	4%	2%	9%	8%
Adj. Flow (vph)	68	289	35	14	273	4	38	29	43	2	16	116
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	324	0	14	277	0	0	110	0	0	18	116
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		4
Detector Phase	2	2		2	2		4	4		4	4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	37.1	37.1		37.1	37.1		31.7	31.7		31.7	31.7	31.7
Total Split (s)	46.8	46.8		46.8	46.8		38.0	38.0		38.0	38.0	38.0
Total Split (%)	55.2%	55.2%		55.2%	55.2%		44.8%	44.8%		44.8%	44.8%	44.8%
Maximum Green (s)	40.7	40.7		40.7	40.7		32.3	32.3		32.3	32.3	32.3
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.8	2.8		2.8	2.8		2.4	2.4		2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.1	6.1		6.1	6.1			5.7			5.7	5.7
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Ped	Ped		Ped	Ped		None	None		None	None	None
Walk Time (s)	9.0	9.0		9.0	9.0		8.0	8.0		8.0	8.0	8.0
Flash Don't Walk (s)	22.0	22.0		22.0	22.0		18.0	18.0		18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effect Green (s)	33.8	33.8		33.8	33.8			8.2			8.2	8.2
Actuated g/C Ratio	0.63	0.63		0.63	0.63			0.15			0.15	0.15
v/c Ratio	0.11	0.15		0.02	0.13			0.24			0.07	0.35
Control Delay (s/veh)	4.8	4.2		4.2	4.3			13.9			18.9	8.3
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0

Wellington St. at Highview Dr.
St. Thomas, ON

Total Traffic 2035 (AM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	4.8	4.2		4.2	4.3			13.9			18.9	8.3
LOS	A	A		A	A			B			B	A
Approach Delay (s/veh)		4.3			4.3			13.9			9.7	
Approach LOS		A			A			B			A	
Queue Length 50th (m)	2.3	5.1		0.4	4.6			2.8			1.5	0.0
Queue Length 95th (m)	6.6	9.3		2.0	8.5			8.4			5.9	11.0
Internal Link Dist (m)		86.0			252.9			64.2			106.2	
Turn Bay Length (m)	64.0			60.0								
Base Capacity (vph)	776	2729		815	2743			1719			1024	961
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.09	0.12		0.02	0.10			0.06			0.02	0.12

Intersection Summary

Area Type: Other

Cycle Length: 84.8

Actuated Cycle Length: 53.9

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.35

Intersection Signal Delay (s/veh): 6.2

Intersection LOS: A

Intersection Capacity Utilization 38.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Highview Dr. & Wellington St.



Wellington St. at Highview Dr.
St. Thomas, ON

Total Traffic 2035 (PM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	561	91	47	501	7	63	17	41	4	34	123
Future Volume (vph)	110	561	91	47	501	7	63	17	41	4	34	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	64.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (m)	0.0			17.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Frt		0.979			0.998			0.948				0.850
Flt Protected	0.950			0.950				0.975			0.995	
Satd. Flow (prot)	1755	3503	0	1755	3571	0	0	3286	0	0	1874	1601
Flt Permitted	0.445			0.382				0.808			0.956	
Satd. Flow (perm)	822	3503	0	706	3571	0	0	2723	0	0	1801	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			2			45				134
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		110.0			276.9			88.2			125.7	
Travel Time (s)		8.3			20.8			6.6			9.4	
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
Heavy Vehicles (%)	4%	2%	2%	4%	2%	2%	2%	2%	4%	2%	2%	2%
Adj. Flow (vph)	120	610	99	51	545	8	68	18	45	4	37	134
Shared Lane Traffic (%)												
Lane Group Flow (vph)	120	709	0	51	553	0	0	131	0	0	41	134
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		4
Detector Phase	2	2		2	2		4	4		4	4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	37.1	37.1		37.1	37.1		31.7	31.7		31.7	31.7	31.7
Total Split (s)	45.1	45.1		45.1	45.1		39.7	39.7		39.7	39.7	39.7
Total Split (%)	53.2%	53.2%		53.2%	53.2%		46.8%	46.8%		46.8%	46.8%	46.8%
Maximum Green (s)	39.0	39.0		39.0	39.0		34.0	34.0		34.0	34.0	34.0
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.8	2.8		2.8	2.8		2.4	2.4		2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.1	6.1		6.1	6.1			5.7			5.7	5.7
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Ped	Ped		Ped	Ped		None	None		None	None	None
Walk Time (s)	9.0	9.0		9.0	9.0		8.0	8.0		8.0	8.0	8.0
Flash Don't Walk (s)	22.0	22.0		22.0	22.0		18.0	18.0		18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effect Green (s)	35.4	35.4		35.4	35.4			8.5			8.5	8.5
Actuated g/C Ratio	0.63	0.63		0.63	0.63			0.15			0.15	0.15
v/c Ratio	0.23	0.32		0.11	0.24			0.29			0.15	0.37
Control Delay (s/veh)	5.9	5.0		5.0	4.8			15.8			21.5	8.3
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0

Wellington St. at Highview Dr.
St. Thomas, ON

Total Traffic 2035 (PM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	5.9	5.0		5.0	4.8			15.8			21.5	8.3
LOS	A	A		A	A			B			C	A
Approach Delay (s/veh)		5.1			4.8			15.8			11.4	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	4.2	13.2		1.7	10.1			3.6			3.3	0.0
Queue Length 95th (m)	11.4	22.4		5.4	17.6			11.1			11.3	12.3
Internal Link Dist (m)		86.0			252.9			64.2			101.7	
Turn Bay Length (m)	64.0			60.0								
Base Capacity (vph)	598	2558		514	2600			1695			1109	1037
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.20	0.28		0.10	0.21			0.08			0.04	0.13

Intersection Summary

Area Type: Other

Cycle Length: 84.8

Actuated Cycle Length: 55.9

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.37

Intersection Signal Delay (s/veh): 6.5

Intersection LOS: A

Intersection Capacity Utilization 50.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Highview Dr. & Wellington St.



Wellington St. at Highview Dr.
St. Thomas, ON

Total Traffic 2035 (Saturday Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	537	63	53	478	5	48	20	40	11	17	116
Future Volume (vph)	117	537	63	53	478	5	48	20	40	11	17	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	64.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (m)	0.0			17.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Frt		0.984			0.999			0.945				0.850
Flt Protected	0.950			0.950				0.978			0.980	
Satd. Flow (prot)	1789	3521	0	1772	3575	0	0	3263	0	0	1846	1601
Flt Permitted	0.457			0.404				0.828			0.828	
Satd. Flow (perm)	861	3521	0	754	3575	0	0	2763	0	0	1559	1601
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			1			43				126
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		110.0			276.9			88.2			131.4	
Travel Time (s)		8.3			20.8			6.6			9.9	
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
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%	3%	7%	2%	2%	2%	2%
Adj. Flow (vph)	127	584	68	58	520	5	52	22	43	12	18	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	127	652	0	58	525	0	0	117	0	0	30	126
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		4
Detector Phase	2	2		2	2		4	4		4	4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	37.1	37.1		37.1	37.1		31.7	31.7		31.7	31.7	31.7
Total Split (s)	45.1	45.1		45.1	45.1		39.7	39.7		39.7	39.7	39.7
Total Split (%)	53.2%	53.2%		53.2%	53.2%		46.8%	46.8%		46.8%	46.8%	46.8%
Maximum Green (s)	39.0	39.0		39.0	39.0		34.0	34.0		34.0	34.0	34.0
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)	2.8	2.8		2.8	2.8		2.4	2.4		2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	0.0
Total Lost Time (s)	6.1	6.1		6.1	6.1			5.7			5.7	5.7
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	Ped	Ped		Ped	Ped		None	None		None	None	None
Walk Time (s)	9.0	9.0		9.0	9.0		8.0	8.0		8.0	8.0	8.0
Flash Don't Walk (s)	22.0	22.0		22.0	22.0		18.0	18.0		18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effect Green (s)	35.3	35.3		35.3	35.3			8.5			8.5	8.5
Actuated g/C Ratio	0.63	0.63		0.63	0.63			0.15			0.15	0.15
v/c Ratio	0.23	0.29		0.12	0.23			0.26			0.13	0.36
Control Delay (s/veh)	5.9	4.9		5.0	4.8			15.3			21.4	8.3
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	0.0

Wellington St. at Highview Dr.
St. Thomas, ON

Total Traffic 2035 (Saturday Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	5.9	4.9		5.0	4.8			15.3			21.4	8.3
LOS	A	A		A	A			B			C	A
Approach Delay (s/veh)		5.1			4.8			15.3			10.8	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	4.4	12.0		1.9	9.6			3.2			2.4	0.0
Queue Length 95th (m)	11.6	20.4		5.9	16.5			10.3			9.1	11.9
Internal Link Dist (m)		86.0			252.9			64.2			107.4	
Turn Bay Length (m)	64.0			60.0								
Base Capacity (vph)	628	2574		549	2608			1722			962	1037
Starvation Cap Reductn	0	0		0	0			0			0	0
Spillback Cap Reductn	0	0		0	0			0			0	0
Storage Cap Reductn	0	0		0	0			0			0	0
Reduced v/c Ratio	0.20	0.25		0.11	0.20			0.07			0.03	0.12

Intersection Summary

Area Type: Other

Cycle Length: 84.8

Actuated Cycle Length: 55.7

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.36

Intersection Signal Delay (s/veh): 6.2

Intersection LOS: A

Intersection Capacity Utilization 47.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 3: Highview Dr. & Wellington St.



Wellington St. at Stokes Rd. / Parking Lot
St. Thomas, ON

Existing Traffic (AM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	112	12	7	109	24	19	7	11	14	9	15
Future Volume (vph)	20	112	12	7	109	24	19	7	11	14	9	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	44.0		0.0	7.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	23.0			17.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986			0.973			0.910			0.908	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3475	0	1789	3436	0	1789	1487	0	1789	1660	0
Flt Permitted	0.661			0.666								
Satd. Flow (perm)	1245	3475	0	1254	3436	0	1883	1487	0	1883	1660	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			26			12			16	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		146.0			64.1			125.7			93.8	
Travel Time (s)		11.0			4.8			9.4			7.0	
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
Heavy Vehicles (%)	2%	3%	9%	2%	3%	5%	2%	2%	28%	2%	2%	7%
Adj. Flow (vph)	22	122	13	8	118	26	21	8	12	15	10	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	135	0	8	144	0	21	20	0	15	26	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		45.0	45.0		45.0	45.0	
Total Split (s)	36.2	36.2		36.2	36.2		45.0	45.0		45.0	45.0	
Total Split (%)	44.6%	44.6%		44.6%	44.6%		55.4%	55.4%		55.4%	55.4%	
Maximum Green (s)	31.0	31.0		31.0	31.0		39.0	39.0		39.0	39.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Ped	Ped		Ped	Ped		None	None		None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)	19.0	19.0		19.0	19.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	43.0	43.0		43.0	43.0		8.0	8.0		8.0	8.0	
Actuated g/C Ratio	0.85	0.85		0.85	0.85		0.16	0.16		0.16	0.16	
v/c Ratio	0.02	0.05		0.01	0.05		0.07	0.08		0.05	0.09	
Control Delay (s/veh)	3.3	2.5		3.3	2.3		18.8	13.8		18.5	13.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Wellington St. at Stokes Rd. / Parking Lot
St. Thomas, ON

Existing Traffic (AM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	3.3	2.5		3.3	2.3		18.8	13.8		18.5	13.0	
LOS	A	A		A	A		B	B		B	B	
Approach Delay (s/veh)		2.6			2.4			16.4			15.0	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	0.0	0.0		0.0	0.0		1.7	0.7		1.2	0.8	
Queue Length 95th (m)	2.4	4.1		1.2	4.1		6.2	5.0		5.0	5.8	
Internal Link Dist (m)		122.0			40.1			101.7			69.8	
Turn Bay Length (m)	44.0			7.0								
Base Capacity (vph)	1054	2945		1062	2914		1445	1144		1445	1278	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.02	0.05		0.01	0.05		0.01	0.02		0.01	0.02	

Intersection Summary

Area Type: Other

Cycle Length: 81.2

Actuated Cycle Length: 50.8

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.09

Intersection Signal Delay (s/veh): 5.2

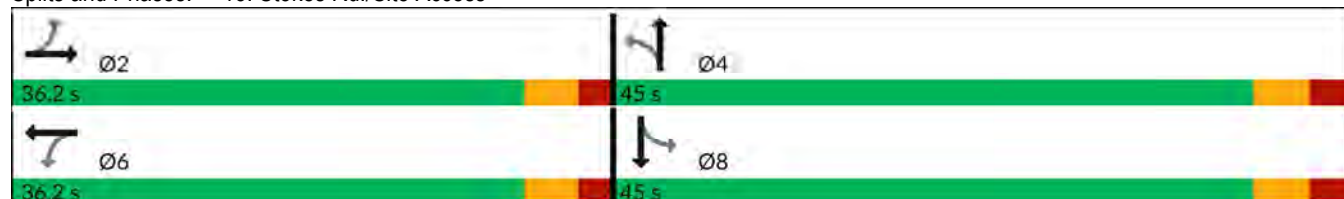
Intersection LOS: A

Intersection Capacity Utilization 42.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 13: Stokes Rd./Site Access



Wellington St. at Stokes Rd. / Parking Lot
St. Thomas, ON

Existing Traffic (PM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	191	36	21	175	66	26	19	10	48	30	50
Future Volume (vph)	63	191	36	21	175	66	26	19	10	48	30	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	44.0		0.0	7.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	23.0			17.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976			0.959			0.948			0.907	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3464	0	1789	3404	0	1789	1786	0	1789	1708	0
Flt Permitted	0.590			0.599			0.701			0.736		
Satd. Flow (perm)	1111	3464	0	1128	3404	0	1320	1786	0	1386	1708	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			72			11			54	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		146.0			64.1			125.7			93.8	
Travel Time (s)		11.0			4.8			9.4			7.0	
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
Heavy Vehicles (%)	2%	3%	2%	2%	2%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	68	208	39	23	190	72	28	21	11	52	33	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	247	0	23	262	0	28	32	0	52	87	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		45.0	45.0		45.0	45.0	
Total Split (s)	36.2	36.2		36.2	36.2		45.0	45.0		45.0	45.0	
Total Split (%)	44.6%	44.6%		44.6%	44.6%		55.4%	55.4%		55.4%	55.4%	
Maximum Green (s)	31.0	31.0		31.0	31.0		39.0	39.0		39.0	39.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Ped	Ped		Ped	Ped		None	None		None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)	19.0	19.0		19.0	19.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	35.9	35.9		35.9	35.9		8.3	8.3		8.3	8.3	
Actuated g/C Ratio	0.70	0.70		0.70	0.70		0.16	0.16		0.16	0.16	
v/c Ratio	0.09	0.10		0.03	0.11		0.13	0.11		0.23	0.27	
Control Delay (s/veh)	4.5	3.6		4.2	3.1		19.7	14.9		21.4	12.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Wellington St. at Stokes Rd. / Parking Lot
St. Thomas, ON

Existing Traffic (PM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	4.5	3.6		4.2	3.1		19.7	14.9		21.4	12.0	
LOS	A	A		A	A		B	B		C	B	
Approach Delay (s/veh)		3.8			3.2			17.1			15.5	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	2.1	3.4		0.7	3.0		2.2	1.7		4.2	2.6	
Queue Length 95th (m)	6.0	7.2		2.7	6.7		7.6	7.2		11.7	11.8	
Internal Link Dist (m)		122.0			40.1			101.7			69.8	
Turn Bay Length (m)	44.0			7.0								
Base Capacity (vph)	773	2421		785	2392		998	1353		1048	1305	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.09	0.10		0.03	0.11		0.03	0.02		0.05	0.07	

