Hillsburgh Residential Subdivision

Transportation Impact Study

Town of Erin

Prepared for:
Thomasfield Homes

April 2023

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1 Introduction

This Transportation Impact Study ("TIS") has been prepared in support of applications for Zoning By-law Amendment and Draft Plan of Subdivision for the lands owned by Thomasfield Homes in Hillsburgh in the Town of Erin. The site is located on the north side of Wellington Road 22 (WR22) about 500 metres west of the intersection with Wellington Road 24 (WR24) or Trafalgar Road. The study was undertaken as a submission requirement in accordance with pre-submission consultation with Town and Wellington County staff and is based on a Draft Plan of Subdivision prepared by GSP Group. The scope of the TIS was discussed and agreed upon with staff.

The primary purpose of this study is to assess the impact of the proposal on the transportation network in the area and identify any improvements that are needed to support the proposal. The study area includes the WR22/WR24/Trafalgar intersection and the new proposed intersection where Street A from the subdivision connects to WR22.

Two future scenarios were considered in this study. It is anticipated that this subdivision would develop initially on its own with access to the subdivision entirely from the WR22/Street A intersection. However, there is a land parcel to the north of the subject site (the Carson site) that is also planned for future development. When the Carson site develops, there will be a public road connection between the Carson site and the Thomasfield site. The Carson site will connect to Station Street/Side Road 24, providing the opportunity for Carson site traffic to access WR22 more directly and for traffic from the Thomasfield site to access the Town of Hillsburgh through the Carson site. A second future scenario considers the development of both sites together.

It is the finding of this study that the proposal will generate about 129 and 171 trips in the weekday morning and afternoon peak hours, respectively. Site traffic can be accommodated at the two study area intersections in both future scenarios. There is the potential for the addition of a westbound right turn lane at the WR22/Street A intersection as discussed later in this report.

2 Proposal and Site Transportation Context

The application proposes the construction of a new residential subdivision in Hillsburgh. The site is about 14 hectares in size and is presently used for agricultural purposes. The proposal includes 215 residential units in a mix of single units (143) and 72 multiple units. 22 of the multiple units are intended as street fronting townhomes and the remaining 50 units are estimated in a block intended for townhomes or an apartment building. In addition, the subdivision includes blocks for a park, stormwater management, a pumping station and roads. Two new public road connections are proposed as part of the development, connecting to both WR22 in the south and ultimately to the Carson subdivision to the north. A Site Location Plan and the proposed Development Concept are attached to this report as figures in Appendix A.

In consultation with Township and County staff, this study is focused on the operation of the WR22/WR24/Trafalgar intersection along with the new public road intersection with WR22 during the weekday morning and afternoon peak hours when both street traffic and residential traffic will peak.

WR22 and WR24/Trafalgar Road are both public roads under the jurisdiction of Wellington County; they both have two lanes and a rural cross-section in the study area. The posted speed limit on WR22 in the vicinity of the site is 70 kph. East of WR24/Trafalgar Road, the speed transitions to 80 kph. The posted speed on WR24/Trafalgar Road is 80 kph south of the intersection with WR22 and 40 kph north of the intersection.

Sight distance was reviewed at the proposed new intersection with WR22 in accordance with the County's Entrance Permit Policy. Given that the posted speed limit is 70 kph, minimum sight distance of 180 metres is required with a driver's eye height of 1.05 metres measured at 3.0 metres from the outer edge of the traffic lane and an object height of 1.3 metres. Despite the fact that traffic would be approaching the new intersection up a hill in both directions on WR22, no adjustments for grade were made to the sight distance requirements.

A figure prepared by GM BluePlan Engineering illustrating that the County's minimum sight distance requirement can be met at the new road intersection with WR22 is attached with the figures in Appendix A.

The new public roads in the draft plan are intended to be built to an urban cross-section and will include a sidewalk on both sides of the road in accordance with Town standards. The sidewalks will provide for pedestrian connections throughout the subdivision, including to the park, and ultimately to the Carson site to the north.

3 Existing Traffic

3.1 Existing Traffic Volumes

Traffic count data was collected at the WR22/WR24/Trafalgar intersection on Tuesday, January 31, 2023, during the morning and afternoon peak periods. The data was compared to traffic count data collected at the same intersection by Salvini Consulting in October of 2021 and by the County in April of 2021. The updated 2023 data was higher than both 2021 counts in both the morning and afternoon peak hours. The January 2023 traffic count data is included in Appendix B of this report.

The existing traffic data in the study area during the weekday morning and afternoon peak hours is illustrated in the figures attached in Appendix A.

Traffic capacity analysis was undertaken using Synchro 11 software to assess the intersection operations at the WR22/WR24/Trafalgar intersection in both peak hours. The detailed Synchro worksheets are attached in Appendix C and summarized in the table below.

Table 1: Existing Traffic Operations – WR22/WR24/Trafalgar (signalized)

Peak Hour	Measure of Effectiveness	Approach Lane					
		EB	WB	NBL	NBTR	SBL	SBTR
Weekday AM	Level of Service	B	B	A	A	A	A
	Delay (s)	17.1	19.5	7.9	72	8.4	9.0
	Volume/Capacity	0.27	0.37	0.02	0.13	0.07	0.26
	95th Percentile Q (m)	19.5	23.7	2.6	13.3	7.5	28.8
	Storage	-	-	30	-	30	-
Weekday PM	Level of Service	B	B	A	B	A	A
	Delay (s)	19.3	17.6	8.6	10.5	8.9	8.6
	Volume/Capacity	0.33	0.49	0.06	0.37	0.08	0.19
	95th Percentile Q (m)	22.5	31.1	5.9	38.7	6.6	19.5
	Storage	-	-	30	-	30	-

The assessment indicates that the WR22/WR24/Trafalgar intersection is currently operating at acceptable levels with levels of service B or better in all the approach lanes in both weekday peak hours.

4 Background Traffic

4.1 Background Traffic Forecasts

A future horizon year of 2033 was chosen for study representing a 10-year horizon. Background traffic for this study was estimated by including a simple growth rate for traffic in the study area of two (2) percent per year over the ten-year horizon for a growth factor of 1.2.

Future background traffic volumes in the weekday morning and afternoon peak hours are illustrated in the figures attached in Appendix A.

Traffic capacity analysis was undertaken to assess the intersection operations at the WR22/WR24/Trafalgar intersection in both peak hours under future background traffic conditions. The detailed Synchro worksheets are attached in Appendix D and summarized in the table below.

Table 2: Future Background Traffic Operations – WR22/WR24/Trafalgar (signalized)

Peak Hour	Measure of Effectiveness	Approach Lane					
		EB	WB	NBL	NBTR	SBL	SBTR
Weekday AM	Level of Service	B	C	A	A	A	A
	Delay (s)	17.6	20.7	8.5	7.8	9.0	9.8
	Volume/Capacity	0.32	0.44	0.03	0.15	0.09	0.32
	95th Percentile Q (m)	23.1	28.1	3.1	17.0	9.4	37.9
	Storage	-	-	30	-	30	-
Weekday PM	Level of Service	C	B	A	B	A	A
	Delay (s)	20.3	19.6	9.3	12.2	9.9	9.5
	Volume/Capacity	0.40	0.56	0.08	0.46	0.12	0.24
	95th Percentile Q (m)	26.6	38.0	7.3	52.3	8.5	25.3
	Storage	-	-	30	-	30	-

The assessment indicates that the WR22/WR24/Trafalgar intersection is expected to continue to operate at acceptable levels under future background traffic conditions with levels of service C or better on each approach lane in the two weekday peak hours.

5 Site Traffic

The amount of vehicular traffic generated by the proposed subdivision was estimated based on information in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition.

Two categories were chosen to represent the two types of residential land use in the proposal: Single-Family Detached Housing and Multifamily Housing (low-rise). The average rates for both land use categories were chosen as they appear to best represent the data in the range of the proposal. The traffic generation estimates are summarized in the table below. Excerpts from the ITE Trip Generation Manual are included in Appendix E.

Table 3: Site Traffic Generation Rates and Estimated Trips

Land Use	Description	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Single-Family Detached (ITE LU 210)	Trips/Unit	-	0.18	0.53	0.70	0.59	0.35	0.94
	Trips	143	25	75	100	85	50	134
Multifamily Housing (low-rise) (ITE LU 220)	Trips/Unit	-	0.10	0.30	0.40	0.32	0.19	0.51
	Trips	72	7	22	29	23	14	37
Total	**Trips**	**215**	**32**	**97**	**129**	**108**	**63**	**171**

NOTE: ITE Trip Generation Manual 11th Edition

The resulting estimated site traffic is 129 vehicle trips in the weekday morning peak hour and 171 vehicle trips in the weekday afternoon peak hour measured in both directions (inbound and outbound).

The site traffic trips were distributed in accordance with local traffic patterns at the WR22/WR24/Trafalgar intersection. A summary of the distribution is provided in the Table below. The existing distribution of traffic in the area and the site traffic volumes for the weekday morning and afternoon peak hours are illustrated in the figures in Appendix A. Two sets of figures are provided: the first illustrates the site traffic assignment with only the one connection to WR22, the second illustrates the site traffic assignment when a northerly connection through the Carson lands becomes available.

Table 4: Site Traffic Distribution

Direction	AM Peak Hour		PM Peak Hour	
	Inbound	Outbound	Inbound	Outbound
North via WR24/Trafalgar	45%	21%	23%	46%
South via WR24/Trafalgar	20%	44%	40%	21%
East via WR22	19%	21%	23%	16%
West via WR22	16%	14%	14%	16%
Total	**100%**	**100%**	**100%**	**100%**

6 Future Total Traffic

Future total traffic was determined by adding site traffic to future background traffic. The future total traffic volumes for the two study peak hours are illustrated in the figures in Appendix A. The first scenario illustrates the future total traffic with only the one connection to WR22. A second scenario was developed to consider future traffic volumes when the Carson lands develop and are connected to the subject site.

The Carson lands located immediately to the north of the subject site is a triangular site intended for the development of single family homes. It is estimated that the site would accommodate no more than 100 residential units.

Traffic generation and distribution for the Carson lands was estimated similarly to the subject site. A summary of the traffic generation estimates is provided in the table below and the Carson site traffic volumes are illustrated in the figures in Appendix A.

Table 5: Carson Lands Traffic Generation Rates and Estimated Trips

Land Use	Description	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Single-Family Detached (ITE LU 210)	Trips/Unit	-	0.18	0.53	0.70	0.59	0.35	0.94
	Trips	100	18	53	70	59	35	94

NOTE: ITE Trip Generation Manual 11th Edition

The Carson site is estimated to generate about 70 weekday morning vehicle peak hour trips and about 94 weekday afternoon vehicle peak hour trips.

A future total traffic scenario that includes the development of both the subject site and the Carson site with a connection between the two is also included in the figures in Appendix A.

6.1 Turn Lane Assessment – Street A Intersection with WR22

Turn lanes can be provided at intersections to minimize delay to through traffic and to provide additional capacity where they are needed. Typically, in locations like Hillsburgh, right turn lanes are considered when peak hour right turn volumes reach about 60 vehicles in one or both peak hours. Right turn volumes in the study area are expected to exceed 100 vehicles in the afternoon peak hour in both future traffic scenarios, indicating that a right turn lane should be considered in consultation with County staff. A right turn lane was not included in the analysis to understand how the intersection would operate without one; if a right turn lane were provided, intersection operations would be as good or better than the analysis in this report.