Intersection Summary

Area Type: Other

Cycle Length: 81.2

Actuated Cycle Length: 51.6

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.27

Intersection Signal Delay (s/veh): 6.6

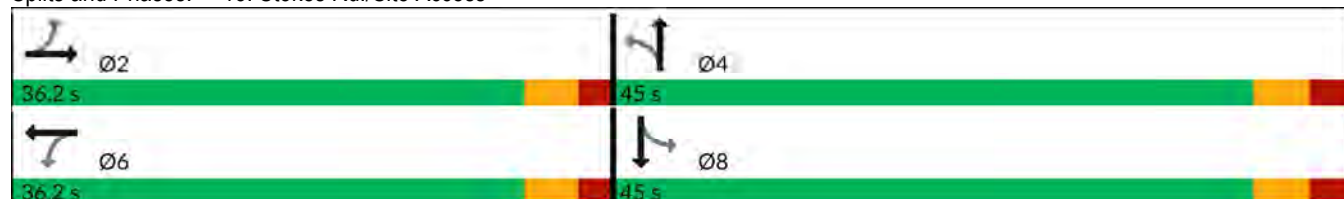
Intersection LOS: A

Intersection Capacity Utilization 71.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 13: Stokes Rd./Site Access



Wellington St. at Stokes Rd. / Parking Lot
St. Thomas, ON

Existing Traffic (Saturday Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	189	40	23	143	50	29	27	8	40	20	46
Future Volume (vph)	62	189	40	23	143	50	29	27	8	40	20	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	44.0		0.0	7.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	23.0			17.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974			0.961			0.964			0.896	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3485	0	1789	3404	0	1789	1816	0	1789	1688	0
Flt Permitted	0.621			0.598			0.710			0.732		
Satd. Flow (perm)	1170	3485	0	1126	3404	0	1337	1816	0	1379	1688	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35			54			9			50	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		146.0			64.1			125.7			93.8	
Travel Time (s)		11.0			4.8			9.4			7.0	
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	6%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	67	205	43	25	155	54	32	29	9	43	22	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	248	0	25	209	0	32	38	0	43	72	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		45.0	45.0		45.0	45.0	
Total Split (s)	36.2	36.2		36.2	36.2		45.0	45.0		45.0	45.0	
Total Split (%)	44.6%	44.6%		44.6%	44.6%		55.4%	55.4%		55.4%	55.4%	
Maximum Green (s)	31.0	31.0		31.0	31.0		39.0	39.0		39.0	39.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Ped	Ped		Ped	Ped		None	None		None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)	19.0	19.0		19.0	19.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	36.7	36.7		36.7	36.7		8.2	8.2		8.2	8.2	
Actuated g/C Ratio	0.70	0.70		0.70	0.70		0.16	0.16		0.16	0.16	
v/c Ratio	0.08	0.10		0.03	0.09		0.15	0.13		0.20	0.23	
Control Delay (s/veh)	4.3	3.4		4.1	3.0		20.2	16.3		21.0	11.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Wellington St. at Stokes Rd. / Parking Lot
St. Thomas, ON

Existing Traffic (Saturday Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	4.3	3.4		4.1	3.0		20.2	16.3		21.0	11.2	
LOS	A	A		A	A		C	B		C	B	
Approach Delay (s/veh)		3.6			3.1			18.1			14.9	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	2.0	3.3		0.7	2.4		2.6	2.3		3.5	1.7	
Queue Length 95th (m)	5.7	6.8		2.8	5.5		8.3	8.4		10.3	10.0	
Internal Link Dist (m)		122.0			40.1			101.7			69.8	
Turn Bay Length (m)	44.0			7.0								
Base Capacity (vph)	821	2457		790	2406		1002	1364		1034	1278	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.08	0.10		0.03	0.09		0.03	0.03		0.04	0.06	

Intersection Summary

Area Type: Other

Cycle Length: 81.2

Actuated Cycle Length: 52.2

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.23

Intersection Signal Delay (s/veh): 6.6

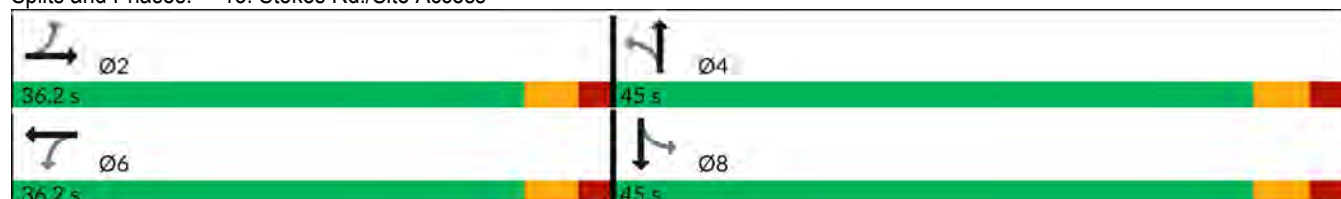
Intersection LOS: A

Intersection Capacity Utilization 69.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 13: Stokes Rd./Site Access



Wellington St. at Stokes Rd. / Parking Lot
St. Thomas, ON

Total Traffic 2030 (AM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	148	15	8	124	26	22	8	12	15	10	17
Future Volume (vph)	22	148	15	8	124	26	22	8	12	15	10	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	44.0		0.0	7.0		0.0	22.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	23.0			17.0			30.0			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986			0.974			0.911			0.907	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3476	0	1789	3440	0	1789	1491	0	1789	1658	0
Flt Permitted	0.649			0.640								
Satd. Flow (perm)	1222	3476	0	1205	3440	0	1883	1491	0	1883	1658	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			28			13			18	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		146.0			64.1			125.7			93.8	
Travel Time (s)		11.0			4.8			9.4			7.0	
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
Heavy Vehicles (%)	2%	3%	9%	2%	3%	5%	2%	2%	28%	2%	2%	7%
Adj. Flow (vph)	24	161	16	9	135	28	24	9	13	16	11	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	177	0	9	163	0	24	22	0	16	29	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		45.0	45.0		45.0	45.0	
Total Split (s)	36.2	36.2		36.2	36.2		45.0	45.0		45.0	45.0	
Total Split (%)	44.6%	44.6%		44.6%	44.6%		55.4%	55.4%		55.4%	55.4%	
Maximum Green (s)	31.0	31.0		31.0	31.0		39.0	39.0		39.0	39.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Ped	Ped		Ped	Ped		None	None		None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)	19.0	19.0		19.0	19.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	42.8	42.8		42.8	42.8		8.0	8.0		8.0	8.0	
Actuated g/C Ratio	0.85	0.85		0.85	0.85		0.16	0.16		0.16	0.16	
v/c Ratio	0.02	0.06		0.01	0.06		0.08	0.09		0.05	0.10	
Control Delay (s/veh)	3.2	2.4		3.4	2.3		18.8	13.7		18.5	12.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Wellington St. at Stokes Rd. / Parking Lot
St. Thomas, ON

Total Traffic 2030 (AM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	3.2	2.4		3.4	2.3		18.8	13.7		18.5	12.9	
LOS	A	A		A	A		B	B		B	B	
Approach Delay (s/veh)		2.5			2.3			16.3			14.8	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	0.0	0.0		0.0	0.0		1.9	0.7		1.3	0.9	
Queue Length 95th (m)	2.5	5.1		1.4	4.5		6.8	5.3		5.3	6.2	
Internal Link Dist (m)		122.0			40.1			101.7			69.8	
Turn Bay Length (m)	44.0			7.0			22.0					
Base Capacity (vph)	1035	2946		1021	2918		1453	1153		1453	1283	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.02	0.06		0.01	0.06		0.02	0.02		0.01	0.02	

Intersection Summary

Area Type: Other

Cycle Length: 81.2

Actuated Cycle Length: 50.5

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.10

Intersection Signal Delay (s/veh): 5.0

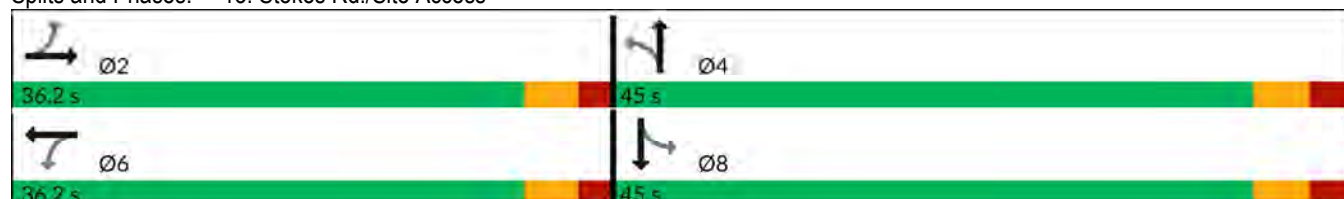
Intersection LOS: A

Intersection Capacity Utilization 42.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 13: Stokes Rd./Site Access



Wellington St. at Stokes Rd. / Parking Lot
St. Thomas, ON

Total Traffic 2030 (PM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	234	45	23	218	73	32	21	11	53	33	55
Future Volume (vph)	70	234	45	23	218	73	32	21	11	53	33	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	44.0		0.0	7.0		0.0	22.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	23.0			17.0			30.0			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976			0.962			0.949			0.906	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3464	0	1789	3417	0	1789	1787	0	1789	1706	0
Flt Permitted	0.560			0.567			0.695			0.734		
Satd. Flow (perm)	1055	3464	0	1068	3417	0	1309	1787	0	1382	1706	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			65			12			60	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		146.0			64.1			125.7			93.8	
Travel Time (s)		11.0			4.8			9.4			7.0	
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
Heavy Vehicles (%)	2%	3%	2%	2%	2%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	76	254	49	25	237	79	35	23	12	58	36	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	303	0	25	316	0	35	35	0	58	96	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		45.0	45.0		45.0	45.0	
Total Split (s)	36.2	36.2		36.2	36.2		45.0	45.0		45.0	45.0	
Total Split (%)	44.6%	44.6%		44.6%	44.6%		55.4%	55.4%		55.4%	55.4%	
Maximum Green (s)	31.0	31.0		31.0	31.0		39.0	39.0		39.0	39.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Ped	Ped		Ped	Ped		None	None		None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)	19.0	19.0		19.0	19.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	35.2	35.2		35.2	35.2		8.4	8.4		8.4	8.4	
Actuated g/C Ratio	0.69	0.69		0.69	0.69		0.16	0.16		0.16	0.16	
v/c Ratio	0.10	0.13		0.03	0.13		0.16	0.11		0.25	0.29	
Control Delay (s/veh)	4.8	3.8		4.3	3.4		20.0	14.8		21.5	11.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Wellington St. at Stokes Rd. / Parking Lot
St. Thomas, ON

Total Traffic 2030 (PM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	4.8	3.8		4.3	3.4		20.0	14.8		21.5	11.9	
LOS	A	A		A	A		C	B		C	B	
Approach Delay (s/veh)		4.0			3.5			17.4			15.5	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	2.3	4.4		0.7	4.0		2.8	1.8		4.7	2.9	
Queue Length 95th (m)	6.8	9.0		2.9	8.5		8.8	7.6		12.7	12.5	
Internal Link Dist (m)		122.0			40.1			101.7			69.8	
Turn Bay Length (m)	44.0			7.0			22.0					
Base Capacity (vph)	727	2400		736	2377		1001	1369		1056	1318	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.10	0.13		0.03	0.13		0.03	0.03		0.05	0.07	

Intersection Summary

Area Type: Other

Cycle Length: 81.2

Actuated Cycle Length: 51

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.29

Intersection Signal Delay (s/veh): 6.7

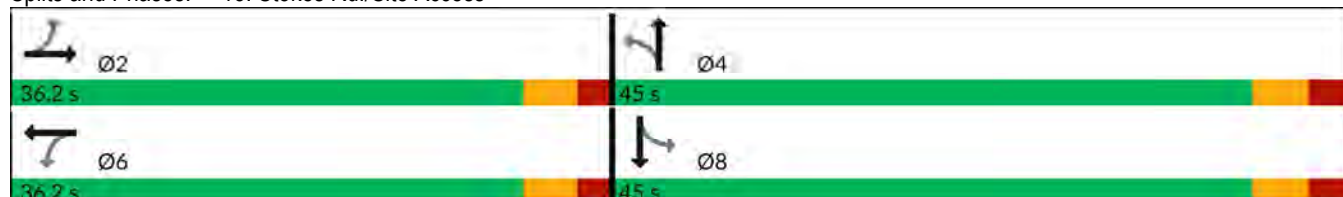
Intersection LOS: A

Intersection Capacity Utilization 73.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 13: Stokes Rd./Site Access



Wellington St. at Stokes Rd. / Parking Lot
St. Thomas, ON

Total Traffic 2030 (Saturday Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	225	50	25	184	55	38	30	9	44	22	51
Future Volume (vph)	68	225	50	25	184	55	38	30	9	44	22	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	44.0		0.0	7.0		0.0	22.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	23.0			17.0			30.0			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.973			0.965			0.965			0.896	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3482	0	1789	3422	0	1789	1818	0	1789	1688	0
Flt Permitted	0.591			0.569			0.706			0.729		
Satd. Flow (perm)	1113	3482	0	1072	3422	0	1330	1818	0	1373	1688	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			56			10			55	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		276.9			64.1			125.7			93.8	
Travel Time (s)		20.8			4.8			9.4			7.0	
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	6%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	74	245	54	27	200	60	41	33	10	48	24	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	299	0	27	260	0	41	43	0	48	79	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		45.0	45.0		45.0	45.0	
Total Split (s)	36.2	36.2		36.2	36.2		45.0	45.0		45.0	45.0	
Total Split (%)	44.6%	44.6%		44.6%	44.6%		55.4%	55.4%		55.4%	55.4%	
Maximum Green (s)	31.0	31.0		31.0	31.0		39.0	39.0		39.0	39.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Ped	Ped		Ped	Ped		None	None		None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)	19.0	19.0		19.0	19.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	35.6	35.6		35.6	35.6		8.2	8.2		8.2	8.2	
Actuated g/C Ratio	0.70	0.70		0.70	0.70		0.16	0.16		0.16	0.16	
v/c Ratio	0.10	0.12		0.04	0.11		0.19	0.14		0.22	0.25	
Control Delay (s/veh)	4.5	3.6		4.2	3.2		20.7	16.3		21.1	11.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Wellington St. at Stokes Rd. / Parking Lot
St. Thomas, ON

Total Traffic 2030 (Saturday Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	4.5	3.6		4.2	3.2		20.7	16.3		21.1	11.2	
LOS	A	A		A	A		C	B		C	B	
Approach Delay (s/veh)		3.7			3.3			18.5			14.9	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	2.3	4.2		0.8	3.2		3.3	2.6		3.9	1.9	
Queue Length 95th (m)	6.3	8.3		3.0	6.8		9.9	9.1		11.1	10.6	
Internal Link Dist (m)		252.9			40.1			101.7			69.8	
Turn Bay Length (m)	44.0			7.0			22.0					
Base Capacity (vph)	773	2431		744	2395		1014	1388		1046	1299	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.10	0.12		0.04	0.11		0.04	0.03		0.05	0.06	

Intersection Summary

Area Type: Other

Cycle Length: 81.2

Actuated Cycle Length: 51.2

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.25

Intersection Signal Delay (s/veh): 6.7

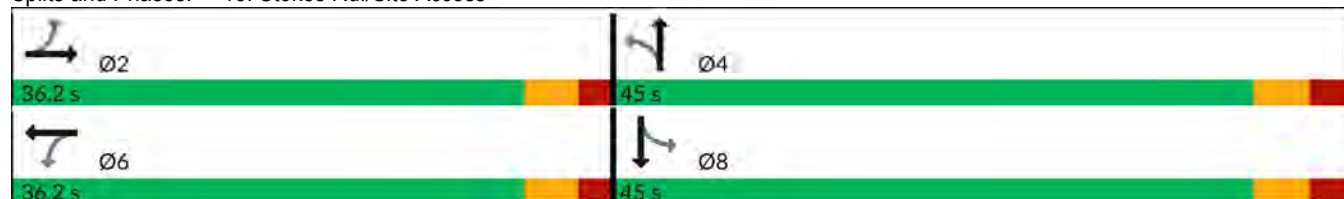
Intersection LOS: A

Intersection Capacity Utilization 72.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 13: Stokes Rd./Site Access



Wellington St. at Stokes Rd. / Parking Lot
St. Thomas, ON

Total Traffic 2035 (AM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	161	17	9	137	29	24	9	13	17	11	18
Future Volume (vph)	24	161	17	9	137	29	24	9	13	17	11	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	44.0		0.0	7.0		0.0	22.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	23.0			17.0			30.0			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986			0.973			0.912			0.906	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3475	0	1789	3436	0	1789	1495	0	1789	1656	0
Flt Permitted	0.638			0.630								
Satd. Flow (perm)	1202	3475	0	1187	3436	0	1883	1495	0	1883	1656	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			32			14			20	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		276.9			64.1			125.7			93.8	
Travel Time (s)		20.8			4.8			9.4			7.0	
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
Heavy Vehicles (%)	2%	3%	9%	2%	3%	5%	2%	2%	28%	2%	2%	7%
Adj. Flow (vph)	26	175	18	10	149	32	26	10	14	18	12	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	193	0	10	181	0	26	24	0	18	32	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		45.0	45.0		45.0	45.0	
Total Split (s)	36.2	36.2		36.2	36.2		45.0	45.0		45.0	45.0	
Total Split (%)	44.6%	44.6%		44.6%	44.6%		55.4%	55.4%		55.4%	55.4%	
Maximum Green (s)	31.0	31.0		31.0	31.0		39.0	39.0		39.0	39.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Ped	Ped		Ped	Ped		None	None		None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)	19.0	19.0		19.0	19.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	42.4	42.4		42.4	42.4		8.0	8.0		8.0	8.0	
Actuated g/C Ratio	0.85	0.85		0.85	0.85		0.16	0.16		0.16	0.16	
v/c Ratio	0.03	0.07		0.01	0.06		0.09	0.10		0.06	0.11	
Control Delay (s/veh)	3.2	2.4		3.3	2.2		18.7	13.6		18.4	12.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Wellington St. at Stokes Rd. / Parking Lot
St. Thomas, ON

Total Traffic 2035 (AM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	3.2	2.4		3.3	2.2		18.7	13.6		18.4	12.6	
LOS	A	A		A	A		B	B		B	B	
Approach Delay (s/veh)		2.5			2.3			16.2			14.7	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	0.0	0.0		0.0	0.0		1.9	0.7		1.3	0.9	
Queue Length 95th (m)	2.7	5.5		1.5	4.9		7.1	5.6		5.6	6.5	
Internal Link Dist (m)		252.9			40.1			101.7			69.8	
Turn Bay Length (m)	44.0			7.0			22.0					
Base Capacity (vph)	1018	2945		1005	2915		1468	1168		1468	1295	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.03	0.07		0.01	0.06		0.02	0.02		0.01	0.02	

Intersection Summary

Area Type: Other

Cycle Length: 81.2

Actuated Cycle Length: 50.1

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.11

Intersection Signal Delay (s/veh): 5.0

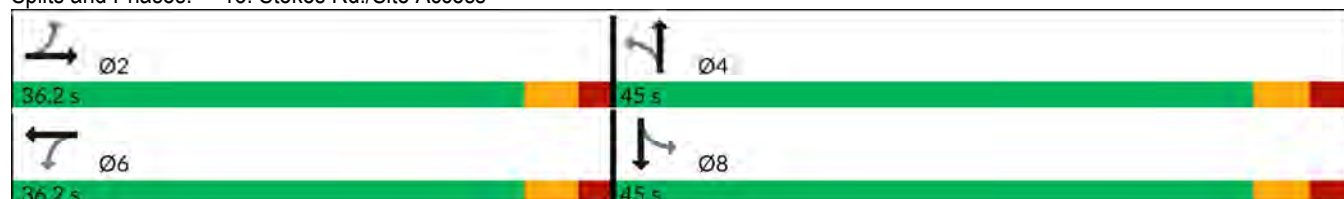
Intersection LOS: A

Intersection Capacity Utilization 42.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 13: Stokes Rd./Site Access



Wellington St. at Stokes Rd. / Parking Lot
St. Thomas, ON

Total Traffic 2035 (PM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	256	49	26	238	80	35	23	12	59	37	61
Future Volume (vph)	77	256	49	26	238	80	35	23	12	59	37	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	44.0		0.0	7.0		0.0	22.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	23.0			17.0			30.0			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976			0.962			0.949			0.907	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3464	0	1789	3417	0	1789	1787	0	1789	1708	0
Flt Permitted	0.544			0.552			0.689			0.732		
Satd. Flow (perm)	1025	3464	0	1040	3417	0	1298	1787	0	1379	1708	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			66			13			66	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		276.9			64.1			125.7			93.8	
Travel Time (s)		20.8			4.8			9.4			7.0	
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
Heavy Vehicles (%)	2%	3%	2%	2%	2%	5%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	84	278	53	28	259	87	38	25	13	64	40	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	331	0	28	346	0	38	38	0	64	106	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		45.0	45.0		45.0	45.0	
Total Split (s)	36.2	36.2		36.2	36.2		45.0	45.0		45.0	45.0	
Total Split (%)	44.6%	44.6%		44.6%	44.6%		55.4%	55.4%		55.4%	55.4%	
Maximum Green (s)	31.0	31.0		31.0	31.0		39.0	39.0		39.0	39.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Ped	Ped		Ped	Ped		None	None		None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)	19.0	19.0		19.0	19.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	35.1	35.1		35.1	35.1		8.6	8.6		8.6	8.6	
Actuated g/C Ratio	0.69	0.69		0.69	0.69		0.17	0.17		0.17	0.17	
v/c Ratio	0.12	0.14		0.04	0.15		0.18	0.12		0.28	0.31	
Control Delay (s/veh)	5.0	3.9		4.5	3.5		20.1	14.6		21.8	11.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Wellington St. at Stokes Rd. / Parking Lot
St. Thomas, ON

Total Traffic 2035 (PM Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	5.0	3.9		4.5	3.5		20.1	14.6		21.8	11.9	
LOS	A	A		A	A		C	B		C	B	
Approach Delay (s/veh)		4.1			3.6			17.4			15.6	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	2.6	4.9		0.8	4.5		3.0	2.0		5.2	3.2	
Queue Length 95th (m)	7.6	10.0		3.3	9.6		9.4	8.0		13.6	13.2	
Internal Link Dist (m)		252.9			40.1			101.7			69.8	
Turn Bay Length (m)	44.0			7.0			22.0					
Base Capacity (vph)	704	2390		715	2369		993	1371		1055	1322	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.14		0.04	0.15		0.04	0.03		0.06	0.08	

Intersection Summary

Area Type: Other

Cycle Length: 81.2

Actuated Cycle Length: 51

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.31

Intersection Signal Delay (s/veh): 6.8

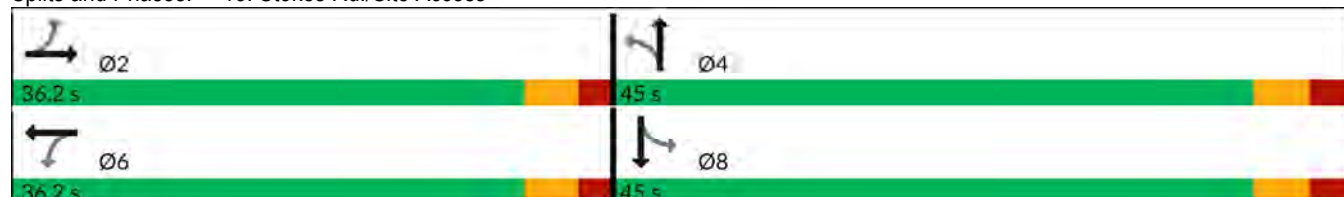
Intersection LOS: A

Intersection Capacity Utilization 73.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 13: Stokes Rd./Site Access



Wellington St. at Stokes Rd. / Parking Lot
St. Thomas, ON

Total Traffic 2035 (Saturday Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	246	55	28	200	61	41	33	10	49	24	56
Future Volume (vph)	76	246	55	28	200	61	41	33	10	49	24	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	44.0		0.0	7.0		0.0	22.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	23.0			17.0			30.0			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.972			0.965			0.965			0.895	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3478	0	1789	3422	0	1789	1818	0	1789	1686	0
Flt Permitted	0.578			0.554			0.701			0.726		
Satd. Flow (perm)	1089	3478	0	1043	3422	0	1320	1818	0	1367	1686	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			57			11			61	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		276.9			64.1			125.7			93.8	
Travel Time (s)		20.8			4.8			9.4			7.0	
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
Heavy Vehicles (%)	2%	2%	2%	2%	2%	6%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	83	267	60	30	217	66	45	36	11	53	26	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	83	327	0	30	283	0	45	47	0	53	87	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		45.0	45.0		45.0	45.0	
Total Split (s)	36.2	36.2		36.2	36.2		45.0	45.0		45.0	45.0	
Total Split (%)	44.6%	44.6%		44.6%	44.6%		55.4%	55.4%		55.4%	55.4%	
Maximum Green (s)	31.0	31.0		31.0	31.0		39.0	39.0		39.0	39.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Ped	Ped		Ped	Ped		None	None		None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)	19.0	19.0		19.0	19.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	35.0	35.0		35.0	35.0		8.4	8.4		8.4	8.4	
Actuated g/C Ratio	0.69	0.69		0.69	0.69		0.17	0.17		0.17	0.17	
v/c Ratio	0.11	0.14		0.04	0.12		0.21	0.15		0.24	0.27	
Control Delay (s/veh)	4.8	3.7		4.3	3.4		20.8	16.2		21.2	11.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Wellington St. at Stokes Rd. / Parking Lot
St. Thomas, ON

Total Traffic 2035 (Saturday Peak Hour)
Existing Geometric Configuration

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	4.8	3.7		4.3	3.4		20.8	16.2		21.2	11.0	
LOS	A	A		A	A		C	B		C	B	
Approach Delay (s/veh)		3.9			3.5			18.5			14.9	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	2.5	4.7		0.9	3.6		3.6	2.9		4.3	2.1	
Queue Length 95th (m)	7.2	9.3		3.3	7.7		10.5	9.6		11.9	11.2	
Internal Link Dist (m)		252.9			40.1			101.7			69.8	
Turn Bay Length (m)	44.0			7.0			22.0					
Base Capacity (vph)	751	2410		719	2377		1014	1399		1050	1309	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.11	0.14		0.04	0.12		0.04	0.03		0.05	0.07	

Intersection Summary

Area Type: Other

Cycle Length: 81.2

Actuated Cycle Length: 50.8

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.27

Intersection Signal Delay (s/veh): 6.8

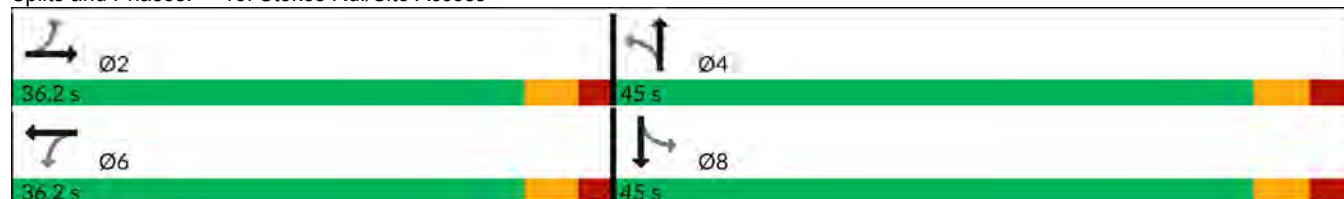
Intersection LOS: A

Intersection Capacity Utilization 73.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 13: Stokes Rd./Site Access



Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	60	4	13	0	8	60	3	143	2	13	65	46
Future Vol, veh/h	60	4	13	0	8	60	3	143	2	13	65	46
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
Heavy Vehicles, %	4	25	16	2	13	2	67	2	2	16	3	3
Mvmt Flow	65	4	14	0	9	65	3	155	2	14	71	50
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay, s/veh	8.6	8	10.6	8.3
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	2%	78%	0%	17%	0%
Vol Thru, %	97%	5%	12%	83%	0%
Vol Right, %	1%	17%	88%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	148	77	68	78	46
LT Vol	3	60	0	13	0
Through Vol	143	4	8	65	0
RT Vol	2	13	60	0	46
Lane Flow Rate	161	84	74	85	50
Geometry Grp	4a	2	2	5	5
Degree of Util (X)	0.253	0.114	0.092	0.127	0.061
Departure Headway (Hd)	5.672	4.9	4.489	5.395	4.385
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	634	731	798	664	815
Service Time	3.707	2.931	2.521	3.131	2.121
HCM Lane V/C Ratio	0.254	0.115	0.093	0.128	0.061
HCM Control Delay, s/veh	10.6	8.6	8	8.9	7.4
HCM Lane LOS	B	A	A	A	A
HCM 95th-tile Q	1	0.4	0.3	0.4	0.2

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	50	8	7	2	6	32	6	124	2	43	191	101
Future Vol, veh/h	50	8	7	2	6	32	6	124	2	43	191	101
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
Heavy Vehicles, %	2	2	2	2	2	2	2	4	2	2	2	2
Mvmt Flow	54	9	8	2	7	35	7	135	2	47	208	110
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay, s/veh	8.8	8	8.8	9.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	5%	77%	5%	18%	0%
Vol Thru, %	94%	12%	15%	82%	0%
Vol Right, %	2%	11%	80%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	132	65	40	234	101
LT Vol	6	50	2	43	0
Through Vol	124	8	6	191	0
RT Vol	2	7	32	0	101
Lane Flow Rate	143	71	43	254	110
Geometry Grp	4a	2	2	5	5
Degree of Util (X)	0.187	0.102	0.057	0.355	0.129
Departure Headway (Hd)	4.704	5.211	4.698	5.031	4.235
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	762	687	760	715	846
Service Time	2.737	3.25	2.739	2.758	1.963
HCM Lane V/C Ratio	0.188	0.103	0.057	0.355	0.13
HCM Control Delay, s/veh	8.8	8.8	8	10.5	7.6
HCM Lane LOS	A	A	A	B	A
HCM 95th-tile Q	0.7	0.3	0.2	1.6	0.4

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	67	6	5	2	5	48	3	148	2	46	145	85
Future Vol, veh/h	67	6	5	2	5	48	3	148	2	46	145	85
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
Heavy Vehicles, %	2	2	40	2	2	2	2	2	2	2	2	2
Mvmt Flow	73	7	5	2	5	52	3	161	2	50	158	92
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay, s/veh	9	8	9.1	9.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	2%	86%	4%	24%	0%
Vol Thru, %	97%	8%	9%	76%	0%
Vol Right, %	1%	6%	87%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	153	78	55	191	85
LT Vol	3	67	2	46	0
Through Vol	148	6	5	145	0
RT Vol	2	5	48	0	85
Lane Flow Rate	166	85	60	208	92
Geometry Grp	4a	2	2	5	5
Degree of Util (X)	0.218	0.123	0.076	0.297	0.111
Departure Headway (Hd)	4.722	5.209	4.606	5.155	4.33
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	758	687	775	698	826
Service Time	2.761	3.254	2.653	2.891	2.066
HCM Lane V/C Ratio	0.219	0.124	0.077	0.298	0.111
HCM Control Delay, s/veh	9.1	9	8	10.1	7.6
HCM Lane LOS	A	A	A	B	A
HCM 95th-tile Q	0.8	0.4	0.2	1.2	0.4