The need for a left turn lane is typically assessed using information from the Ministry of Transportation Geometric Design Guide for Ontario Highways. The assessment is based on the design speed of the road, the percent left turns in the stream of traffic and the traffic volumes at the intersection.

Turning traffic to the new subdivision on WR22 is expected to vary between five (5) and 29 in the future total peak hours included in this study, so a warrant analysis was undertaken and is outlined below.

A design speed of 90 kph was chosen for WR22 given the posted speed of 70 kph. The eastbound left turn volume to Street A is expected to vary between four (4) and 17 percent of the advancing eastbound traffic in the four peak hour scenarios included in this study. Traffic volumes advancing with and opposing the left turns were plotted on the chosen nomographs as illustrated in the following figures.

Figure 1: EB Left Turn Lane Warrant at Street A/WR22 - AM Peak Hour (WR22 Connection)

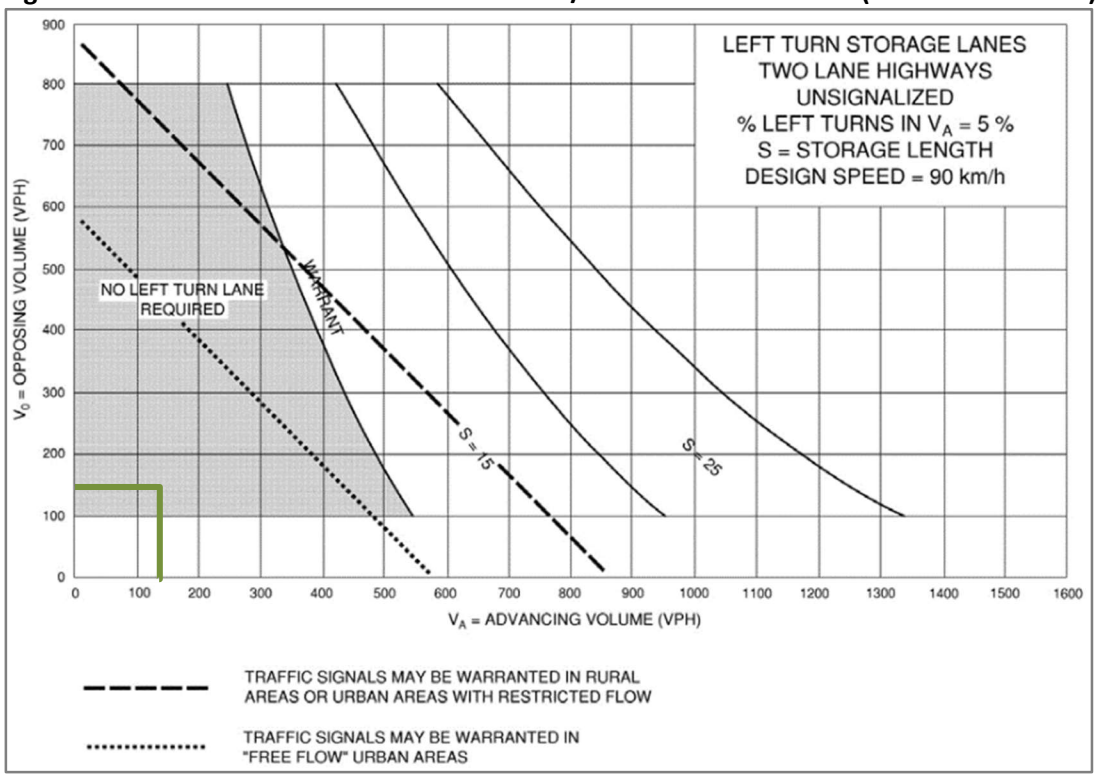


Figure 2: EB Left Turn Lane Warrant at Street A/WR22 - PM Peak Hour (WR22 Connection)

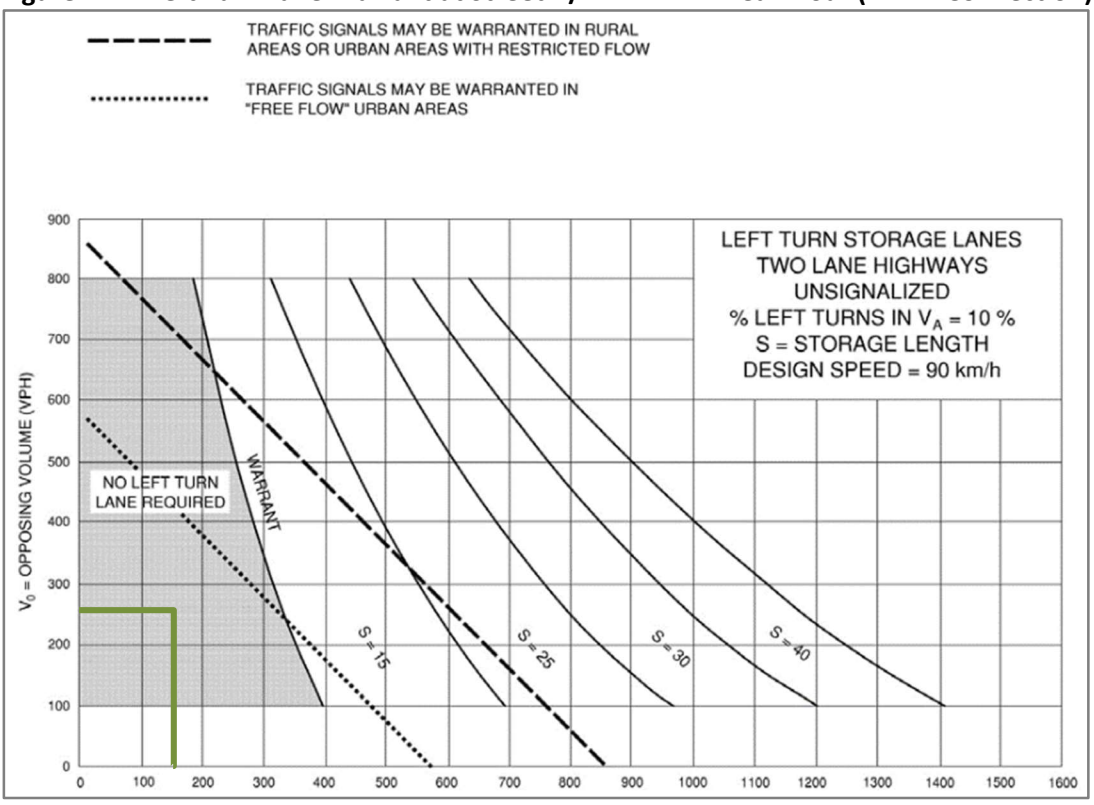


Figure 3: EB Left Turn Lane Warrant at Street A/WR22 - AM Peak Hour (with Carson)

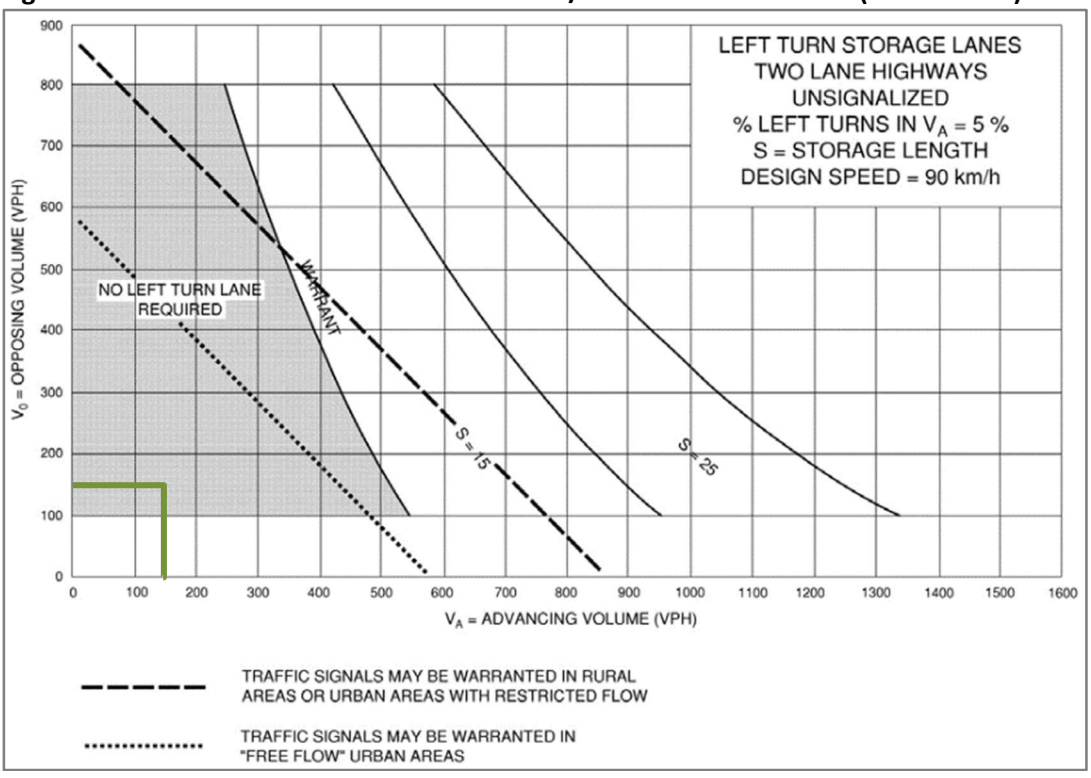
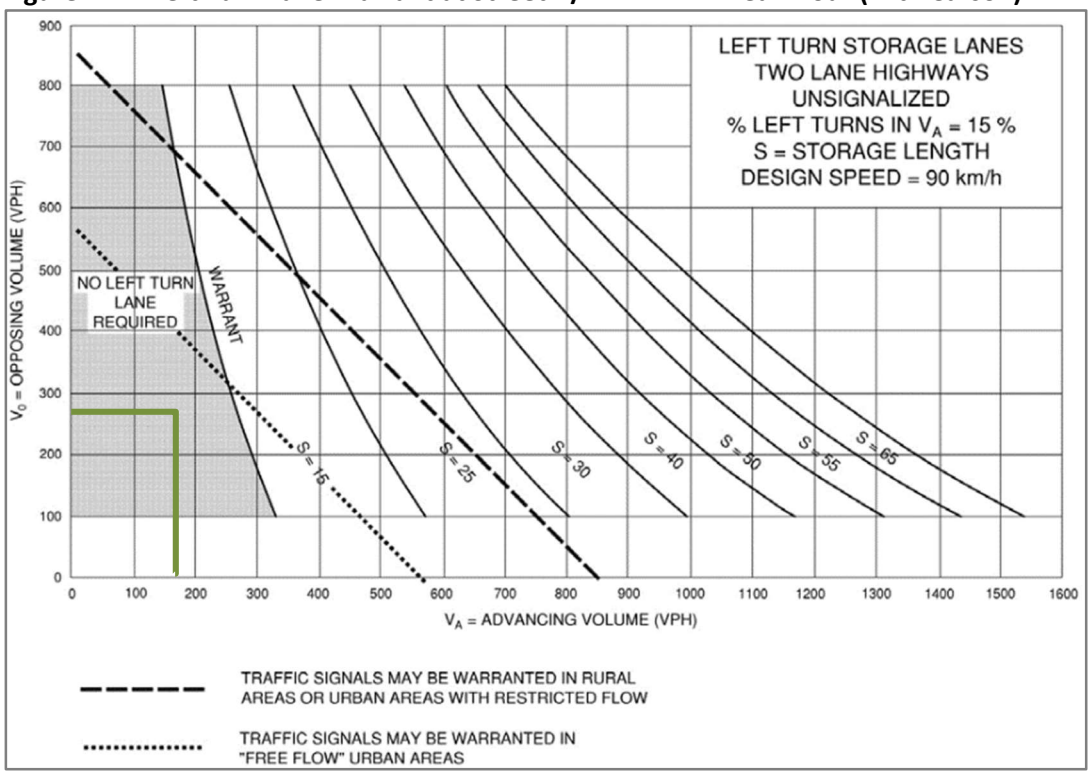


Figure 4: EB Left Turn Lane Warrant at Street A/WR22 - PM Peak Hour (with Carson)



The analysis indicates that a left turn lane will not be warranted eastbound at the Street A intersection with WR22 under any of the four future total scenarios.