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	↔
Traffic Vol, veh/h	73	4	14	0	9	66	3	172	2	14	73	53
Future Vol, veh/h	73	4	14	0	9	66	3	172	2	14	73	53
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
Heavy Vehicles, %	4	25	16	2	13	2	67	2	2	16	3	3
Mvmt Flow	79	4	15	0	10	72	3	187	2	15	79	58
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay, s/veh	8.9	8.3	11.4	8.6
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	2%	80%	0%	16%	0%
Vol Thru, %	97%	4%	12%	84%	0%
Vol Right, %	1%	15%	88%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	177	91	75	87	53
LT Vol	3	73	0	14	0
Through Vol	172	4	9	73	0
RT Vol	2	14	66	0	53
Lane Flow Rate	192	99	82	95	58
Geometry Grp	4a	2	2	5	5
Degree of Util (X)	0.308	0.139	0.105	0.144	0.072
Departure Headway (Hd)	5.763	5.065	4.655	5.5	4.492
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	623	706	767	651	794
Service Time	3.809	3.109	2.7	3.248	2.239
HCM Lane V/C Ratio	0.308	0.14	0.107	0.146	0.073
HCM Control Delay, s/veh	11.4	8.9	8.3	9.2	7.6
HCM Lane LOS	B	A	A	A	A
HCM 95th-tile Q	1.3	0.5	0.4	0.5	0.2

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	↔
Traffic Vol, veh/h	61	9	8	2	7	35	7	150	2	47	222	124
Future Vol, veh/h	61	9	8	2	7	35	7	150	2	47	222	124
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
Heavy Vehicles, %	2	2	2	2	2	2	2	4	2	2	2	2
Mvmt Flow	66	10	9	2	8	38	8	163	2	51	241	135
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay, s/veh	9.3	8.3	9.3	10.4
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	4%	78%	5%	17%	0%
Vol Thru, %	94%	12%	16%	83%	0%
Vol Right, %	1%	10%	80%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	159	78	44	269	124
LT Vol	7	61	2	47	0
Through Vol	150	9	7	222	0
RT Vol	2	8	35	0	124
Lane Flow Rate	173	85	48	292	135
Geometry Grp	4a	2	2	5	5
Degree of Util (X)	0.232	0.128	0.065	0.415	0.162
Departure Headway (Hd)	4.831	5.418	4.922	5.115	4.323
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	741	659	723	702	828
Service Time	2.877	3.473	2.984	2.855	2.063
HCM Lane V/C Ratio	0.233	0.129	0.066	0.416	0.163
HCM Control Delay, s/veh	9.3	9.3	8.3	11.5	7.9
HCM Lane LOS	A	A	A	B	A
HCM 95th-tile Q	0.9	0.4	0.2	2	0.6

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	95	7	6	2	6	53	3	163	2	51	171	105
Future Vol, veh/h	95	7	6	2	6	53	3	163	2	51	171	105
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
Heavy Vehicles, %	2	2	40	2	2	2	2	2	2	2	2	2
Mvmt Flow	103	8	7	2	7	58	3	177	2	55	186	114
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay, s/veh	9.6	8.4	9.6	10
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	2%	88%	3%	23%	0%
Vol Thru, %	97%	6%	10%	77%	0%
Vol Right, %	1%	6%	87%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	168	108	61	222	105
LT Vol	3	95	2	51	0
Through Vol	163	7	6	171	0
RT Vol	2	6	53	0	105
Lane Flow Rate	183	117	66	241	114
Geometry Grp	4a	2	2	5	5
Degree of Util (X)	0.249	0.176	0.089	0.355	0.142
Departure Headway (Hd)	4.908	5.397	4.833	5.29	4.47
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	727	661	735	678	798
Service Time	2.97	3.465	2.909	3.045	2.224
HCM Lane V/C Ratio	0.252	0.177	0.09	0.355	0.143
HCM Control Delay, s/veh	9.6	9.6	8.4	11	8
HCM Lane LOS	A	A	A	B	A
HCM 95th-tile Q	1	0.6	0.3	1.6	0.5

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	80	5	16	0	10	73	4	188	2	16	80	58
Future Vol, veh/h	80	5	16	0	10	73	4	188	2	16	80	58
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
Heavy Vehicles, %	4	25	16	2	13	2	67	2	2	16	3	3
Mvmt Flow	87	5	17	0	11	79	4	204	2	17	87	63
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay, s/veh	9.2	8.5	11.9	8.8
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	2%	79%	0%	17%	0%
Vol Thru, %	97%	5%	12%	83%	0%
Vol Right, %	1%	16%	88%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	194	101	83	96	58
LT Vol	4	80	0	16	0
Through Vol	188	5	10	80	0
RT Vol	2	16	73	0	58
Lane Flow Rate	211	110	90	104	63
Geometry Grp	4a	2	2	5	5
Degree of Util (X)	0.342	0.158	0.12	0.162	0.08
Departure Headway (Hd)	5.839	5.17	4.769	5.583	4.571
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	614	691	747	639	777
Service Time	3.902	3.227	2.829	3.348	2.336
HCM Lane V/C Ratio	0.344	0.159	0.12	0.163	0.081
HCM Control Delay, s/veh	11.9	9.2	8.5	9.4	7.7
HCM Lane LOS	B	A	A	A	A
HCM 95th-tile Q	1.5	0.6	0.4	0.6	0.3

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	67	10	9	2	7	39	7	164	2	52	244	135
Future Vol, veh/h	67	10	9	2	7	39	7	164	2	52	244	135
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
Heavy Vehicles, %	2	2	2	2	2	2	2	4	2	2	2	2
Mvmt Flow	73	11	10	2	8	42	8	178	2	57	265	147
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay, s/veh	9.6	8.5	9.7	11
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	4%	78%	4%	18%	0%
Vol Thru, %	95%	12%	15%	82%	0%
Vol Right, %	1%	10%	81%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	173	86	48	296	135
LT Vol	7	67	2	52	0
Through Vol	164	10	7	244	0
RT Vol	2	9	39	0	135
Lane Flow Rate	188	93	52	322	147
Geometry Grp	4a	2	2	5	5
Degree of Util (X)	0.257	0.144	0.073	0.462	0.178
Departure Headway (Hd)	4.916	5.543	5.05	5.172	4.379
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	726	643	703	695	814
Service Time	2.974	3.611	3.126	2.923	2.13
HCM Lane V/C Ratio	0.259	0.145	0.074	0.463	0.181
HCM Control Delay, s/veh	9.7	9.6	8.5	12.3	8.1
HCM Lane LOS	A	A	A	B	A
HCM 95th-tile Q	1	0.5	0.2	2.4	0.6

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	103	7	6	2	6	59	4	180	2	56	188	115
Future Vol, veh/h	103	7	6	2	6	59	4	180	2	56	188	115
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
Heavy Vehicles, %	2	2	40	2	2	2	2	2	2	2	2	2
Mvmt Flow	112	8	7	2	7	64	4	196	2	61	204	125
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay, s/veh	10	8.6	10.1	10.5
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	2%	89%	3%	23%	0%
Vol Thru, %	97%	6%	9%	77%	0%
Vol Right, %	1%	5%	88%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	186	116	67	244	115
LT Vol	4	103	2	56	0
Through Vol	180	7	6	188	0
RT Vol	2	6	59	0	115
Lane Flow Rate	202	126	73	265	125
Geometry Grp	4a	2	2	5	5
Degree of Util (X)	0.281	0.194	0.101	0.395	0.158
Departure Headway (Hd)	5	5.535	4.971	5.36	4.54
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	712	643	712	666	783
Service Time	3.078	3.62	3.064	3.131	2.31
HCM Lane V/C Ratio	0.284	0.196	0.103	0.398	0.16
HCM Control Delay, s/veh	10.1	10	8.6	11.6	8.2
HCM Lane LOS	B	A	A	B	A
HCM 95th-tile Q	1.2	0.7	0.3	1.9	0.6

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.5.2.1013 © Copyright TRL Limited, 2019
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Filename: 26-1912 Wellington Street Redevelopment, St. Thomas.j9

Path: Z:\2026\26-1912\ARCADY

Report generation date: 13/02/2026 11:23:20 AM

»Existing Traffic, AM Peak Hour
 »Existing Traffic, PM Peak Hour
 »Existing Traffic, Saturday Peak Hour
 »Total Traffic 2030, AM Peak Hour
 »Total Traffic 2030, PM Peak Hour
 »Total Traffic 2030, Saturday Peak Hour
 »Total Traffic 2035, AM Peak Hour
 »Total Traffic 2035, PM Peak Hour
 »Total Traffic 2035, Saturday Peak Hour

Summary of intersection performance

	AM Peak Hour									PM Peak Hour									Saturday Peak Hour								
	Set ID	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Traffic																										
WB - Wellington Street	D1	0.1	0.5	2.94	0.08	A	3.06	A	594 % [EB - Wellington Street]	D2	0.2	0.5	3.09	0.13	A	3.35	A	305 % [EB - Wellington Street]	D3	0.1	0.5	2.96	0.10	A	3.22	A	346 % [EB - Wellington Street]
SB - Manor Road		0.1	0.5	3.14	0.08	A					0.2	0.5	3.50	0.17	A					0.2	0.5	3.28	0.13	A			
EB - Wellington Street		0.1	0.5	3.16	0.12	A					0.3	1.0	3.51	0.20	A					0.2	0.5	3.40	0.19	A			
NB - Manor Road		0.1	0.5	2.91	0.06	A					0.0	0.5	2.94	0.04	A					0.0	0.5	2.91	0.05	A			
	Total Traffic 2030																										
WB - Wellington Street	D4	0.1	0.5	3.02	0.09	A	3.16	A	455 % [EB - Wellington Street]	D5	0.2	0.5	3.21	0.16	A	3.53	A	242 % [EB - Wellington Street]	D6	0.1	0.5	3.05	0.12	A	3.35	A	282 % [EB - Wellington Street]
SB - Manor Road		0.1	0.5	3.20	0.09	A					0.3	1.0	3.69	0.20	A					0.2	0.5	3.42	0.16	A			
EB - Wellington Street		0.2	0.5	3.29	0.15	A					0.3	1.4	3.72	0.24	A					0.3	1.3	3.56	0.22	A			
NB - Manor Road		0.1	0.5	2.99	0.07	A					0.1	0.5	3.03	0.05	A					0.1	0.5	3.00	0.06	A			
	Total Traffic 2035																										
WB - Wellington Street	D7	0.1	0.5	3.07	0.10	A	3.21	A	410 % [EB - Wellington Street]	D8	0.2	0.5	3.29	0.17	A	3.64	A	211 % [EB - Wellington Street]	D9	0.1	0.5	3.12	0.13	A	3.45	A	248 % [EB - Wellington Street]
SB - Manor Road		0.1	0.5	3.25	0.10	A					0.3	1.2	3.82	0.22	A					0.2	0.5	3.51	0.17	A			
EB - Wellington Street		0.2	0.5	3.35	0.16	A					0.4	1.5	3.86	0.26	A					0.3	1.4	3.67	0.24	A			
NB - Manor Road		0.1	0.5	3.04	0.08	A					0.1	0.5	3.09	0.06	A					0.1	0.5	3.06	0.06	A			

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

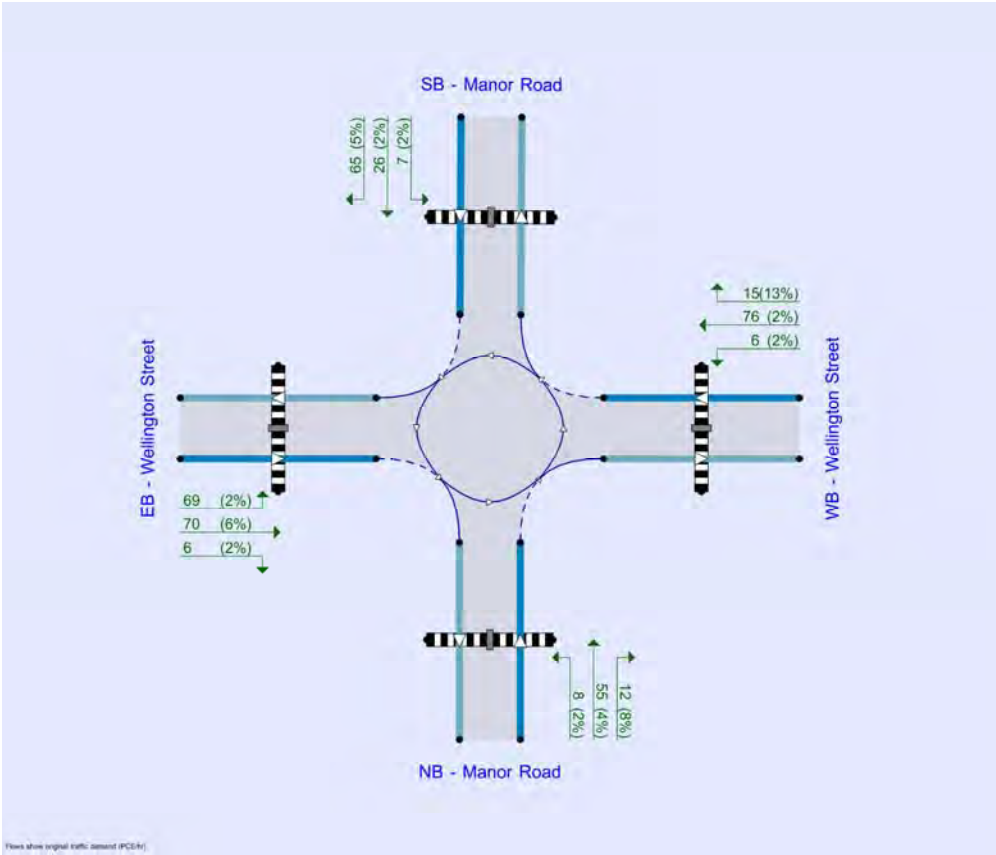
File Description

Title	Wellington Street Redevelopment
Location	St. Thomas, ON
Site number	26-1912
Date	12/02/2026
Version	

Status	Existing
Identifier	
Client	
Jobnumber	
Analyst	RC Spencer Associates Inc.
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCE	PCE	perHour	s	-Min	perMin



Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)
5.75	✓		✓	Delay	0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Existing Traffic	AM Peak Hour	Thursday (29 May 2025)	ONE HOUR	08:00	09:30	15	✓
D2	Existing Traffic	PM Peak Hour	Thursday (29 May 2025)	ONE HOUR	04:00	05:30	15	✓

D3	Existing Traffic	Saturday Peak Hour	Saturday (31 May 2025)	ONE HOUR	11:15	12:45	15	✓
D4	Total Traffic 2030	AM Peak Hour	Thursday (29 May 2025)	ONE HOUR	08:00	09:30	15	✓
D5	Total Traffic 2030	PM Peak Hour	Thursday (29 May 2025)	ONE HOUR	04:00	05:30	15	✓
D6	Total Traffic 2030	Saturday Peak Hour	Saturday (31 May 2025)	ONE HOUR	11:15	12:45	15	✓
D7	Total Traffic 2035	AM Peak Hour	Thursday (29 May 2025)	ONE HOUR	08:00	09:30	15	✓
D8	Total Traffic 2035	PM Peak Hour	Thursday (29 May 2025)	ONE HOUR	04:00	05:30	15	✓
D9	Total Traffic 2035	Saturday Peak Hour	Saturday (31 May 2025)	ONE HOUR	11:15	12:45	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Existing Traffic, AM Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
1	Manor Road at Wellington Street	Standard Roundabout		WB, SB, EB, NB	3.06	A

Intersection Network Options

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold
Right	Normal/unknown	594	EB - Wellington Street

Legs

Legs

Leg	Name	Description
WB	Wellington Street	East Leg
SB	Manor Road	North Leg
EB	Wellington Street	West Leg
NB	Manor Road	South Leg

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
WB - Wellington Street	4.40	5.00	30.0	24.0	38.0	41.0	
SB - Manor Road	4.50	4.60	26.0	25.0	38.0	41.0	
EB - Wellington Street	4.50	4.60	30.0	33.0	38.0	41.0	
NB - Manor Road	4.70	5.00	22.0	25.0	38.0	41.0	

Unsignalld Pedestrian Crossing Crossings

Leg	Space between crossing and intersection entry (Unsignalld Pedestrian Crossing) (PCE)	Vehicles queueing on exit (Unsignalld Pedestrian Crossing) (PCE)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
WB - Wellington Street	9.00	18.00	✓	Distance	5.00	3.57	5.00	3.57
SB - Manor Road	9.00	18.00	✓	Distance	5.00	3.57	5.00	3.57
EB - Wellington Street	9.00	19.00	✓	Distance	4.50	3.21	6.00	4.29
NB - Manor Road	10.00	19.00	✓	Distance	5.00	3.57	5.00	3.57

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Final slope	Final intercept (PCE/hr)
WB - Wellington Street	0.589	1459
SB - Manor Road	0.568	1354
EB - Wellington Street	0.574	1367
NB - Manor Road	0.591	1468

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Existing Traffic	AM Peak Hour	Thursday (29 May 2025)	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck Percentages	2.00

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (PCE/hr)	Scaling Factor (%)
WB - Wellington Street		ONE HOUR	✓	97	100.000
SB - Manor Road		ONE HOUR	✓	98	100.000
EB - Wellington Street		ONE HOUR	✓	145	100.000
NB - Manor Road		ONE HOUR	✓	75	100.000

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB - Wellington Street	[ONEHOUR]	10.00
SB - Manor Road	[ONEHOUR]	10.00
EB - Wellington Street	[ONEHOUR]	10.00
NB - Manor Road	[ONEHOUR]	10.00

Origin-Destination Data

Demand (PCE/hr)

	To				
		WB - Wellington Street	SB - Manor Road	EB - Wellington Street	NB - Manor Road
From	WB - Wellington Street	0	15	76	6
	SB - Manor Road	7	0	65	26
	EB - Wellington Street	70	69	0	6
	NB - Manor Road	12	55	8	0

Vehicle Mix

Truck Percentages

	To				
		WB - Wellington Street	SB - Manor Road	EB - Wellington Street	NB - Manor Road
From	WB - Wellington Street	0	13	2	2
	SB - Manor Road	2	0	5	2
	EB - Wellington Street	6	2	0	2
	NB - Manor Road	8	4	2	0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)
WB - Wellington Street	0.08	2.94	0.1	0.5	A	89	134
SB - Manor Road	0.08	3.14	0.1	0.5	A	90	135
EB - Wellington Street	0.12	3.16	0.1	0.5	A	133	200
NB - Manor Road	0.06	2.91	0.1	0.5	A	69	103

Main Results for each time segment

08:00 - 08:15

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	73	18	99	7.53	1401	0.052	73	67	0.0	0.1	2.807	A
SB - Manor Road	74	18	68	7.53	1316	0.056	74	104	0.0	0.1	3.013	A
EB - Wellington Street	109	27	29	7.53	1350	0.081	109	112	0.0	0.1	3.012	A
NB - Manor Road	56	14	110	7.53	1404	0.040	56	29	0.0	0.0	2.789	A

08:15 - 08:30

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	87	22	119	8.99	1389	0.063	87	80	0.1	0.1	2.862	A
SB - Manor Road	88	22	81	8.99	1308	0.067	88	125	0.1	0.1	3.067	A
EB - Wellington Street	130	33	35	8.99	1347	0.097	130	134	0.1	0.1	3.073	A
NB - Manor Road	67	17	131	8.99	1391	0.048	67	34	0.0	0.1	2.839	A

08:30 - 08:45

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	107	27	145	11.01	1373	0.078	107	98	0.1	0.1	2.942	A
SB - Manor Road	108	27	99	11.01	1298	0.083	108	153	0.1	0.1	3.145	A
EB - Wellington Street	160	40	43	11.01	1343	0.119	160	164	0.1	0.1	3.161	A
NB - Manor Road	83	21	161	11.01	1373	0.060	83	42	0.1	0.1	2.911	A

08:45 - 09:00

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	107	27	145	11.01	1373	0.078	107	98	0.1	0.1	2.942	A
SB - Manor Road	108	27	99	11.01	1298	0.083	108	153	0.1	0.1	3.145	A
EB - Wellington Street	160	40	43	11.01	1343	0.119	160	164	0.1	0.1	3.161	A
NB - Manor Road	83	21	161	11.01	1373	0.060	83	42	0.1	0.1	2.911	A

09:00 - 09:15

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	87	22	119	8.99	1389	0.063	87	80	0.1	0.1	2.863	A
SB - Manor Road	88	22	81	8.99	1308	0.067	88	125	0.1	0.1	3.070	A
EB - Wellington Street	130	33	35	8.99	1347	0.097	130	134	0.1	0.1	3.073	A
NB - Manor Road	67	17	131	8.99	1391	0.048	67	34	0.1	0.1	2.839	A

09:15 - 09:30

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	73	18	99	7.53	1400	0.052	73	67	0.1	0.1	2.808	A
SB - Manor Road	74	18	68	7.53	1315	0.056	74	105	0.1	0.1	3.014	A
EB - Wellington Street	109	27	29	7.53	1350	0.081	109	112	0.1	0.1	3.013	A
NB - Manor Road	56	14	110	7.53	1403	0.040	57	29	0.1	0.0	2.790	A

Queue Variation Results for each time segment

08:00 - 08:15

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.06	0.00	0.00	0.06	0.06			N/A	N/A
SB - Manor Road	0.06	0.00	0.00	0.06	0.06			N/A	N/A
EB - Wellington Street	0.09	0.00	0.00	0.09	0.09			N/A	N/A

NB - Manor Road	0.04	0.00	0.00	0.04	0.04			N/A	N/A
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08:15 - 08:30

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.07	0.03	0.26	0.47	0.49			N/A	N/A
SB - Manor Road	0.07	0.03	0.26	0.47	0.50			N/A	N/A
EB - Wellington Street	0.11	0.00	0.00	0.11	0.11			N/A	N/A
NB - Manor Road	0.05	0.03	0.26	0.47	0.50			N/A	N/A

08:30 - 08:45

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.09	0.03	0.27	0.48	0.51			N/A	N/A
SB - Manor Road	0.09	0.03	0.27	0.48	0.51			N/A	N/A
EB - Wellington Street	0.14	0.03	0.27	0.48	0.51			N/A	N/A
NB - Manor Road	0.07	0.03	0.27	0.49	0.51			N/A	N/A

08:45 - 09:00

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.09	0.00	0.00	0.09	0.09			N/A	N/A
SB - Manor Road	0.09	0.00	0.00	0.09	0.09			N/A	N/A
EB - Wellington Street	0.14	0.00	0.00	0.14	0.14			N/A	N/A
NB - Manor Road	0.07	0.00	0.00	0.07	0.07			N/A	N/A

09:00 - 09:15

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.07	0.00	0.00	0.07	0.07			N/A	N/A
SB - Manor Road	0.08	0.00	0.00	0.08	0.08			N/A	N/A
EB - Wellington Street	0.11	0.00	0.00	0.11	0.11			N/A	N/A
NB - Manor Road	0.05	0.00	0.00	0.05	0.05			N/A	N/A

09:15 - 09:30

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.06	0.00	0.00	0.06	0.06			N/A	N/A
SB - Manor Road	0.06	0.00	0.00	0.06	0.06			N/A	N/A
EB - Wellington Street	0.09	0.00	0.00	0.09	0.09			N/A	N/A
NB - Manor Road	0.04	0.00	0.00	0.04	0.04			N/A	N/A

Existing Traffic, PM Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
1	Manor Road at Wellington Street	Standard Roundabout		WB, SB, EB, NB	3.35	A

Intersection Network Options

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold
Right	Normal/unknown	305	EB - Wellington Street

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	Existing Traffic	PM Peak Hour	Thursday (29 May 2025)	ONE HOUR	04:00	05:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck Percentages	2.00

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (PCE/hr)	Scaling Factor (%)
WB - Wellington Street		ONE HOUR	✓	165	100.000
SB - Manor Road		ONE HOUR	✓	192	100.000
EB - Wellington Street		ONE HOUR	✓	237	100.000
NB - Manor Road		ONE HOUR	✓	53	100.000

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB - Wellington Street	[ONEHOUR]	10.00
SB - Manor Road	[ONEHOUR]	10.00
EB - Wellington Street	[ONEHOUR]	10.00
NB - Manor Road	[ONEHOUR]	10.00

Origin-Destination Data

Demand (PCE/hr)

	To				
		WB - Wellington Street	SB - Manor Road	EB - Wellington Street	NB - Manor Road
From	WB - Wellington Street	0	20	130	15
	SB - Manor Road	16	0	120	56
	EB - Wellington Street	148	81	0	8
	NB - Manor Road	15	31	7	0

Vehicle Mix

Truck Percentages

		To			
		WB - Wellington Street	SB - Manor Road	EB - Wellington Street	NB - Manor Road
From	WB - Wellington Street	0	10	2	2
	SB - Manor Road	2	0	2	2
	EB - Wellington Street	2	4	0	2
	NB - Manor Road	2	2	2	0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)
WB - Wellington Street	0.13	3.09	0.2	0.5	A	151	227
SB - Manor Road	0.17	3.50	0.2	0.5	A	176	264
EB - Wellington Street	0.20	3.51	0.3	1.0	A	217	326
NB - Manor Road	0.04	2.94	0.0	0.5	A	49	73

Main Results for each time segment

04:00 - 04:15

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	124	31	89	7.53	1406	0.088	124	134	0.0	0.1	2.888	A
SB - Manor Road	145	36	114	7.53	1289	0.112	144	99	0.0	0.1	3.205	A
EB - Wellington Street	178	45	65	7.53	1330	0.134	178	193	0.0	0.2	3.207	A
NB - Manor Road	40	10	184	7.53	1360	0.029	40	59	0.0	0.0	2.781	A

04:15 - 04:30

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	148	37	107	8.99	1396	0.106	148	161	0.1	0.1	2.968	A
SB - Manor Road	173	43	137	8.99	1276	0.135	172	119	0.1	0.2	3.326	A
EB - Wellington Street	213	53	78	8.99	1322	0.161	213	231	0.2	0.2	3.331	A
NB - Manor Road	48	12	220	8.99	1338	0.036	48	71	0.0	0.0	2.844	A

04:30 - 04:45

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	182	45	131	11.01	1382	0.131	182	197	0.1	0.2	3.086	A
SB - Manor Road	211	53	167	11.01	1259	0.168	211	145	0.2	0.2	3.504	A
EB - Wellington Street	261	65	96	11.01	1312	0.199	261	283	0.2	0.3	3.515	A
NB - Manor Road	58	15	270	11.01	1309	0.045	58	87	0.0	0.0	2.935	A

04:45 - 05:00

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	182	45	131	11.01	1382	0.131	182	197	0.2	0.2	3.086	A
SB - Manor Road	211	53	167	11.01	1259	0.168	211	145	0.2	0.2	3.504	A
EB - Wellington Street	261	65	96	11.01	1312	0.199	261	283	0.3	0.3	3.515	A
NB - Manor Road	58	15	270	11.01	1309	0.045	58	87	0.0	0.0	2.935	A

05:00 - 05:15

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	148	37	107	8.99	1396	0.106	148	161	0.2	0.1	2.969	A
SB - Manor Road	173	43	137	8.99	1276	0.135	173	119	0.2	0.2	3.330	A
EB - Wellington Street	213	53	78	8.99	1322	0.161	213	231	0.3	0.2	3.335	A
NB - Manor Road	48	12	220	8.99	1338	0.036	48	71	0.0	0.0	2.847	A

05:15 - 05:30

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	124	31	90	7.53	1406	0.088	124	135	0.1	0.1	2.889	A
SB - Manor Road	145	36	115	7.53	1289	0.112	145	99	0.2	0.1	3.211	A
EB - Wellington Street	178	45	66	7.53	1330	0.134	179	194	0.2	0.2	3.213	A
NB - Manor Road	40	10	185	7.53	1359	0.029	40	60	0.0	0.0	2.782	A

Queue Variation Results for each time segment

04:00 - 04:15

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.10	0.00	0.00	0.10	0.10			N/A	N/A
SB - Manor Road	0.13	0.00	0.00	0.13	0.13			N/A	N/A
EB - Wellington Street	0.16	0.00	0.00	0.16	0.16			N/A	N/A
NB - Manor Road	0.03	0.00	0.00	0.03	0.03			N/A	N/A

04:15 - 04:30

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.12	0.00	0.00	0.12	0.12			N/A	N/A
SB - Manor Road	0.16	0.00	0.00	0.16	0.16			N/A	N/A
EB - Wellington Street	0.20	0.00	0.00	0.20	0.20			N/A	N/A
NB - Manor Road	0.04	0.03	0.26	0.46	0.49			N/A	N/A

04:30 - 04:45

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.16	0.03	0.26	0.47	0.50			N/A	N/A
SB - Manor Road	0.20	0.03	0.26	0.47	0.49			N/A	N/A
EB - Wellington Street	0.25	0.03	0.26	0.47	0.49			N/A	N/A
NB - Manor Road	0.05	0.03	0.26	0.47	0.49			N/A	N/A

04:45 - 05:00

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.16	0.03	0.26	0.46	0.49			N/A	N/A
SB - Manor Road	0.21	0.03	0.26	0.46	0.49			N/A	N/A
EB - Wellington Street	0.25	0.03	0.28	0.51	0.96			N/A	N/A
NB - Manor Road	0.05	0.00	0.00	0.05	0.05			N/A	N/A

05:00 - 05:15

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.12	0.00	0.00	0.12	0.12			N/A	N/A
SB - Manor Road	0.16	0.00	0.00	0.16	0.16			N/A	N/A
EB - Wellington Street	0.20	0.00	0.00	0.20	0.20			N/A	N/A
NB - Manor Road	0.04	0.00	0.00	0.04	0.04			N/A	N/A

05:15 - 05:30

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.10	0.00	0.00	0.10	0.10			N/A	N/A
SB - Manor Road	0.13	0.00	0.00	0.13	0.13			N/A	N/A
EB - Wellington Street	0.16	0.00	0.00	0.16	0.16			N/A	N/A
NB - Manor Road	0.03	0.00	0.00	0.03	0.03			N/A	N/A

Existing Traffic, Saturday Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
1	Manor Road at Wellington Street	Standard Roundabout		WB, SB, EB, NB	3.22	A

Intersection Network Options

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold
Right	Normal/unknown	346	EB - Wellington Street

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	Existing Traffic	Saturday Peak Hour	Saturday (31 May 2025)	ONE HOUR	11:15	12:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck Percentages	2.00

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (PCE/hr)	Scaling Factor (%)
WB - Wellington Street		ONE HOUR	✓	119	100.000
SB - Manor Road		ONE HOUR	✓	154	100.000
EB - Wellington Street		ONE HOUR	✓	228	100.000
NB - Manor Road		ONE HOUR	✓	55	100.000

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB - Wellington Street	[ONEHOUR]	10.00
SB - Manor Road	[ONEHOUR]	10.00
EB - Wellington Street	[ONEHOUR]	10.00
NB - Manor Road	[ONEHOUR]	10.00

Origin-Destination Data

Demand (PCE/hr)

	To				
		WB - Wellington Street	SB - Manor Road	EB - Wellington Street	NB - Manor Road
From	WB - Wellington Street	0	19	94	6
	SB - Manor Road	9	0	103	42
	EB - Wellington Street	133	86	0	9
	NB - Manor Road	6	45	4	0