6.2 Traffic Operations Assessment

A traffic operations assessment was undertaken for the new road connection to WR22 along with the WR22/WR24/Trafalgar intersection in both the weekday morning and afternoon peak hours for future total traffic conditions. The assessment was undertaken for both future scenarios with only the WR22 connection and with the development of the Carson lands. The results of the analysis are summarized in the tables below and the detailed worksheets are included in Appendix F.

Table 6: Future Total Traffic Operations – WR22/WR24/Trafalgar (signalized)

Scenario	Peak Hour	Measure of Effectiveness	Approach Lane					
			EB	WB	NBL	NBTR	SBL	SBTR
WR22 only	AM	Level of Service	C	C	A	A	A	B
		Delay (s)	20.9	21.5	9.2	8.2	9.5	11.3
		Volume/Capacity	0.53	0.47	0.05	0.18	0.11	0.40
		95th Percentile Q (m)	36.1	29.2	4.4	17.9	9.9	42.1
		Storage	-	-	30	-	30	-
	PM	Level of Service	C	C	B	B	B	A
		Delay (s)	24.0	21.5	10.8	12.8	10.6	9.9
		Volume/Capacity	0.56	0.60	0.17	0.46	0.12	0.28
		95th Percentile Q (m)	36.6	43.5	14.4	55.8	9.1	29.3
		Storage	-	-	30	-	30	-
With Carson	AM	Level of Service	C	C	A	A	A	B
		Delay (s)	20.4	21.9	9.4	8.5	9.8	11.8
		Volume/Capacity	0.55	0.49	0.06	0.19	0.13	0.42
		95th Percentile Q (m)	38.1	30.2	5.0	18.7	11.5	45.1
		Storage	-	-	30	-	30	-
	PM	Level of Service	C	C	B	B	B	B
		Delay (s)	22.0	22.3	12.0	14.0	11.8	10.7
		Volume/Capacity	0.52	0.64	0.22	0.50	0.15	0.27
		95th Percentile Q (m)	34.6	48.2	18.8	64.4	10.8	31.3
		Storage	-	-	30	-	30	-

The analysis indicates that the WR22/WR24/Trafalgar intersection is expected to continue to operate at acceptable levels under both the future total traffic scenarios in both weekday peak hours.

Table 7: Future Total Traffic Operations – WR22/Street A (unsignalized)

Scenario	Measure of Effectiveness	Approach Lane					
		AM Peak Hour			PM Peak Hour		
		EBLT	WBTR	SBLR	EBLT	WBTR	SBLR
WR22 only	Level of Service	A	-	B	A	-	B
	Delay (s)	0.3	-	10.8	0.8	-	11.6
	Volume/Capacity	-	-	0.15	0.01	-	0.11
	95th Percentile Q (m)	0.1	-	3.8	0.3	-	2.9
With Carson	Level of Service	A	-	B	A	-	B
	Delay (s)	0.6	-	11.2	1.6	-	11.9
	Volume/Capacity	0.01	-	0.20	0.03	-	0.13
	95th Percentile Q (m)	0.2	-	5.6	0.6	-	3.4

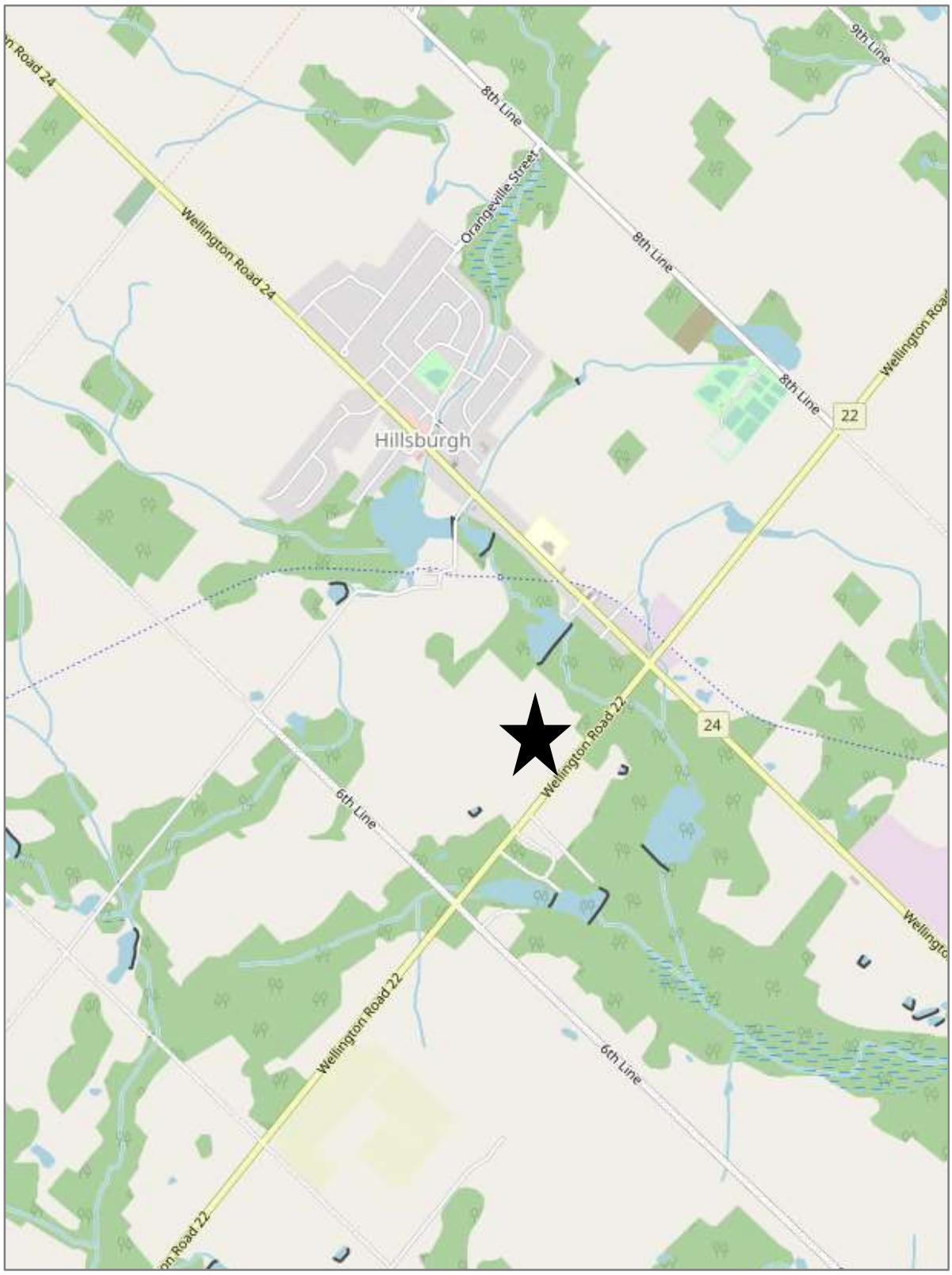
The analysis indicates that the new public road connection intersection with WR22 is expected to operate at acceptable levels in both weekday peak hours under both future total traffic scenarios without auxiliary turn lanes. As discussed earlier in this report, a westbound right turn lane should be considered at the intersection in discussion with County staff.

7 Conclusions and Recommendations

This Transportation Impact Study has been undertaken in accordance with Town and County requirements in order to understand the transportation context and infrastructure required to support the proposed Draft Plan of Subdivision. The conclusions of this study are as follows:

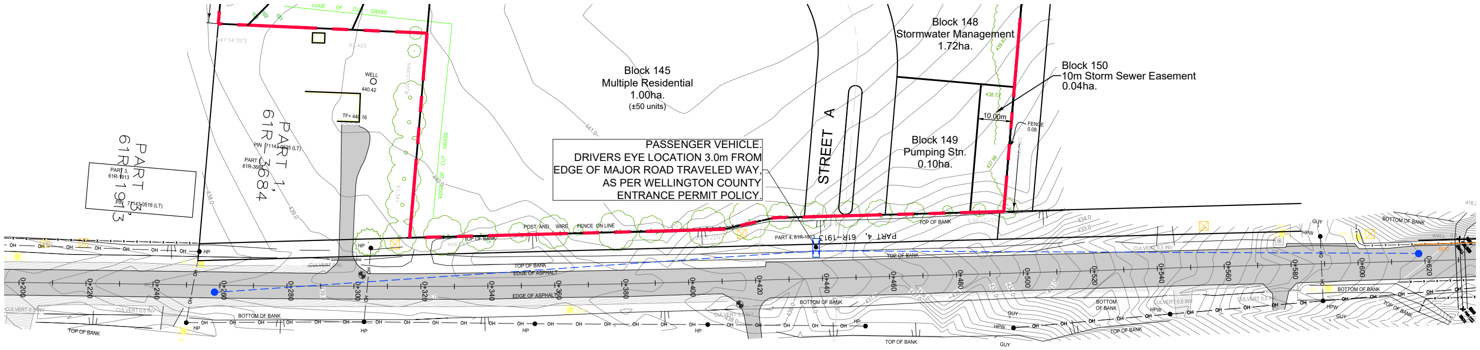
- The proposal includes 215 residential units in a mix of single units (143) and multiple units (72). 22 of the multiple units are intended as street fronting townhomes and the remaining 50 units are estimated in a block intended for townhomes or an apartment building.
- The new public roads in the draft plan are intended to be built to an urban cross-section and will include a sidewalk on both sides of the road. The sidewalks will provide for pedestrian connections throughout the subdivision, including to the park, and ultimately to the Carson site to the north
- The Site is estimated to generate 129 and 171 vehicle trips in each of the weekday morning and afternoon peak hours, respectively.
- The concept includes a new public road connection to WR22 at Street A. The new road connection meets the County's minimum sight distance requirements. When the Carson lands to the north develop, it is intended that the two sites would be connected, allowing additional routing options for both site traffic from the subject site and the Carson site.
- A westbound right turn lane from WR22 to Street A should be considered in discussion with County staff. An eastbound left turn lane is not warranted at the intersection.
- The new road intersection with WR22 at Street A is expected to operate at acceptable levels of service under both future total traffic scenarios in both weekday peak hours without auxiliary turn lanes.
- The WR22/WR24/Trafalgar intersection is currently operating at acceptable levels and is expected to continue to do so under future traffic conditions with and without the proposal.