Vehicle Mix

Truck Percentages

		To			
		WB - Wellington Street	SB - Manor Road	EB - Wellington Street	NB - Manor Road
From	WB - Wellington Street	0	2	2	2
	SB - Manor Road	2	0	2	2
	EB - Wellington Street	2	2	0	2
	NB - Manor Road	2	2	2	0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)
WB - Wellington Street	0.10	2.96	0.1	0.5	A	109	164
SB - Manor Road	0.13	3.28	0.2	0.5	A	141	212
EB - Wellington Street	0.19	3.40	0.2	0.5	A	209	314
NB - Manor Road	0.05	2.91	0.0	0.5	A	50	76

Main Results for each time segment

11:15 - 11:30

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	90	22	101	7.53	1399	0.064	89	111	0.0	0.1	2.803	A
SB - Manor Road	116	29	78	7.53	1310	0.089	116	113	0.0	0.1	3.075	A
EB - Wellington Street	172	43	43	7.53	1343	0.128	171	151	0.0	0.1	3.132	A
NB - Manor Road	41	10	171	7.53	1367	0.030	41	43	0.0	0.0	2.769	A

11:30 - 11:45

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	107	27	121	8.99	1388	0.077	107	133	0.1	0.1	2.866	A
SB - Manor Road	138	35	93	8.99	1301	0.106	138	135	0.1	0.1	3.158	A
EB - Wellington Street	205	51	51	8.99	1338	0.153	205	181	0.1	0.2	3.240	A
NB - Manor Road	49	12	205	8.99	1347	0.037	49	51	0.0	0.0	2.828	A

11:45 - 12:00

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	131	33	149	11.01	1371	0.096	131	163	0.1	0.1	2.959	A
SB - Manor Road	170	42	114	11.01	1289	0.132	169	165	0.1	0.2	3.279	A
EB - Wellington Street	251	63	63	11.01	1331	0.189	251	221	0.2	0.2	3.398	A
NB - Manor Road	61	15	251	11.01	1320	0.046	61	63	0.0	0.0	2.914	A

12:00 - 12:15

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	131	33	149	11.01	1371	0.096	131	163	0.1	0.1	2.959	A
SB - Manor Road	170	42	115	11.01	1289	0.132	170	165	0.2	0.2	3.279	A
EB - Wellington Street	251	63	63	11.01	1331	0.189	251	221	0.2	0.2	3.398	A
NB - Manor Road	61	15	251	11.01	1320	0.046	61	63	0.0	0.0	2.915	A

12:15 - 12:30

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	107	27	121	8.99	1387	0.077	107	133	0.1	0.1	2.867	A
SB - Manor Road	138	35	94	8.99	1301	0.106	139	135	0.2	0.1	3.159	A
EB - Wellington Street	205	51	51	8.99	1338	0.153	205	181	0.2	0.2	3.244	A
NB - Manor Road	49	12	205	8.99	1347	0.037	49	51	0.0	0.0	2.829	A

12:30 - 12:45

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	90	22	102	7.53	1399	0.064	90	112	0.1	0.1	2.806	A
SB - Manor Road	116	29	78	7.53	1309	0.089	116	113	0.1	0.1	3.076	A
EB - Wellington Street	172	43	43	7.53	1343	0.128	172	151	0.2	0.2	3.138	A
NB - Manor Road	41	10	172	7.53	1367	0.030	41	43	0.0	0.0	2.772	A

Queue Variation Results for each time segment

11:15 - 11:30

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.07	0.00	0.00	0.07	0.07			N/A	N/A
SB - Manor Road	0.10	0.00	0.00	0.10	0.10			N/A	N/A
EB - Wellington Street	0.15	0.00	0.00	0.15	0.15			N/A	N/A
NB - Manor Road	0.03	0.00	0.00	0.03	0.03			N/A	N/A

11:30 - 11:45

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.08	0.03	0.26	0.47	0.49			N/A	N/A
SB - Manor Road	0.12	0.00	0.00	0.12	0.12			N/A	N/A
EB - Wellington Street	0.18	0.00	0.00	0.18	0.18			N/A	N/A
NB - Manor Road	0.04	0.03	0.26	0.46	0.49			N/A	N/A

11:45 - 12:00

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.11	0.03	0.26	0.47	0.50			N/A	N/A
SB - Manor Road	0.15	0.03	0.26	0.47	0.50			N/A	N/A
EB - Wellington Street	0.24	0.03	0.26	0.47	0.49			N/A	N/A
NB - Manor Road	0.05	0.03	0.26	0.47	0.49			N/A	N/A

12:00 - 12:15

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.11	0.00	0.00	0.11	0.11			N/A	N/A
SB - Manor Road	0.15	0.03	0.26	0.46	0.48			N/A	N/A
EB - Wellington Street	0.24	0.03	0.27	0.48	0.51			N/A	N/A
NB - Manor Road	0.05	0.00	0.00	0.05	0.05			N/A	N/A

12:15 - 12:30

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.09	0.00	0.00	0.09	0.09			N/A	N/A
SB - Manor Road	0.12	0.00	0.00	0.12	0.12			N/A	N/A
EB - Wellington Street	0.19	0.00	0.00	0.19	0.19			N/A	N/A
NB - Manor Road	0.04	0.00	0.00	0.04	0.04			N/A	N/A

12:30 - 12:45

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.07	0.00	0.00	0.07	0.07			N/A	N/A
SB - Manor Road	0.10	0.00	0.00	0.10	0.10			N/A	N/A
EB - Wellington Street	0.15	0.00	0.00	0.15	0.15			N/A	N/A
NB - Manor Road	0.03	0.00	0.00	0.03	0.03			N/A	N/A

Total Traffic 2030, AM Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
1	Manor Road at Wellington Street	Standard Roundabout		WB, SB, EB, NB	3.16	A

Intersection Network Options

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold
Right	Normal/unknown	455	EB - Wellington Street

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	Total Traffic 2030	AM Peak Hour	Thursday (29 May 2025)	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck Percentages	2.00

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (PCE/hr)	Scaling Factor (%)
WB - Wellington Street		ONE HOUR	✓	110	100.000
SB - Manor Road		ONE HOUR	✓	110	100.000
EB - Wellington Street		ONE HOUR	✓	184	100.000
NB - Manor Road		ONE HOUR	✓	84	100.000

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB - Wellington Street	[ONEHOUR]	10.00
SB - Manor Road	[ONEHOUR]	10.00
EB - Wellington Street	[ONEHOUR]	10.00
NB - Manor Road	[ONEHOUR]	10.00

Origin-Destination Data

Demand (PCE/hr)

		To			
From		WB - Wellington Street	SB - Manor Road	EB - Wellington Street	NB - Manor Road
	WB - Wellington Street	0	17	86	7
	SB - Manor Road	8	0	73	29
	EB - Wellington Street	84	90	0	10
	NB - Manor Road	13	61	10	0

Vehicle Mix

Truck Percentages

		To			
		WB - Wellington Street	SB - Manor Road	EB - Wellington Street	NB - Manor Road
From	WB - Wellington Street	0	13	2	2
	SB - Manor Road	2	0	5	2
	EB - Wellington Street	6	2	0	2
	NB - Manor Road	8	4	2	0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)
WB - Wellington Street	0.09	3.02	0.1	0.5	A	101	151
SB - Manor Road	0.09	3.20	0.1	0.5	A	101	151
EB - Wellington Street	0.15	3.29	0.2	0.5	A	169	253
NB - Manor Road	0.07	2.99	0.1	0.5	A	77	116

Main Results for each time segment

08:00 - 08:15

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	83	21	121	7.53	1388	0.060	83	79	0.0	0.1	2.856	A
SB - Manor Road	83	21	77	7.53	1310	0.063	83	126	0.0	0.1	3.049	A
EB - Wellington Street	139	35	33	7.53	1348	0.103	138	127	0.0	0.1	3.088	A
NB - Manor Road	63	16	137	7.53	1388	0.046	63	35	0.0	0.0	2.836	A

08:15 - 08:30

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	99	25	145	8.99	1374	0.072	99	94	0.1	0.1	2.923	A
SB - Manor Road	99	25	93	8.99	1301	0.076	99	151	0.1	0.1	3.112	A
EB - Wellington Street	165	41	40	8.99	1344	0.123	165	152	0.1	0.1	3.168	A
NB - Manor Road	76	19	164	8.99	1372	0.055	75	41	0.0	0.1	2.897	A

08:30 - 08:45

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	121	30	177	11.01	1355	0.089	121	116	0.1	0.1	3.021	A
SB - Manor Road	121	30	113	11.01	1290	0.094	121	185	0.1	0.1	3.202	A
EB - Wellington Street	203	51	48	11.01	1339	0.151	202	186	0.1	0.2	3.286	A
NB - Manor Road	92	23	200	11.01	1350	0.069	92	51	0.1	0.1	2.986	A

08:45 - 09:00

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	121	30	177	11.01	1355	0.089	121	116	0.1	0.1	3.021	A
SB - Manor Road	121	30	113	11.01	1289	0.094	121	185	0.1	0.1	3.202	A
EB - Wellington Street	203	51	48	11.01	1339	0.151	203	186	0.2	0.2	3.286	A
NB - Manor Road	92	23	200	11.01	1350	0.069	92	51	0.1	0.1	2.987	A

09:00 - 09:15

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	99	25	145	8.99	1374	0.072	99	94	0.1	0.1	2.924	A
SB - Manor Road	99	25	93	8.99	1301	0.076	99	151	0.1	0.1	3.112	A
EB - Wellington Street	165	41	40	8.99	1344	0.123	166	152	0.2	0.1	3.169	A
NB - Manor Road	76	19	164	8.99	1372	0.055	76	41	0.1	0.1	2.898	A

09:15 - 09:30

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	83	21	121	7.53	1388	0.060	83	79	0.1	0.1	2.859	A
SB - Manor Road	83	21	78	7.53	1310	0.063	83	127	0.1	0.1	3.052	A
EB - Wellington Street	139	35	33	7.53	1348	0.103	139	127	0.1	0.1	3.091	A
NB - Manor Road	63	16	137	7.53	1387	0.046	63	35	0.1	0.1	2.836	A

Queue Variation Results for each time segment

08:00 - 08:15

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.07	0.00	0.00	0.07	0.07			N/A	N/A
SB - Manor Road	0.07	0.00	0.00	0.07	0.07			N/A	N/A
EB - Wellington Street	0.12	0.00	0.00	0.12	0.12			N/A	N/A
NB - Manor Road	0.05	0.00	0.00	0.05	0.05			N/A	N/A

08:15 - 08:30

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.08	0.03	0.26	0.47	0.49			N/A	N/A
SB - Manor Road	0.09	0.03	0.26	0.47	0.50			N/A	N/A
EB - Wellington Street	0.15	0.00	0.00	0.15	0.15			N/A	N/A
NB - Manor Road	0.06	0.03	0.26	0.47	0.50			N/A	N/A

08:30 - 08:45

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.10	0.03	0.27	0.48	0.51			N/A	N/A
SB - Manor Road	0.11	0.03	0.27	0.48	0.51			N/A	N/A
EB - Wellington Street	0.18	0.03	0.26	0.48	0.50			N/A	N/A
NB - Manor Road	0.08	0.03	0.27	0.49	0.51			N/A	N/A

08:45 - 09:00

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.10	0.00	0.00	0.10	0.10			N/A	N/A
SB - Manor Road	0.11	0.00	0.00	0.11	0.11			N/A	N/A
EB - Wellington Street	0.18	0.03	0.26	0.47	0.49			N/A	N/A
NB - Manor Road	0.08	0.00	0.00	0.08	0.08			N/A	N/A

09:00 - 09:15

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.08	0.00	0.00	0.08	0.08			N/A	N/A
SB - Manor Road	0.09	0.00	0.00	0.09	0.09			N/A	N/A
EB - Wellington Street	0.15	0.00	0.00	0.15	0.15			N/A	N/A
NB - Manor Road	0.06	0.00	0.00	0.06	0.06			N/A	N/A

09:15 - 09:30

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.07	0.00	0.00	0.07	0.07			N/A	N/A
SB - Manor Road	0.07	0.00	0.00	0.07	0.07			N/A	N/A
EB - Wellington Street	0.12	0.00	0.00	0.12	0.12			N/A	N/A
NB - Manor Road	0.05	0.00	0.00	0.05	0.05			N/A	N/A

Total Traffic 2030, PM Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
1	Manor Road at Wellington Street	Standard Roundabout		WB, SB, EB, NB	3.53	A

Intersection Network Options

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold
Right	Normal/unknown	242	EB - Wellington Street

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D5	Total Traffic 2030	PM Peak Hour	Thursday (29 May 2025)	ONE HOUR	04:00	05:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck Percentages	2.00

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (PCE/hr)	Scaling Factor (%)
WB - Wellington Street		ONE HOUR	✓	194	100.000
SB - Manor Road		ONE HOUR	✓	223	100.000
EB - Wellington Street		ONE HOUR	✓	284	100.000
NB - Manor Road		ONE HOUR	✓	62	100.000

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB - Wellington Street	[ONEHOUR]	10.00
SB - Manor Road	[ONEHOUR]	10.00
EB - Wellington Street	[ONEHOUR]	10.00
NB - Manor Road	[ONEHOUR]	10.00

Origin-Destination Data

Demand (PCE/hr)

	To				
		WB - Wellington Street	SB - Manor Road	EB - Wellington Street	NB - Manor Road
From	WB - Wellington Street	0	22	155	17
	SB - Manor Road	18	0	143	62
	EB - Wellington Street	174	96	0	14
	NB - Manor Road	17	34	11	0

Vehicle Mix

Truck Percentages

		To			
		WB - Wellington Street	SB - Manor Road	EB - Wellington Street	NB - Manor Road
From	WB - Wellington Street	0	10	2	2
	SB - Manor Road	2	0	2	2
	EB - Wellington Street	2	4	0	2
	NB - Manor Road	2	2	2	0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)
WB - Wellington Street	0.16	3.21	0.2	0.5	A	178	267
SB - Manor Road	0.20	3.69	0.3	1.0	A	205	307
EB - Wellington Street	0.24	3.72	0.3	1.4	A	261	391
NB - Manor Road	0.05	3.03	0.1	0.5	A	57	85

Main Results for each time segment

04:00 - 04:15

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	146	37	106	7.53	1397	0.105	146	157	0.0	0.1	2.959	A
SB - Manor Road	168	42	137	7.53	1276	0.132	167	114	0.0	0.2	3.310	A
EB - Wellington Street	214	53	73	7.53	1325	0.161	213	232	0.0	0.2	3.321	A
NB - Manor Road	47	12	216	7.53	1341	0.035	47	70	0.0	0.0	2.837	A

04:15 - 04:30

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	174	44	127	8.99	1384	0.126	174	188	0.1	0.1	3.059	A
SB - Manor Road	200	50	164	8.99	1260	0.159	200	137	0.2	0.2	3.463	A
EB - Wellington Street	255	64	87	8.99	1317	0.194	255	278	0.2	0.2	3.479	A
NB - Manor Road	56	14	259	8.99	1315	0.042	56	84	0.0	0.0	2.914	A

04:30 - 04:45

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	214	53	155	11.01	1368	0.156	213	230	0.1	0.2	3.207	A
SB - Manor Road	246	61	201	11.01	1240	0.198	245	167	0.2	0.3	3.693	A
EB - Wellington Street	313	78	107	11.01	1306	0.239	312	340	0.2	0.3	3.720	A
NB - Manor Road	68	17	317	11.01	1281	0.053	68	102	0.0	0.1	3.027	A

04:45 - 05:00

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	214	53	155	11.01	1368	0.156	214	230	0.2	0.2	3.207	A
SB - Manor Road	246	61	201	11.01	1239	0.198	246	167	0.3	0.3	3.693	A
EB - Wellington Street	313	78	107	11.01	1306	0.239	313	340	0.3	0.3	3.720	A
NB - Manor Road	68	17	317	11.01	1281	0.053	68	102	0.1	0.1	3.027	A