Appendix A: Figures



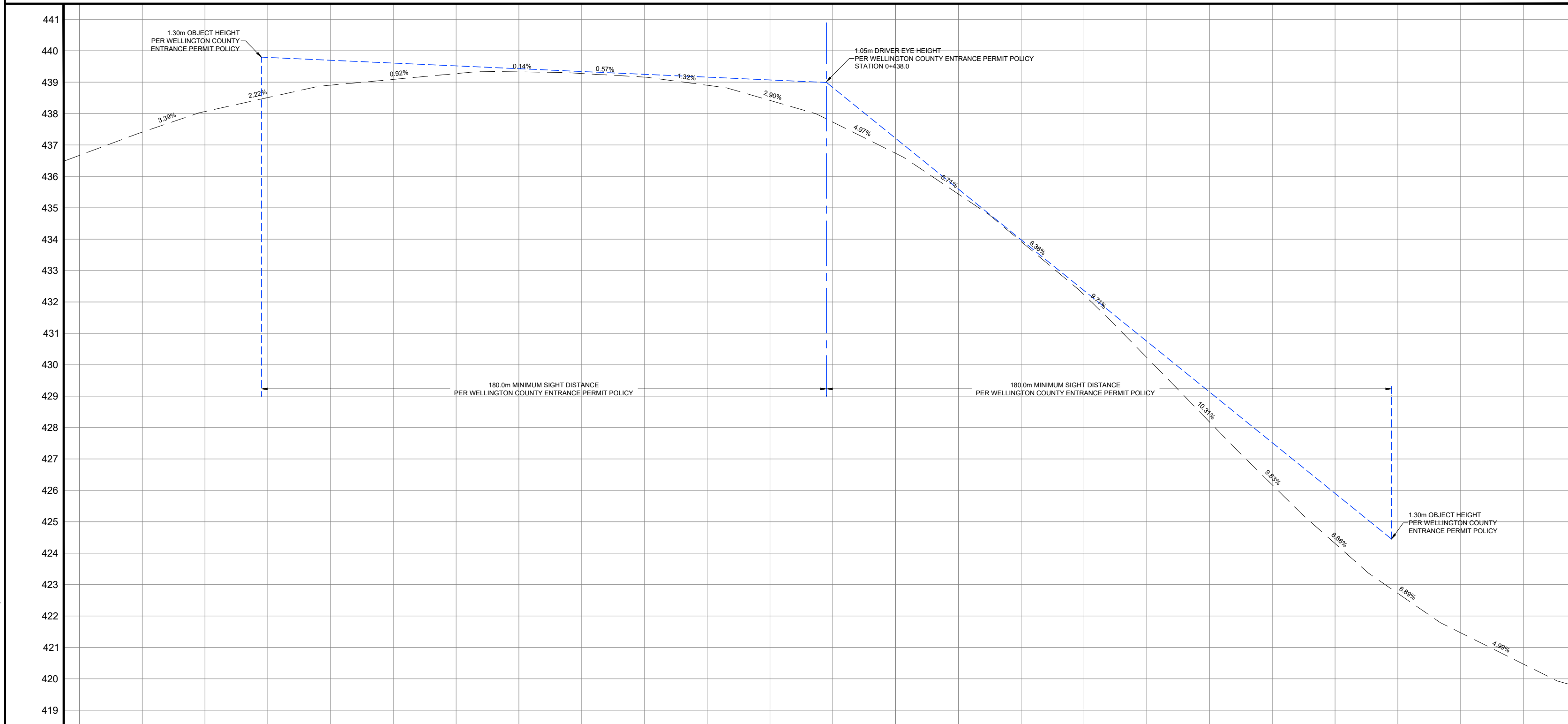
Site Location Plan

Site Development Concept
Source: GSP Group



WELLINGTON ROAD 22

NOTE: SIGHTLINE ANALYSIS IS BASED ON A POSTED SPEED OF 70km/h.



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0+220	437.41
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0+320	439.27
0+340	439.33
0+360	439.28
0+380	439.16
0+400	438.90
0+420	438.42
0+440	437.73
0+460	436.73
0+480	435.44
0+500	433.92
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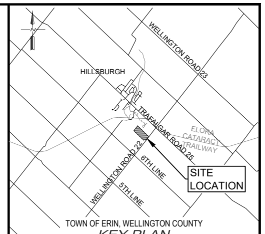
0+660	420.47



KEY PLAN
1:100,000

NOTES :
1. TOPOGRAPHIC SURVEY COMPLETED BY VAN HARTEN SURVEYING INC., DECEMBER 2021.

BENCH MARKS :

ELEVATIONS ARE BASED ON GPS OBSERVATIONS TO PERMANENT REFERENCE STATIONS AND HAVE BEEN CORRECTED TO ORTHOMETRIC ELEVATIONS WITH GEOID MODEL HTV2.0, AS SUPPLIED BY NATURAL RESOURCES CANADA.

BEARINGS ARE GRID AND RELATE TO PARCEL MAPPING CREATED IN NAD 83 UTM COORDINATES

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.

BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR ANY DAMAGE TO THEM.

NO.	DATE	REVISION DESCRIPTION	CHKD

GM BluePlan ENGINEERING
GUELPH | OWEN SOUND | LISTOWEL | KITCHENER | LONDON | HAMILTON | GTA
650 WOODLAWN ROAD WEST, BLOCK C, UNIT 2, GUELPH, ON N1K 1B8
TEL. 519-824-8150 www.gmblueplan.ca

HILLSBURGH SUBDIVISION 9354
WELLINGTON ROAD 22

THOMASFIELD HOMES

TOWN OF ERIN, WELLINGTON COUNTY

SIGHT LINE ANALYSIS PLAN

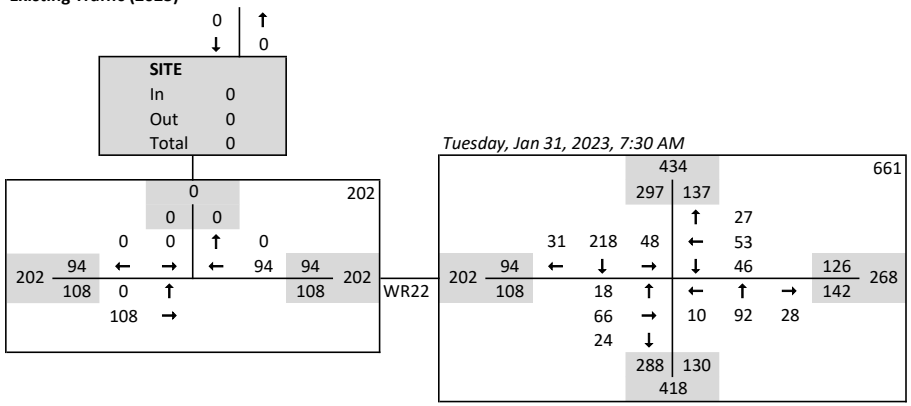
DRAWN BY :	APPROVED BY :	PROJECT NO. :	DRAWING NO. :
RPM	AEK	121132	----
DESIGNED BY :	DATE :	SCALE :	
RPM	2022-01-07	HORIZ = 1:750 VERT = 1:50	

Traffic Volume Diagrams

Thomasfield Hillsburgh Subdivision

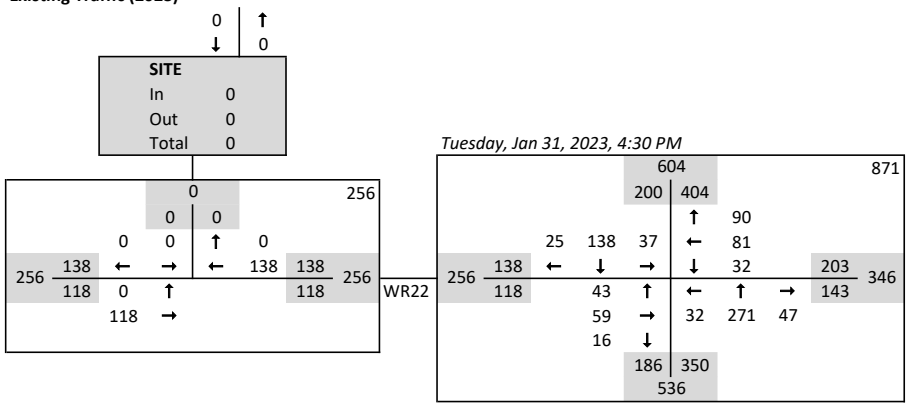
AM Peak Hour

Existing Traffic (2023)

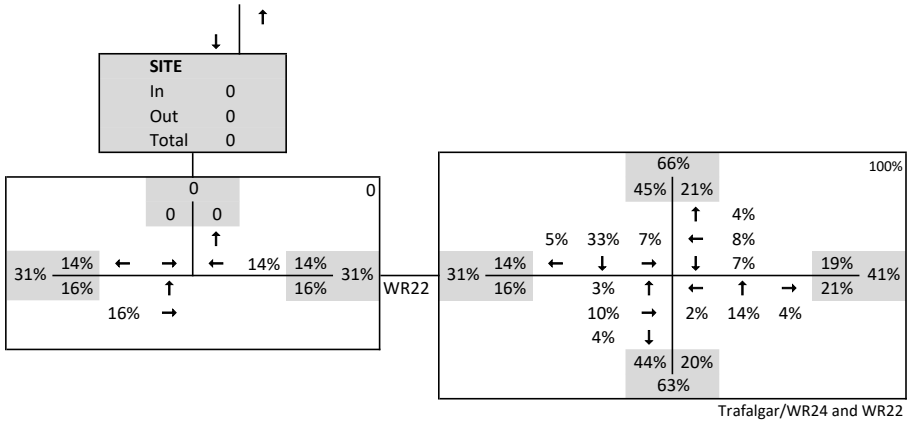


PM Peak Hour

Existing Traffic (2023)