05:00 - 05:15

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	174	44	127	8.99	1384	0.126	175	188	0.2	0.1	3.060	A
SB - Manor Road	200	50	165	8.99	1260	0.159	201	137	0.3	0.2	3.465	A
EB - Wellington Street	255	64	87	8.99	1317	0.194	256	278	0.3	0.2	3.484	A
NB - Manor Road	56	14	259	8.99	1315	0.042	56	84	0.1	0.0	2.915	A

05:15 - 05:30

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	146	37	106	7.53	1396	0.105	146	157	0.1	0.1	2.963	A
SB - Manor Road	168	42	138	7.53	1276	0.132	168	115	0.2	0.2	3.315	A
EB - Wellington Street	214	53	73	7.53	1325	0.161	214	233	0.2	0.2	3.325	A
NB - Manor Road	47	12	217	7.53	1340	0.035	47	70	0.0	0.0	2.840	A

Queue Variation Results for each time segment

04:00 - 04:15

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.12	0.00	0.00	0.12	0.12			N/A	N/A
SB - Manor Road	0.15	0.00	0.00	0.15	0.15			N/A	N/A
EB - Wellington Street	0.20	0.00	0.00	0.20	0.20			N/A	N/A
NB - Manor Road	0.04	0.00	0.00	0.04	0.04			N/A	N/A

04:15 - 04:30

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.15	0.00	0.00	0.15	0.15			N/A	N/A
SB - Manor Road	0.19	0.00	0.00	0.19	0.19			N/A	N/A
EB - Wellington Street	0.25	0.00	0.00	0.25	0.25			N/A	N/A
NB - Manor Road	0.04	0.03	0.26	0.46	0.49			N/A	N/A

04:30 - 04:45

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.19	0.03	0.26	0.47	0.50			N/A	N/A
SB - Manor Road	0.25	0.03	0.26	0.47	0.49			N/A	N/A
EB - Wellington Street	0.32	0.03	0.26	0.47	0.49			N/A	N/A
NB - Manor Road	0.06	0.03	0.26	0.47	0.50			N/A	N/A

04:45 - 05:00

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.19	0.03	0.26	0.46	0.49			N/A	N/A
SB - Manor Road	0.25	0.03	0.28	0.50	0.95			N/A	N/A
EB - Wellington Street	0.32	0.03	0.32	1.10	1.37			N/A	N/A
NB - Manor Road	0.06	0.00	0.00	0.06	0.06			N/A	N/A

05:00 - 05:15

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.15	0.00	0.00	0.15	0.15			N/A	N/A
SB - Manor Road	0.19	0.00	0.00	0.19	0.19			N/A	N/A
EB - Wellington Street	0.25	0.00	0.00	0.25	0.25			N/A	N/A
NB - Manor Road	0.05	0.00	0.00	0.05	0.05			N/A	N/A

05:15 - 05:30

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.12	0.00	0.00	0.12	0.12			N/A	N/A
SB - Manor Road	0.16	0.00	0.00	0.16	0.16			N/A	N/A
EB - Wellington Street	0.20	0.00	0.00	0.20	0.20			N/A	N/A
NB - Manor Road	0.04	0.00	0.00	0.04	0.04			N/A	N/A

Total Traffic 2030, Saturday Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
1	Manor Road at Wellington Street	Standard Roundabout		WB, SB, EB, NB	3.35	A

Intersection Network Options

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold
Right	Normal/unknown	282	EB - Wellington Street

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	Total Traffic 2030	Saturday Peak Hour	Saturday (31 May 2025)	ONE HOUR	11:15	12:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck Percentages	2.00

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (PCE/hr)	Scaling Factor (%)
WB - Wellington Street		ONE HOUR	✓	142	100.000
SB - Manor Road		ONE HOUR	✓	181	100.000
EB - Wellington Street		ONE HOUR	✓	268	100.000
NB - Manor Road		ONE HOUR	✓	66	100.000

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB - Wellington Street	[ONEHOUR]	10.00
SB - Manor Road	[ONEHOUR]	10.00
EB - Wellington Street	[ONEHOUR]	10.00
NB - Manor Road	[ONEHOUR]	10.00

Origin-Destination Data

Demand (PCE/hr)

	To				
		WB - Wellington Street	SB - Manor Road	EB - Wellington Street	NB - Manor Road
From	WB - Wellington Street	0	21	114	7
	SB - Manor Road	10	0	125	46
	EB - Wellington Street	159	95	0	14
	NB - Manor Road	7	50	9	0

Vehicle Mix

Truck Percentages

		To			
		WB - Wellington Street	SB - Manor Road	EB - Wellington Street	NB - Manor Road
From	WB - Wellington Street	0	2	2	2
	SB - Manor Road	2	0	2	2
	EB - Wellington Street	2	2	0	2
	NB - Manor Road	2	2	2	0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)
WB - Wellington Street	0.12	3.05	0.1	0.5	A	130	195
SB - Manor Road	0.16	3.42	0.2	0.5	A	166	249
EB - Wellington Street	0.22	3.56	0.3	1.3	A	246	369
NB - Manor Road	0.06	3.00	0.1	0.5	A	61	91

Main Results for each time segment

11:15 - 11:30

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	107	27	116	7.53	1391	0.077	107	132	0.0	0.1	2.859	A
SB - Manor Road	136	34	98	7.53	1298	0.105	136	125	0.0	0.1	3.156	A
EB - Wellington Street	202	50	47	7.53	1340	0.151	201	186	0.0	0.2	3.222	A
NB - Manor Road	50	12	198	7.53	1351	0.037	50	50	0.0	0.0	2.820	A

11:30 - 11:45

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	128	32	138	8.99	1377	0.093	128	158	0.1	0.1	2.937	A
SB - Manor Road	163	41	117	8.99	1288	0.126	163	149	0.1	0.1	3.263	A
EB - Wellington Street	241	60	57	8.99	1335	0.181	241	223	0.2	0.2	3.356	A
NB - Manor Road	59	15	237	8.99	1328	0.045	59	60	0.0	0.0	2.893	A

11:45 - 12:00

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	156	39	169	11.01	1359	0.115	156	194	0.1	0.1	3.052	A
SB - Manor Road	199	50	143	11.01	1273	0.157	199	183	0.1	0.2	3.420	A
EB - Wellington Street	295	74	69	11.01	1327	0.222	295	273	0.2	0.3	3.556	A
NB - Manor Road	73	18	290	11.01	1297	0.056	73	74	0.0	0.1	2.999	A

12:00 - 12:15

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	156	39	170	11.01	1359	0.115	156	194	0.1	0.1	3.052	A
SB - Manor Road	199	50	143	11.01	1273	0.157	199	183	0.2	0.2	3.420	A
EB - Wellington Street	295	74	69	11.01	1327	0.222	295	273	0.3	0.3	3.556	A
NB - Manor Road	73	18	291	11.01	1297	0.056	73	74	0.1	0.1	2.999	A

12:15 - 12:30

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	128	32	139	8.99	1377	0.093	128	158	0.1	0.1	2.940	A
SB - Manor Road	163	41	117	8.99	1287	0.126	163	149	0.2	0.1	3.267	A
EB - Wellington Street	241	60	57	8.99	1335	0.181	241	223	0.3	0.2	3.358	A
NB - Manor Road	59	15	238	8.99	1328	0.045	59	60	0.1	0.0	2.894	A

12:30 - 12:45

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	107	27	116	7.53	1391	0.077	107	133	0.1	0.1	2.860	A
SB - Manor Road	136	34	98	7.53	1298	0.105	136	125	0.1	0.1	3.160	A
EB - Wellington Street	202	50	47	7.53	1340	0.151	202	187	0.2	0.2	3.226	A
NB - Manor Road	50	12	199	7.53	1351	0.037	50	50	0.0	0.0	2.824	A

Queue Variation Results for each time segment

11:15 - 11:30

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.08	0.00	0.00	0.08	0.08			N/A	N/A
SB - Manor Road	0.12	0.00	0.00	0.12	0.12			N/A	N/A
EB - Wellington Street	0.18	0.00	0.00	0.18	0.18			N/A	N/A
NB - Manor Road	0.04	0.00	0.00	0.04	0.04			N/A	N/A

11:30 - 11:45

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.10	0.03	0.26	0.46	0.48			N/A	N/A
SB - Manor Road	0.15	0.00	0.00	0.15	0.15			N/A	N/A
EB - Wellington Street	0.22	0.00	0.00	0.22	0.22			N/A	N/A
NB - Manor Road	0.05	0.03	0.26	0.46	0.49			N/A	N/A

11:45 - 12:00

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.13	0.03	0.26	0.47	0.50			N/A	N/A
SB - Manor Road	0.19	0.03	0.26	0.47	0.49			N/A	N/A
EB - Wellington Street	0.29	0.03	0.26	0.46	0.49			N/A	N/A
NB - Manor Road	0.06	0.03	0.26	0.47	0.50			N/A	N/A

12:00 - 12:15

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.13	0.00	0.00	0.13	0.13			N/A	N/A
SB - Manor Road	0.19	0.03	0.26	0.46	0.48			N/A	N/A
EB - Wellington Street	0.29	0.03	0.31	0.95	1.26			N/A	N/A
NB - Manor Road	0.06	0.00	0.00	0.06	0.06			N/A	N/A

12:15 - 12:30

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.10	0.00	0.00	0.10	0.10			N/A	N/A
SB - Manor Road	0.15	0.00	0.00	0.15	0.15			N/A	N/A
EB - Wellington Street	0.23	0.00	0.00	0.23	0.23			N/A	N/A
NB - Manor Road	0.05	0.00	0.00	0.05	0.05			N/A	N/A

12:30 - 12:45

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.09	0.00	0.00	0.09	0.09			N/A	N/A
SB - Manor Road	0.12	0.00	0.00	0.12	0.12			N/A	N/A
EB - Wellington Street	0.18	0.00	0.00	0.18	0.18			N/A	N/A
NB - Manor Road	0.04	0.00	0.00	0.04	0.04			N/A	N/A

Total Traffic 2035, AM Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
1	Manor Road at Wellington Street	Standard Roundabout		WB, SB, EB, NB	3.21	A

Intersection Network Options

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold
Right	Normal/unknown	410	EB - Wellington Street

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D7	Total Traffic 2035	AM Peak Hour	Thursday (29 May 2025)	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck Percentages	2.00

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (PCE/hr)	Scaling Factor (%)
WB - Wellington Street		ONE HOUR	✓	120	100.000
SB - Manor Road		ONE HOUR	✓	121	100.000
EB - Wellington Street		ONE HOUR	✓	200	100.000
NB - Manor Road		ONE HOUR	✓	93	100.000

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB - Wellington Street	[ONEHOUR]	10.00
SB - Manor Road	[ONEHOUR]	10.00
EB - Wellington Street	[ONEHOUR]	10.00
NB - Manor Road	[ONEHOUR]	10.00

Origin-Destination Data

Demand (PCE/hr)

		To			
From		WB - Wellington Street	SB - Manor Road	EB - Wellington Street	NB - Manor Road
	WB - Wellington Street	0	18	95	7
	SB - Manor Road	9	0	80	32
	EB - Wellington Street	92	98	0	10
	NB - Manor Road	15	67	11	0

Vehicle Mix

Truck Percentages

		To			
		WB - Wellington Street	SB - Manor Road	EB - Wellington Street	NB - Manor Road
From	WB - Wellington Street	0	13	2	2
	SB - Manor Road	2	0	5	2
	EB - Wellington Street	6	2	0	2
	NB - Manor Road	8	4	2	0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)
WB - Wellington Street	0.10	3.07	0.1	0.5	A	110	165
SB - Manor Road	0.10	3.25	0.1	0.5	A	111	167
EB - Wellington Street	0.16	3.35	0.2	0.5	A	184	275
NB - Manor Road	0.08	3.04	0.1	0.5	A	85	128

Main Results for each time segment

08:00 - 08:15

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	90	23	132	7.53	1381	0.065	90	87	0.0	0.1	2.886	A
SB - Manor Road	91	23	85	7.53	1306	0.070	91	137	0.0	0.1	3.080	A
EB - Wellington Street	151	38	36	7.53	1346	0.112	150	140	0.0	0.1	3.121	A
NB - Manor Road	70	18	149	7.53	1380	0.051	70	37	0.0	0.1	2.867	A

08:15 - 08:30

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	108	27	158	8.99	1366	0.079	108	104	0.1	0.1	2.961	A
SB - Manor Road	109	27	102	8.99	1296	0.084	109	164	0.1	0.1	3.151	A
EB - Wellington Street	180	45	43	8.99	1342	0.134	180	167	0.1	0.2	3.213	A
NB - Manor Road	84	21	179	8.99	1363	0.061	84	44	0.1	0.1	2.937	A

08:30 - 08:45

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	132	33	194	11.01	1345	0.098	132	128	0.1	0.1	3.071	A
SB - Manor Road	133	33	124	11.01	1283	0.104	133	201	0.1	0.1	3.253	A
EB - Wellington Street	220	55	53	11.01	1337	0.165	220	205	0.2	0.2	3.345	A
NB - Manor Road	102	26	219	11.01	1339	0.076	102	54	0.1	0.1	3.038	A

08:45 - 09:00

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	132	33	194	11.01	1345	0.098	132	128	0.1	0.1	3.072	A
SB - Manor Road	133	33	124	11.01	1283	0.104	133	201	0.1	0.1	3.253	A
EB - Wellington Street	220	55	53	11.01	1337	0.165	220	205	0.2	0.2	3.345	A
NB - Manor Road	102	26	219	11.01	1339	0.076	102	54	0.1	0.1	3.038	A

09:00 - 09:15

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	108	27	158	8.99	1366	0.079	108	104	0.1	0.1	2.964	A
SB - Manor Road	109	27	102	8.99	1296	0.084	109	165	0.1	0.1	3.151	A
EB - Wellington Street	180	45	43	8.99	1342	0.134	180	167	0.2	0.2	3.214	A
NB - Manor Road	84	21	179	8.99	1362	0.061	84	44	0.1	0.1	2.938	A

09:15 - 09:30

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	90	23	133	7.53	1381	0.065	90	87	0.1	0.1	2.887	A
SB - Manor Road	91	23	85	7.53	1306	0.070	91	138	0.1	0.1	3.081	A
EB - Wellington Street	151	38	36	7.53	1346	0.112	151	140	0.2	0.1	3.127	A
NB - Manor Road	70	18	150	7.53	1380	0.051	70	37	0.1	0.1	2.868	A

Queue Variation Results for each time segment

08:00 - 08:15

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.07	0.00	0.00	0.07	0.07			N/A	N/A
SB - Manor Road	0.08	0.00	0.00	0.08	0.08			N/A	N/A
EB - Wellington Street	0.13	0.00	0.00	0.13	0.13			N/A	N/A
NB - Manor Road	0.06	0.00	0.00	0.06	0.06			N/A	N/A

08:15 - 08:30

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.09	0.03	0.27	0.48	0.51			N/A	N/A
SB - Manor Road	0.09	0.03	0.27	0.49	0.51			N/A	N/A
EB - Wellington Street	0.16	0.00	0.00	0.16	0.16			N/A	N/A
NB - Manor Road	0.07	0.03	0.26	0.47	0.50			N/A	N/A

08:30 - 08:45

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.11	0.03	0.27	0.48	0.51			N/A	N/A
SB - Manor Road	0.12	0.03	0.27	0.48	0.51			N/A	N/A
EB - Wellington Street	0.20	0.03	0.26	0.47	0.50			N/A	N/A
NB - Manor Road	0.09	0.03	0.27	0.49	0.51			N/A	N/A

08:45 - 09:00

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.11	0.00	0.00	0.11	0.11			N/A	N/A
SB - Manor Road	0.12	0.00	0.00	0.12	0.12			N/A	N/A
EB - Wellington Street	0.20	0.03	0.26	0.47	0.49			N/A	N/A
NB - Manor Road	0.09	0.00	0.00	0.09	0.09			N/A	N/A

09:00 - 09:15

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.09	0.00	0.00	0.09	0.09			N/A	N/A
SB - Manor Road	0.10	0.00	0.00	0.10	0.10			N/A	N/A
EB - Wellington Street	0.16	0.00	0.00	0.16	0.16			N/A	N/A
NB - Manor Road	0.07	0.00	0.00	0.07	0.07			N/A	N/A

09:15 - 09:30

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.07	0.00	0.00	0.07	0.07			N/A	N/A
SB - Manor Road	0.08	0.00	0.00	0.08	0.08			N/A	N/A
EB - Wellington Street	0.13	0.00	0.00	0.13	0.13			N/A	N/A
NB - Manor Road	0.06	0.00	0.00	0.06	0.06			N/A	N/A

Total Traffic 2035, PM Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
1	Manor Road at Wellington Street	Standard Roundabout		WB, SB, EB, NB	3.64	A

Intersection Network Options

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold
Right	Normal/unknown	211	EB - Wellington Street

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	Total Traffic 2035	PM Peak Hour	Thursday (29 May 2025)	ONE HOUR	04:00	05:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck Percentages	2.00

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (PCE/hr)	Scaling Factor (%)
WB - Wellington Street		ONE HOUR	✓	211	100.000
SB - Manor Road		ONE HOUR	✓	245	100.000
EB - Wellington Street		ONE HOUR	✓	312	100.000
NB - Manor Road		ONE HOUR	✓	68	100.000

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB - Wellington Street	[ONEHOUR]	10.00
SB - Manor Road	[ONEHOUR]	10.00
EB - Wellington Street	[ONEHOUR]	10.00
NB - Manor Road	[ONEHOUR]	10.00

Origin-Destination Data

Demand (PCE/hr)

		To			
From		WB - Wellington Street	SB - Manor Road	EB - Wellington Street	NB - Manor Road
	WB - Wellington Street	0	24	169	18
	SB - Manor Road	20	0	157	68
	EB - Wellington Street	191	106	0	15
	NB - Manor Road	18	38	12	0

Vehicle Mix

Truck Percentages

		To			
		WB - Wellington Street	SB - Manor Road	EB - Wellington Street	NB - Manor Road
From	WB - Wellington Street	0	10	2	2
	SB - Manor Road	2	0	2	2
	EB - Wellington Street	2	4	0	2
	NB - Manor Road	2	2	2	0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)
WB - Wellington Street	0.17	3.29	0.2	0.5	A	194	290
SB - Manor Road	0.22	3.82	0.3	1.2	A	225	337
EB - Wellington Street	0.26	3.86	0.4	1.5	A	286	429
NB - Manor Road	0.06	3.09	0.1	0.5	A	62	94

Main Results for each time segment

04:00 - 04:15

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	159	40	117	7.53	1390	0.114	158	172	0.0	0.1	3.004	A
SB - Manor Road	184	46	149	7.53	1269	0.145	184	126	0.0	0.2	3.382	A
EB - Wellington Street	235	59	80	7.53	1322	0.178	234	254	0.0	0.2	3.395	A
NB - Manor Road	51	13	238	7.53	1328	0.039	51	76	0.0	0.0	2.875	A

04:15 - 04:30

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	190	47	140	8.99	1376	0.138	190	206	0.1	0.2	3.119	A
SB - Manor Road	220	55	179	8.99	1252	0.176	220	151	0.2	0.2	3.557	A
EB - Wellington Street	280	70	95	8.99	1313	0.214	280	304	0.2	0.3	3.580	A
NB - Manor Road	61	15	285	8.99	1300	0.047	61	91	0.0	0.1	2.963	A

04:30 - 04:45

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	232	58	172	11.01	1358	0.171	232	252	0.2	0.2	3.288	A
SB - Manor Road	270	67	219	11.01	1230	0.219	269	185	0.2	0.3	3.824	A
EB - Wellington Street	344	86	117	11.01	1300	0.264	343	372	0.3	0.4	3.861	A
NB - Manor Road	75	19	349	11.01	1262	0.059	75	111	0.1	0.1	3.091	A

04:45 - 05:00

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	232	58	172	11.01	1358	0.171	232	252	0.2	0.2	3.289	A
SB - Manor Road	270	67	219	11.01	1229	0.219	270	185	0.3	0.3	3.825	A
EB - Wellington Street	344	86	117	11.01	1300	0.264	344	372	0.4	0.4	3.863	A
NB - Manor Road	75	19	349	11.01	1262	0.059	75	111	0.1	0.1	3.092	A

05:00 - 05:15

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	190	47	140	8.99	1376	0.138	190	206	0.2	0.2	3.120	A
SB - Manor Road	220	55	179	8.99	1252	0.176	221	151	0.3	0.2	3.559	A
EB - Wellington Street	280	70	95	8.99	1312	0.214	281	304	0.4	0.3	3.583	A
NB - Manor Road	61	15	285	8.99	1300	0.047	61	91	0.1	0.1	2.966	A

05:15 - 05:30

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	159	40	118	7.53	1390	0.114	159	173	0.2	0.1	3.008	A
SB - Manor Road	184	46	150	7.53	1269	0.145	185	127	0.2	0.2	3.386	A
EB - Wellington Street	235	59	80	7.53	1321	0.178	235	255	0.3	0.2	3.405	A
NB - Manor Road	51	13	239	7.53	1327	0.039	51	76	0.1	0.0	2.877	A

Queue Variation Results for each time segment

04:00 - 04:15

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.13	0.00	0.00	0.13	0.13			N/A	N/A
SB - Manor Road	0.17	0.00	0.00	0.17	0.17			N/A	N/A
EB - Wellington Street	0.22	0.00	0.00	0.22	0.22			N/A	N/A
NB - Manor Road	0.04	0.00	0.00	0.04	0.04			N/A	N/A

04:15 - 04:30

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.16	0.00	0.00	0.16	0.16			N/A	N/A
SB - Manor Road	0.22	0.00	0.00	0.22	0.22			N/A	N/A
EB - Wellington Street	0.28	0.00	0.00	0.28	0.28			N/A	N/A
NB - Manor Road	0.05	0.03	0.26	0.46	0.49			N/A	N/A

04:30 - 04:45

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.21	0.03	0.26	0.47	0.50			N/A	N/A
SB - Manor Road	0.29	0.03	0.26	0.46	0.49			N/A	N/A
EB - Wellington Street	0.37	0.03	0.26	0.47	0.49			N/A	N/A
NB - Manor Road	0.06	0.03	0.26	0.47	0.50			N/A	N/A

04:45 - 05:00

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.21	0.03	0.26	0.47	0.49			N/A	N/A
SB - Manor Road	0.29	0.03	0.31	0.92	1.24			N/A	N/A
EB - Wellington Street	0.37	0.03	0.33	1.24	1.54			N/A	N/A
NB - Manor Road	0.06	0.00	0.00	0.06	0.06			N/A	N/A

05:00 - 05:15

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.17	0.00	0.00	0.17	0.17			N/A	N/A
SB - Manor Road	0.22	0.00	0.00	0.22	0.22			N/A	N/A
EB - Wellington Street	0.28	0.00	0.00	0.28	0.28			N/A	N/A
NB - Manor Road	0.05	0.00	0.00	0.05	0.05			N/A	N/A

05:15 - 05:30

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.13	0.00	0.00	0.13	0.13			N/A	N/A
SB - Manor Road	0.17	0.00	0.00	0.17	0.17			N/A	N/A
EB - Wellington Street	0.22	0.00	0.00	0.22	0.22			N/A	N/A
NB - Manor Road	0.04	0.00	0.00	0.04	0.04			N/A	N/A

Total Traffic 2035, Saturday Peak Hour

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
1	Manor Road at Wellington Street	Standard Roundabout		WB, SB, EB, NB	3.45	A

Intersection Network Options

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold
Right	Normal/unknown	248	EB - Wellington Street

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D9	Total Traffic 2035	Saturday Peak Hour	Saturday (31 May 2025)	ONE HOUR	11:15	12:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck Percentages	2.00

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (PCE/hr)	Scaling Factor (%)
WB - Wellington Street		ONE HOUR	✓	155	100.000
SB - Manor Road		ONE HOUR	✓	199	100.000
EB - Wellington Street		ONE HOUR	✓	294	100.000
NB - Manor Road		ONE HOUR	✓	72	100.000

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB - Wellington Street	[ONEHOUR]	10.00
SB - Manor Road	[ONEHOUR]	10.00
EB - Wellington Street	[ONEHOUR]	10.00
NB - Manor Road	[ONEHOUR]	10.00

Origin-Destination Data

Demand (PCE/hr)

		To			
From		WB - Wellington Street	SB - Manor Road	EB - Wellington Street	NB - Manor Road
	WB - Wellington Street	0	23	125	7
	SB - Manor Road	11	0	137	51
	EB - Wellington Street	174	105	0	15
	NB - Manor Road	7	55	10	0

Vehicle Mix

Truck Percentages

		To			
		WB - Wellington Street	SB - Manor Road	EB - Wellington Street	NB - Manor Road
From	WB - Wellington Street	0	2	2	2
	SB - Manor Road	2	0	2	2
	EB - Wellington Street	2	2	0	2
	NB - Manor Road	2	2	2	0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)
WB - Wellington Street	0.13	3.12	0.1	0.5	A	142	213
SB - Manor Road	0.17	3.51	0.2	0.5	A	183	274
EB - Wellington Street	0.24	3.67	0.3	1.4	A	270	405
NB - Manor Road	0.06	3.06	0.1	0.5	A	66	99

Main Results for each time segment

11:15 - 11:30

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	117	29	128	7.53	1384	0.084	116	144	0.0	0.1	2.897	A
SB - Manor Road	150	37	107	7.53	1293	0.116	149	137	0.0	0.1	3.207	A
EB - Wellington Street	221	55	52	7.53	1337	0.165	221	204	0.0	0.2	3.286	A
NB - Manor Road	54	14	218	7.53	1340	0.040	54	55	0.0	0.0	2.855	A

11:30 - 11:45

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	139	35	153	8.99	1369	0.102	139	172	0.1	0.1	2.985	A
SB - Manor Road	179	45	128	8.99	1281	0.140	179	164	0.1	0.2	3.329	A
EB - Wellington Street	264	66	62	8.99	1332	0.198	264	244	0.2	0.3	3.439	A
NB - Manor Road	65	16	261	8.99	1314	0.049	65	66	0.0	0.1	2.937	A

11:45 - 12:00

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	171	43	187	11.01	1349	0.127	171	211	0.1	0.1	3.115	A
SB - Manor Road	219	55	156	11.01	1265	0.173	219	201	0.2	0.2	3.509	A
EB - Wellington Street	324	81	76	11.01	1324	0.245	323	299	0.3	0.3	3.671	A
NB - Manor Road	79	20	319	11.01	1280	0.062	79	80	0.1	0.1	3.058	A

12:00 - 12:15

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	171	43	187	11.01	1349	0.127	171	211	0.1	0.1	3.116	A
SB - Manor Road	219	55	156	11.01	1265	0.173	219	201	0.2	0.2	3.509	A
EB - Wellington Street	324	81	76	11.01	1324	0.245	324	299	0.3	0.3	3.671	A
NB - Manor Road	79	20	319	11.01	1280	0.062	79	80	0.1	0.1	3.058	A

12:15 - 12:30

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	139	35	153	8.99	1369	0.102	139	173	0.1	0.1	2.988	A
SB - Manor Road	179	45	128	8.99	1281	0.140	179	165	0.2	0.2	3.331	A
EB - Wellington Street	264	66	62	8.99	1332	0.199	265	245	0.3	0.3	3.444	A
NB - Manor Road	65	16	261	8.99	1314	0.049	65	66	0.1	0.1	2.941	A

12:30 - 12:45

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Circulating flow (PCE/hr)	Pedestrian demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	Throughput (PCE/hr)	Throughput (exit side) (PCE/hr)	Start queue (PCE)	End queue (PCE)	Delay (s)	Unsignalised level of service
WB - Wellington Street	117	29	128	7.53	1384	0.084	117	145	0.1	0.1	2.900	A
SB - Manor Road	150	37	107	7.53	1293	0.116	150	138	0.2	0.1	3.211	A
EB - Wellington Street	221	55	52	7.53	1337	0.166	222	205	0.3	0.2	3.290	A
NB - Manor Road	54	14	219	7.53	1339	0.040	54	55	0.1	0.0	2.857	A

Queue Variation Results for each time segment

11:15 - 11:30

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.09	0.00	0.00	0.09	0.09			N/A	N/A
SB - Manor Road	0.13	0.00	0.00	0.13	0.13			N/A	N/A
EB - Wellington Street	0.20	0.00	0.00	0.20	0.20			N/A	N/A
NB - Manor Road	0.04	0.00	0.00	0.04	0.04			N/A	N/A

11:30 - 11:45

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.12	0.00	0.00	0.12	0.12			N/A	N/A
SB - Manor Road	0.16	0.00	0.00	0.16	0.16			N/A	N/A
EB - Wellington Street	0.25	0.00	0.00	0.25	0.25			N/A	N/A
NB - Manor Road	0.05	0.03	0.26	0.46	0.49			N/A	N/A

11:45 - 12:00

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.15	0.03	0.26	0.47	0.50			N/A	N/A
SB - Manor Road	0.21	0.03	0.26	0.47	0.49			N/A	N/A
EB - Wellington Street	0.33	0.03	0.26	0.46	0.49			N/A	N/A
NB - Manor Road	0.07	0.03	0.26	0.48	0.50			N/A	N/A

12:00 - 12:15

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.15	0.00	0.00	0.15	0.15			N/A	N/A
SB - Manor Road	0.21	0.03	0.26	0.46	0.49			N/A	N/A
EB - Wellington Street	0.33	0.03	0.32	1.12	1.39			N/A	N/A
NB - Manor Road	0.07	0.00	0.00	0.07	0.07			N/A	N/A

12:15 - 12:30

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.12	0.00	0.00	0.12	0.12			N/A	N/A
SB - Manor Road	0.17	0.00	0.00	0.17	0.17			N/A	N/A
EB - Wellington Street	0.25	0.00	0.00	0.25	0.25			N/A	N/A
NB - Manor Road	0.05	0.00	0.00	0.05	0.05			N/A	N/A

12:30 - 12:45

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB - Wellington Street	0.09	0.00	0.00	0.09	0.09			N/A	N/A
SB - Manor Road	0.13	0.00	0.00	0.13	0.13			N/A	N/A
EB - Wellington Street	0.20	0.00	0.00	0.20	0.20			N/A	N/A
NB - Manor Road	0.04	0.00	0.00	0.04	0.04			N/A	N/A

Appendix F

SIGHT LINE CALCULATIONS

**Westerly Service Access at Highview Drive
Easterly Service Access at Highview Drive**

26-1912: 417 Wellington Street, St. Thomas, Ontario TIS - Sight Line Analysis

Design Intersection Sight Distance (TAC Geometric Design Guide for Canadian Roads)

Design Speed: 60km/h (Posted Speed Limit = 50 km/h)

Table 9.9.3: Time Gap for Case B1, Left Turn from Stop

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Passenger car	7.5
Single-unit truck	9.5
Combination truck (WB 19 and WB 20)	11.5
Longer truck	To be established by road authority

Intersection Stopping Distance (**ISD**) = $0.278 V_{\text{major}} t_g$

Where:

ISD = intersection sight distance (m)
(length of the leg of sight triangle along the major road)
 V_{major} = design speed of the major road (km/h)
 t_g = time gap for minor road vehicle to enter the major road (s)

ISD_{single-unit truck} (left turn from stop) = $0.278 \times 60 \times 9.5 = \mathbf{159 \text{ m}}$

Table 9.9.5: Time Gap for Case B2—Right Turn from Stop and Case B3—Crossing Maneuver

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Passenger car	6.5
Single-unit truck	8.5
Combination truck (WB 19 and WB 20)	10.5

ISD_{single-unit truck} (right turn from stop) = $0.278 \times 60 \times 8.5 = \mathbf{142 \text{ m}}$