Distribution



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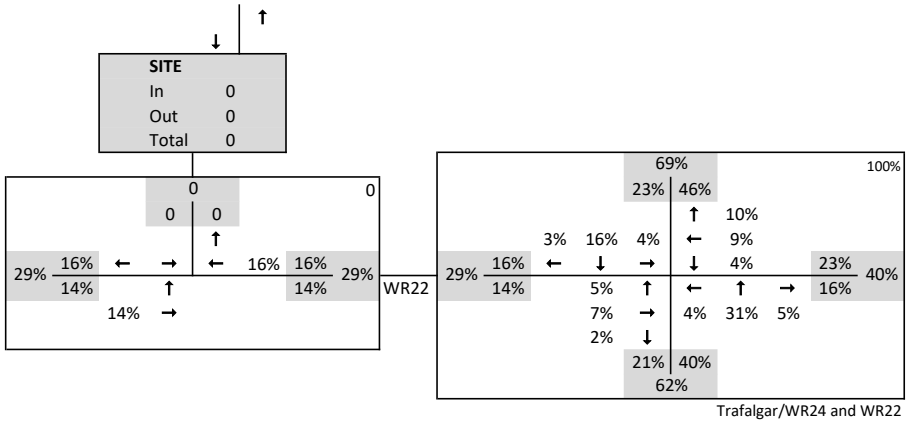
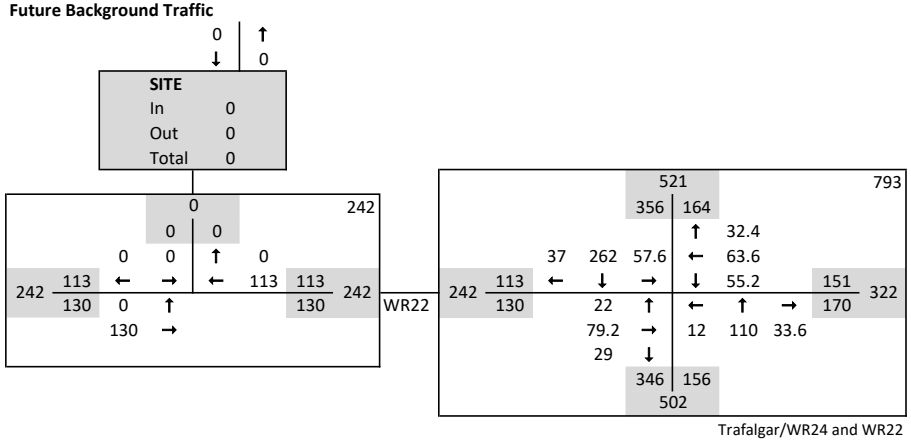
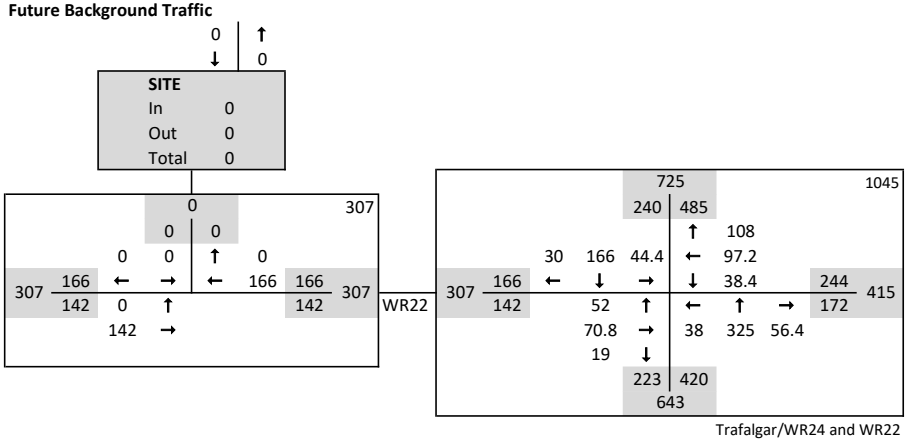


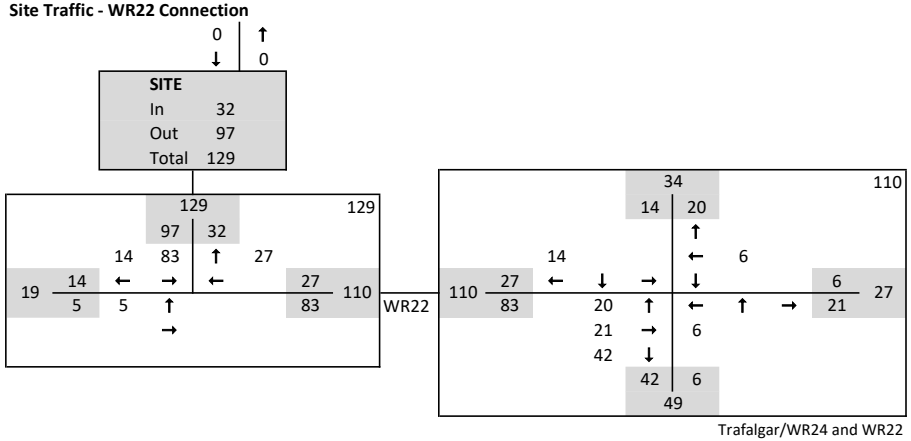
AM Peak Hour
Future Background Traffic



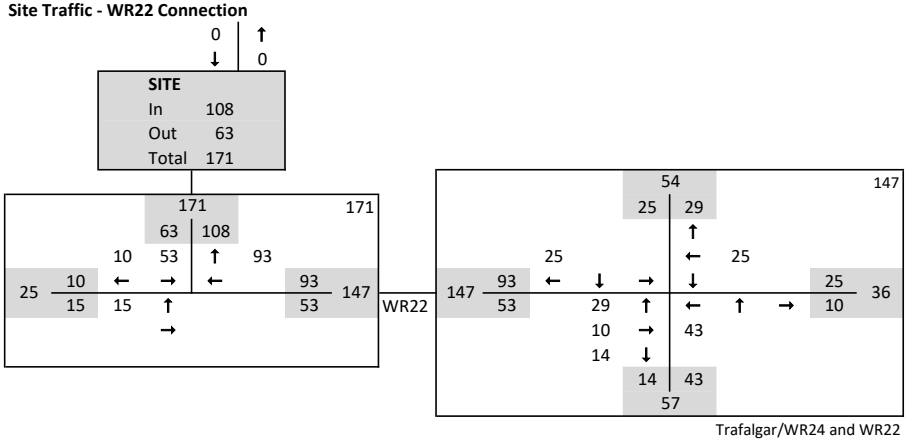
PM Peak Hour
Future Background Traffic



Site Traffic - WR22 Connection

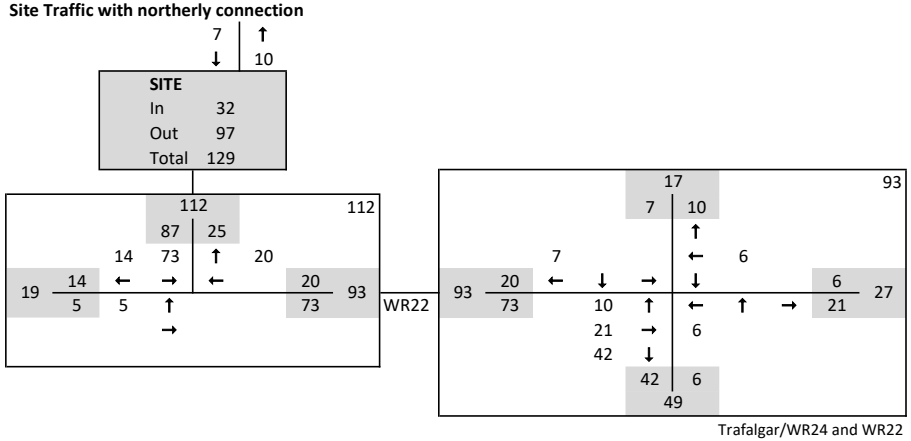


Site Traffic - WR22 Connection



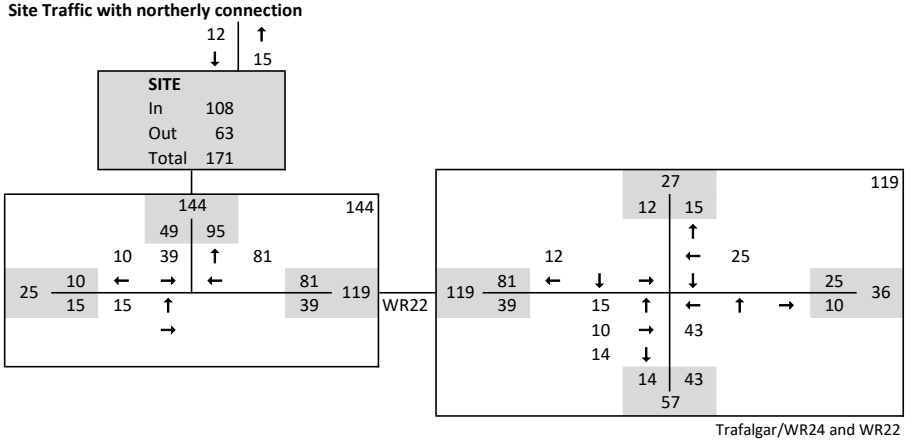
AM Peak Hour

Site Traffic with northerly connection

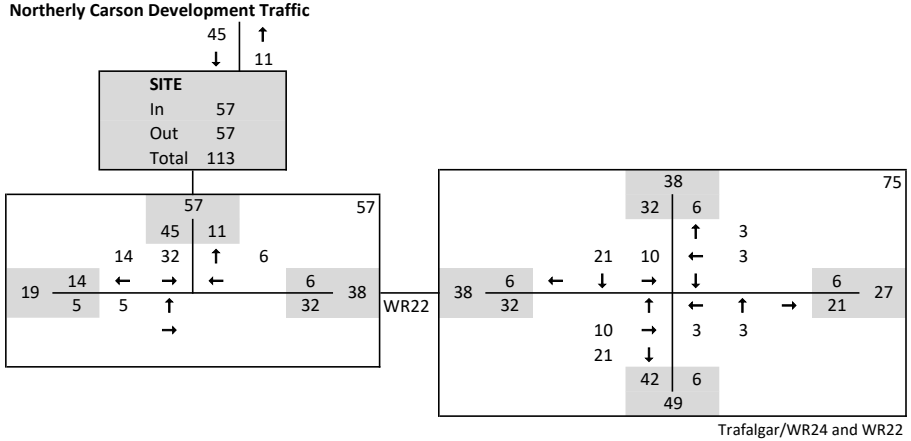


PM Peak Hour

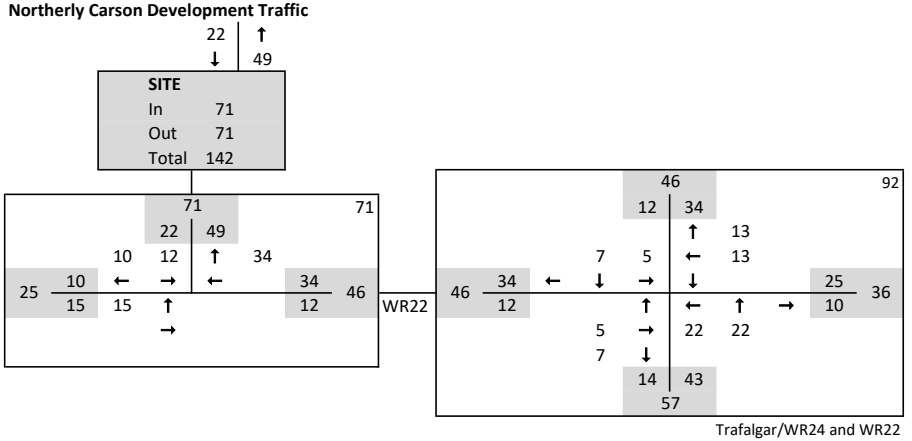
Site Traffic with northerly connection



Northerly Carson Development Traffic

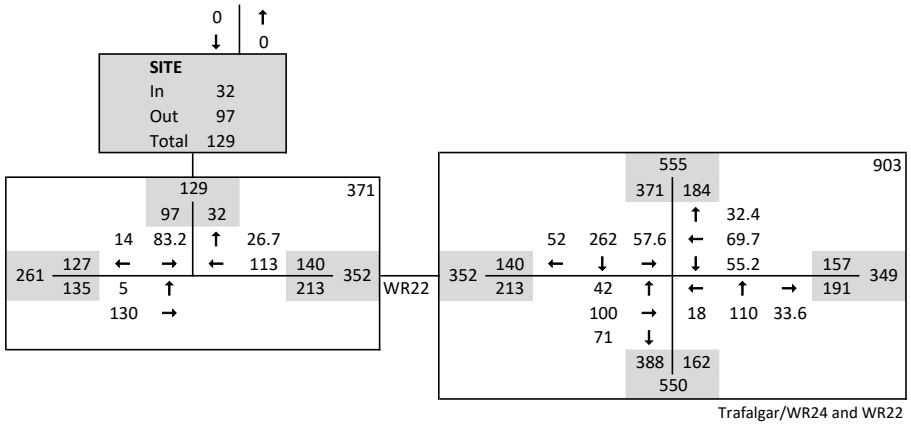


Northerly Carson Development Traffic



AM Peak Hour

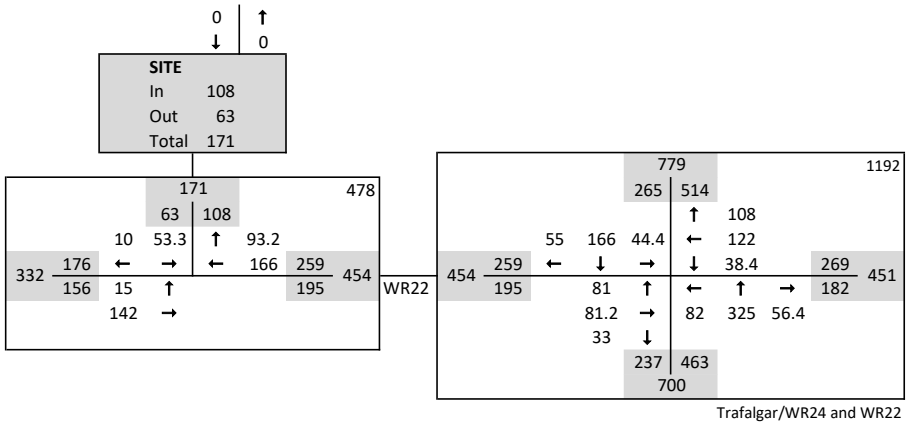
Future Total Traffic WR22



Trafalgar/WR24 and WR22

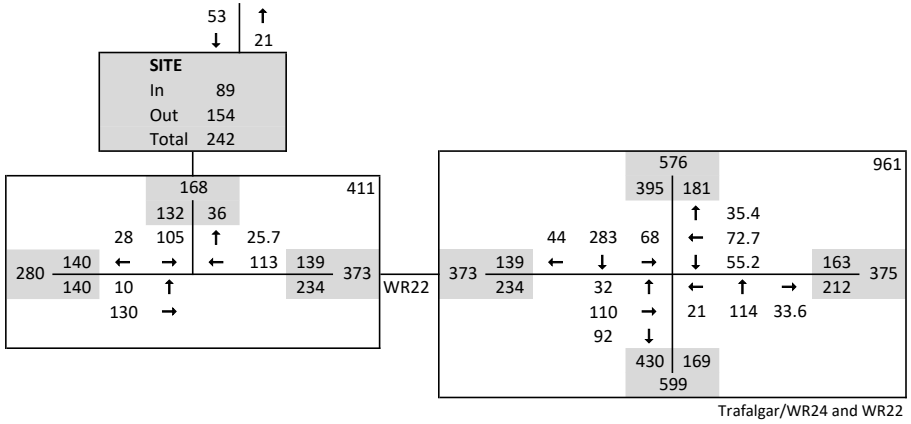
PM Peak Hour

Future Total Traffic WR22



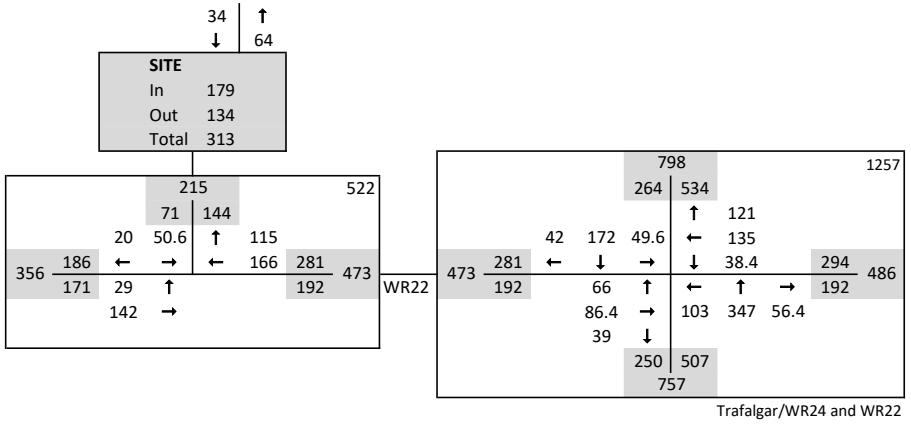
Trafalgar/WR24 and WR22

Future Total Traffic with Carson



Trafalgar/WR24 and WR22

Future Total Traffic with Carson



Trafalgar/WR24 and WR22

Appendix B: Traffic Count Data – WR22/WR24/Trafalgar

Trafalgar Rd @ Wellington Rd 22

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:30:00
To: 8:30:00

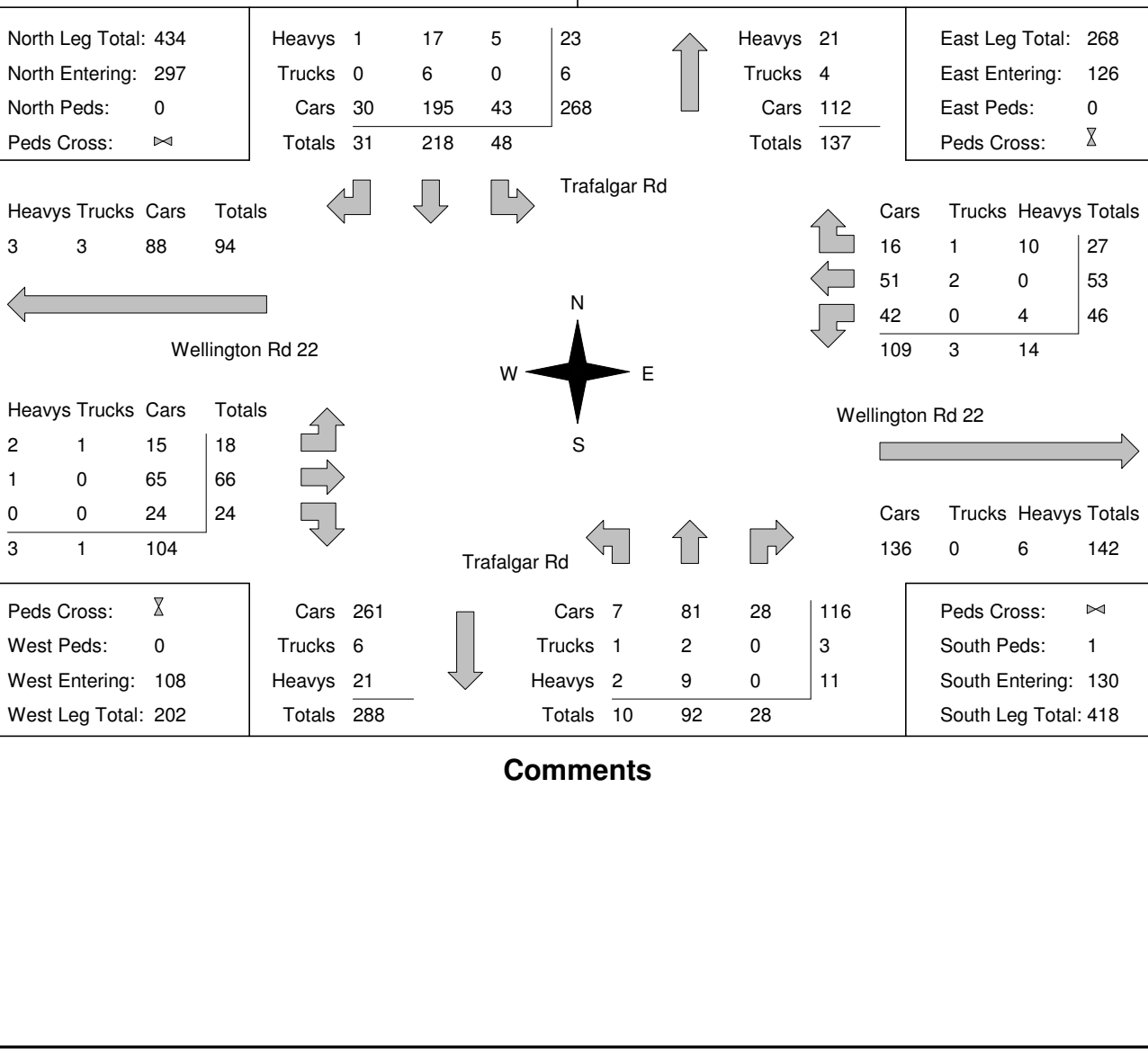
Municipality: Hillsburgh
Site #: 0000000002
Intersection: Trafalgar Rd & Wellington Rd 22
TFR File #: 2
Count date: 31-Jan-2023

Weather conditions:
Clear/Dry, Snow

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S



Comments

Trafalgar Rd @ Wellington Rd 22

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

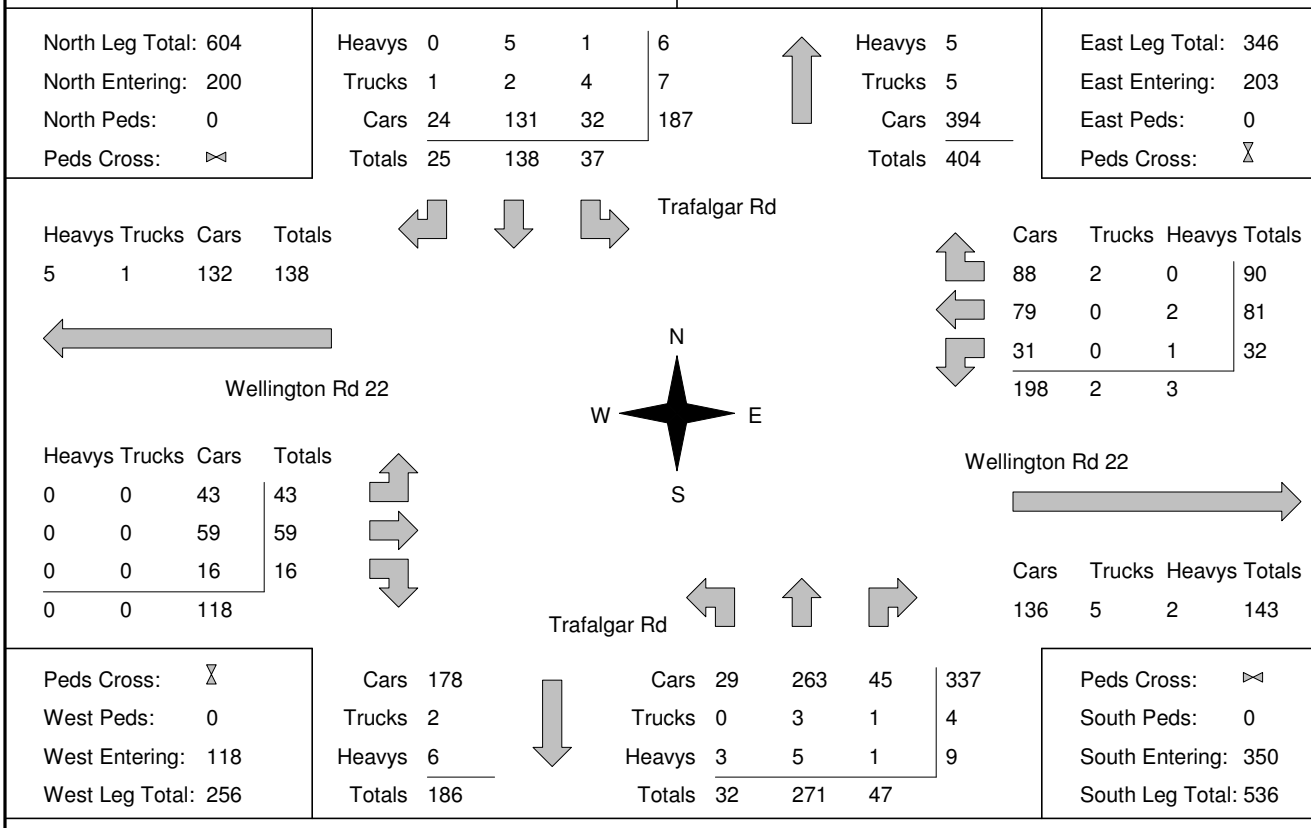
Municipality: Hillsburgh
Site #: 0000000002
Intersection: Trafalgar Rd & Wellington Rd 22
TFR File #: 2
Count date: 31-Jan-2023

Weather conditions:
Clear/Dry, Snow

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S



Comments

Trafalgar Rd @ Wellington Rd 22

Total Count Diagram

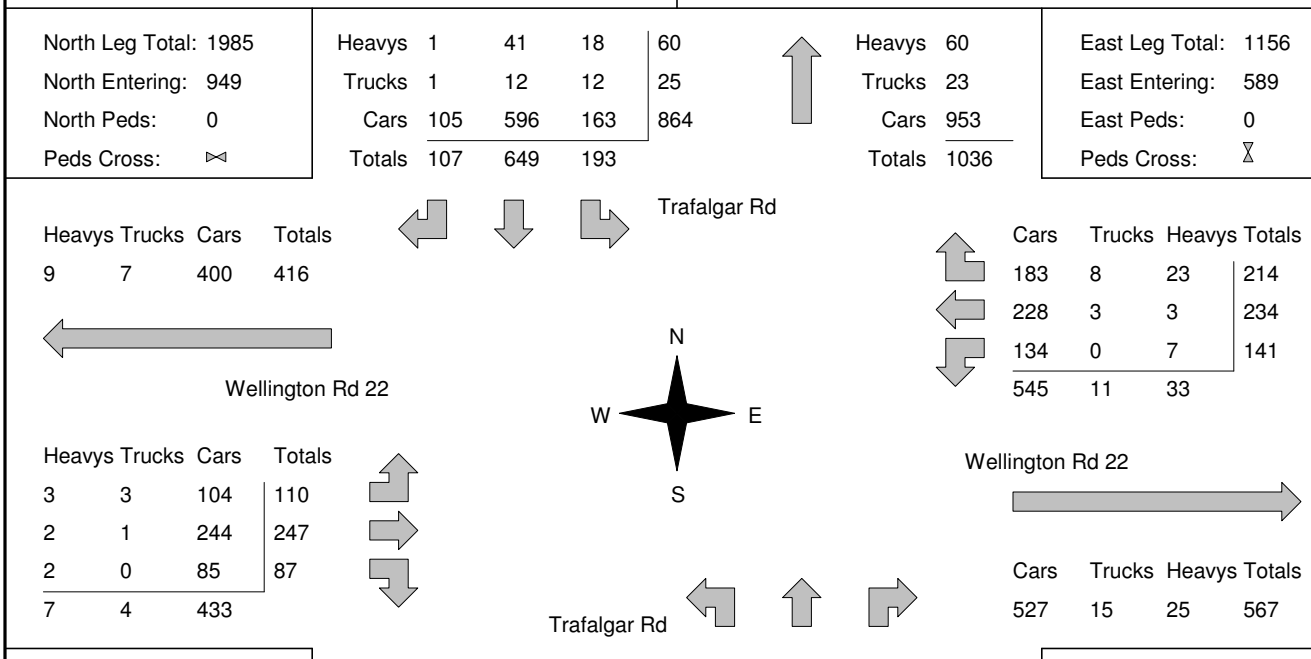
Municipality: Hillsburgh
Site #: 0000000002
Intersection: Trafalgar Rd & Wellington Rd 22
TFR File #: 2
Count date: 31-Jan-2023

Weather conditions:
Clear/Dry, Snow

Person(s) who counted:
Cam

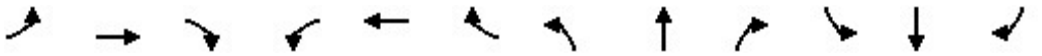
**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S



Comments

Appendix C: Existing Capacity Analysis

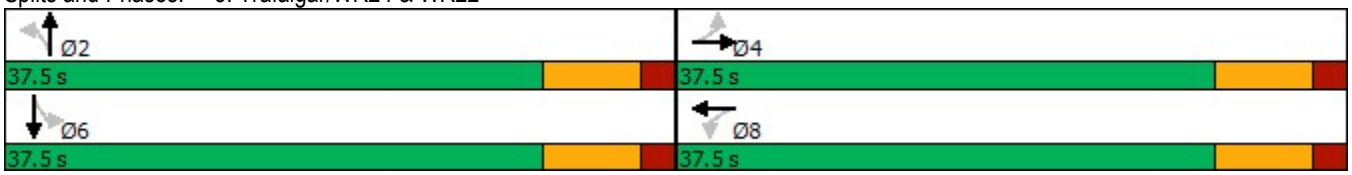


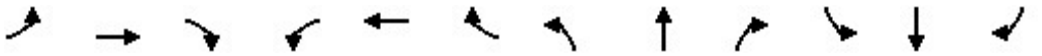
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	66	24	46	53	27	10	92	28	48	218	31
Future Volume (vph)	18	66	24	46	53	27	10	92	28	48	218	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00							
Frt		0.970			0.971			0.965			0.981	
Flt Protected		0.992			0.982		0.950			0.950		
Satd. Flow (prot)	0	1767	0	0	1612	0	1404	1697	0	1659	1713	0
Flt Permitted		0.910			0.831		0.593			0.674		
Satd. Flow (perm)	0	1621	0	0	1363	0	876	1697	0	1177	1713	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			21			24			11	
Link Speed (k/h)		70			70			40			40	
Link Distance (m)		523.9			684.4			847.5			805.2	
Travel Time (s)		26.9			35.2			76.3			72.5	
Confl. Peds. (#/hr)			1	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 (%)	17%	2%	0%	9%	4%	41%	30%	12%	0%	10%	11%	3%
Adj. Flow (vph)	20	72	26	50	58	29	11	100	30	52	237	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	118	0	0	137	0	11	130	0	52	271	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		30.0	30.0		30.0	30.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		37.5	37.5		37.5	37.5	
Total Split (s)	37.5	37.5		37.5	37.5		37.5	37.5		37.5	37.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.5			7.5		7.5	7.5		7.5	7.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		15.1			15.1		35.2	35.2		35.2	35.2	
Actuated g/C Ratio		0.26			0.26		0.60	0.60		0.60	0.60	
v/c Ratio		0.27			0.37		0.02	0.13		0.07	0.26	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		17.1			19.5		7.9	7.2		8.4	9.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		17.1			19.5		7.9	7.2		8.4	9.0	
LOS		B			B		A	A		A	A	
Approach Delay		17.1			19.5			7.3			8.9	
Approach LOS		B			B			A			A	
Queue Length 50th (m)		8.3			10.5		0.6	5.7		2.8	15.6	
Queue Length 95th (m)		19.5			23.7		2.6	13.3		7.5	28.8	
Internal Link Dist (m)		499.9			660.4			823.5			781.2	
Turn Bay Length (m)							30.0			30.0		
Base Capacity (vph)		843			709		525	1027		706	1032	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.14			0.19		0.02	0.13		0.07	0.26	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 58.6			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.37			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 51.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Trafalgar/WR24 & WR22



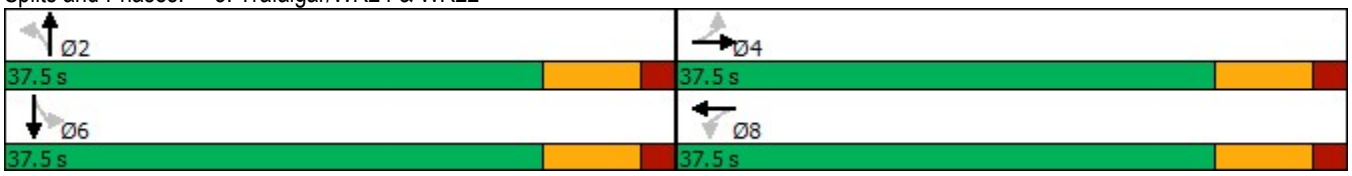


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	59	16	32	81	90	32	271	47	37	138	25
Future Volume (vph)	43	59	16	32	81	90	32	271	47	37	138	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.982			0.940			0.978			0.977	
Flt Protected		0.982			0.992		0.950			0.950		
Satd. Flow (prot)	0	1853	0	0	1754	0	1674	1822	0	1601	1790	0
Flt Permitted		0.809			0.921		0.646			0.553		
Satd. Flow (perm)	0	1526	0	0	1628	0	1139	1822	0	932	1790	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			64			14			14	
Link Speed (k/h)		70			70			40			40	
Link Distance (m)		523.9			684.4			847.5			805.2	
Travel Time (s)		26.9			35.2			76.3			72.5	
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 (%)	0%	0%	0%	3%	2%	2%	9%	3%	4%	14%	5%	4%
Adj. Flow (vph)	47	64	17	35	88	98	35	295	51	40	150	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	128	0	0	221	0	35	346	0	40	177	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		30.0	30.0		30.0	30.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		37.5	37.5		37.5	37.5	
Total Split (s)	37.5	37.5		37.5	37.5		37.5	37.5		37.5	37.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.5			7.5		7.5	7.5		7.5	7.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		15.4			15.4		31.4	31.4		31.4	31.4	
Actuated g/C Ratio		0.25			0.25		0.51	0.51		0.51	0.51	
v/c Ratio		0.33			0.49		0.06	0.37		0.08	0.19	
Control Delay		19.3			17.6		8.6	10.5		8.9	8.6	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		19.3			17.6		8.6	10.5		8.9	8.6	
LOS		B			B		A	B		A	A	
Approach Delay		19.3			17.6			10.3			8.6	
Approach LOS		B			B			B			A	
Queue Length 50th (m)		10.4			14.4		1.8	20.6		2.1	9.1	
Queue Length 95th (m)		22.5			31.1		5.9	38.7		6.6	19.5	
Internal Link Dist (m)		499.9			660.4			823.5			781.2	
Turn Bay Length (m)							30.0			30.0		
Base Capacity (vph)		748			824		577	931		473	915	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.17			0.27		0.06	0.37		0.08	0.19	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 61.8			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 12.8		Intersection LOS: B	
Intersection Capacity Utilization 56.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: Trafalgar/WR24 & WR22



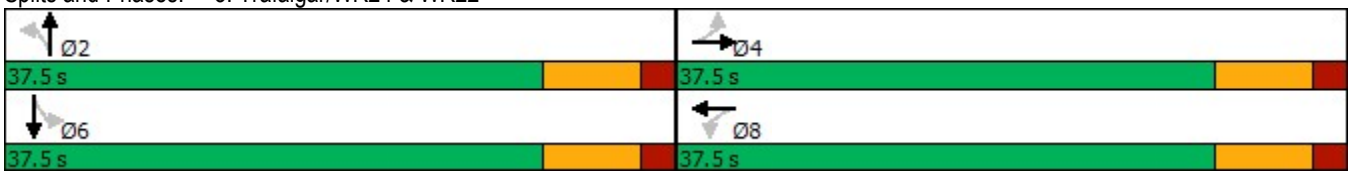
Appendix D: Future Background Capacity Analysis

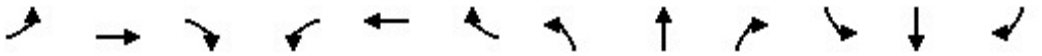
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	79	29	55	64	32	12	110	34	58	262	37
Future Volume (vph)	22	79	29	55	64	32	12	110	34	58	262	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00							
Frt		0.970			0.971			0.965			0.982	
Flt Protected		0.992			0.982		0.950			0.950		
Satd. Flow (prot)	0	1767	0	0	1612	0	1404	1698	0	1659	1715	0
Flt Permitted		0.917			0.826		0.564			0.657		
Satd. Flow (perm)	0	1633	0	0	1354	0	833	1698	0	1147	1715	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			22			25			11	
Link Speed (k/h)		70			70			40			40	
Link Distance (m)		523.9			684.4			847.5			805.2	
Travel Time (s)		26.9			35.2			76.3			72.5	
Confl. Peds. (#/hr)			1	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 (%)	17%	2%	0%	9%	4%	41%	30%	12%	0%	10%	11%	3%
Adj. Flow (vph)	24	86	32	60	70	35	13	120	37	63	285	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	142	0	0	165	0	13	157	0	63	325	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		30.0	30.0		30.0	30.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		37.5	37.5		37.5	37.5	
Total Split (s)	37.5	37.5		37.5	37.5		37.5	37.5		37.5	37.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.5			7.5		7.5	7.5		7.5	7.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		15.5			15.5		35.2	35.2		35.2	35.2	
Actuated g/C Ratio		0.26			0.26		0.60	0.60		0.60	0.60	
v/c Ratio		0.32			0.44		0.03	0.15		0.09	0.32	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		17.6			20.7		8.5	7.8		9.0	9.8	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		17.6			20.7		8.5	7.8		9.0	9.8	
LOS		B			C		A	A		A	A	
Approach Delay		17.6			20.7			7.8			9.7	
Approach LOS		B			C			A			A	
Queue Length 50th (m)		10.6			13.2		0.7	7.3		3.4	19.5	
Queue Length 95th (m)		23.1			28.1		3.1	17.0		9.4	37.9	
Internal Link Dist (m)		499.9			660.4			823.5			781.2	
Turn Bay Length (m)							30.0			30.0		
Base Capacity (vph)		844			702		496	1022		683	1026	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.17			0.24		0.03	0.15		0.09	0.32	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 59			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 12.7		Intersection LOS: B	
Intersection Capacity Utilization 75.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Trafalgar/WR24 & WR22



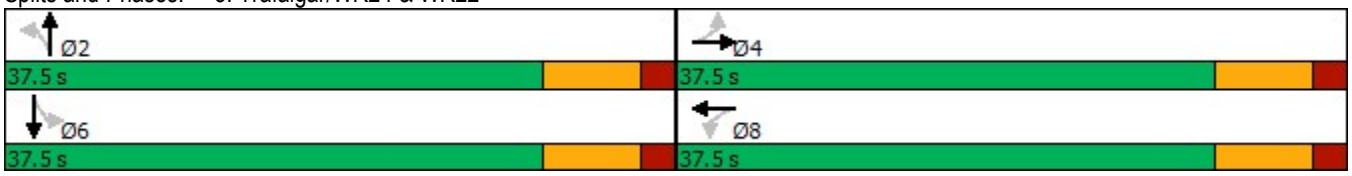


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	71	19	38	97	108	38	325	56	44	166	30
Future Volume (vph)	52	71	19	38	97	108	38	325	56	44	166	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.982			0.940			0.978			0.977	
Flt Protected		0.982			0.992		0.950			0.950		
Satd. Flow (prot)	0	1853	0	0	1754	0	1674	1822	0	1601	1790	0
Flt Permitted		0.774			0.915		0.625			0.489		
Satd. Flow (perm)	0	1460	0	0	1617	0	1102	1822	0	824	1790	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			64			14			15	
Link Speed (k/h)		70			70			40			40	
Link Distance (m)		523.9			684.4			847.5			805.2	
Travel Time (s)		26.9			35.2			76.3			72.5	
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 (%)	0%	0%	0%	3%	2%	2%	9%	3%	4%	14%	5%	4%
Adj. Flow (vph)	57	77	21	41	105	117	41	353	61	48	180	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	155	0	0	263	0	41	414	0	48	213	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		30.0	30.0		30.0	30.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		37.5	37.5		37.5	37.5	
Total Split (s)	37.5	37.5		37.5	37.5		37.5	37.5		37.5	37.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.5			7.5		7.5	7.5		7.5	7.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		16.0			16.0		30.3	30.3		30.3	30.3	
Actuated g/C Ratio		0.26			0.26		0.49	0.49		0.49	0.49	
v/c Ratio		0.40			0.56		0.08	0.46		0.12	0.24	
Control Delay		20.3			19.6		9.3	12.2		9.9	9.5	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		20.3			19.6		9.3	12.2		9.9	9.5	
LOS		C			B		A	B		A	A	
Approach Delay		20.3			19.6			11.9			9.6	
Approach LOS		C			B			B			A	
Queue Length 50th (m)		12.9			18.7		2.2	26.0		2.6	11.3	
Queue Length 95th (m)		26.6			38.0		7.3	52.3		8.5	25.3	
Internal Link Dist (m)		499.9			660.4			823.5			781.2	
Turn Bay Length (m)							30.0			30.0		
Base Capacity (vph)		721			824		543	906		406	891	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.21			0.32		0.08	0.46		0.12	0.24	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 61.3			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 14.3		Intersection LOS: B	
Intersection Capacity Utilization 64.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Trafalgar/WR24 & WR22



Appendix E: ITE Trip Generation Manual Excerpts

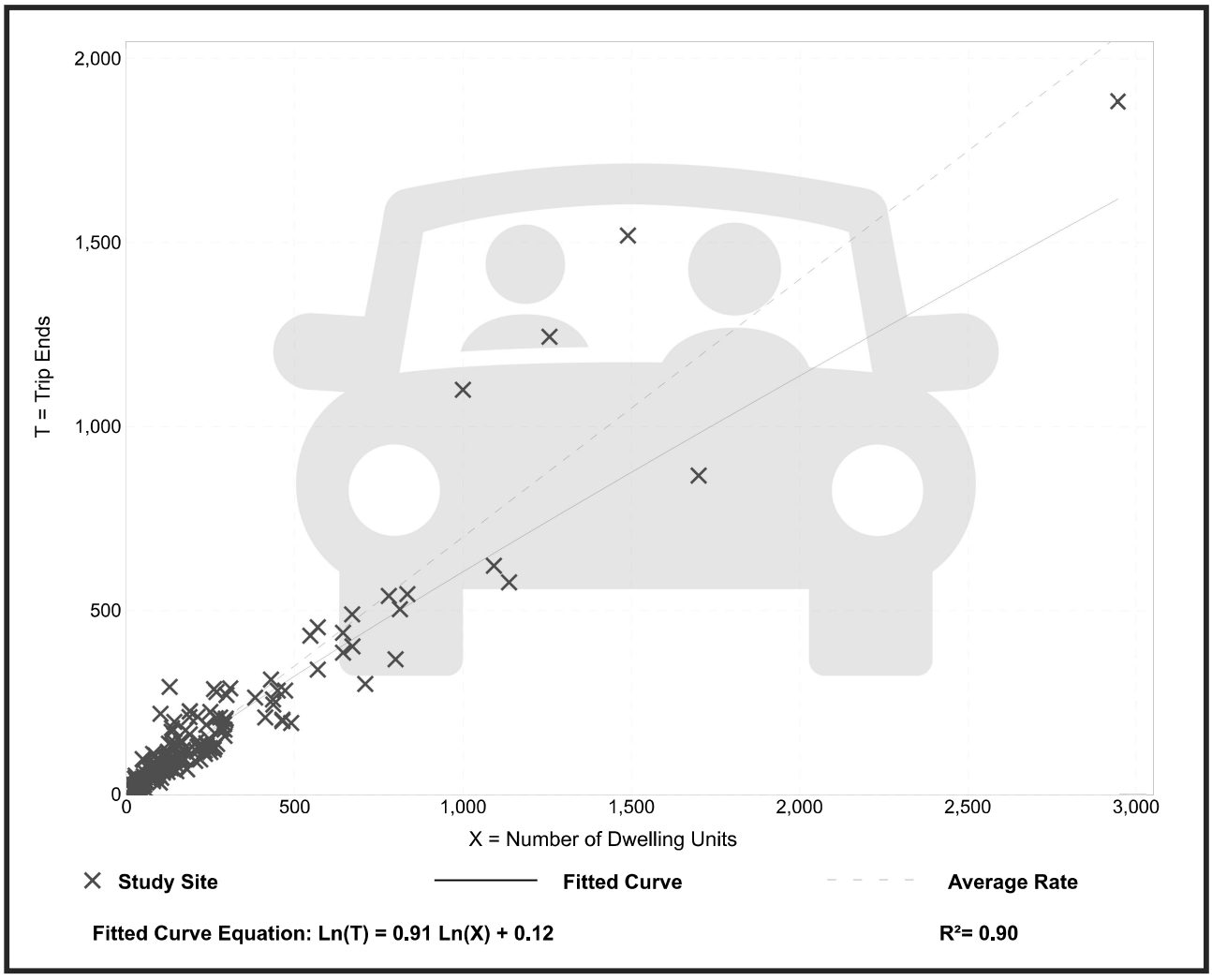
Single-Family Detached Housing
(210)

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: 192
Avg. Num. of Dwelling Units: 226
Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.27 - 2.27	0.24

Data Plot and Equation



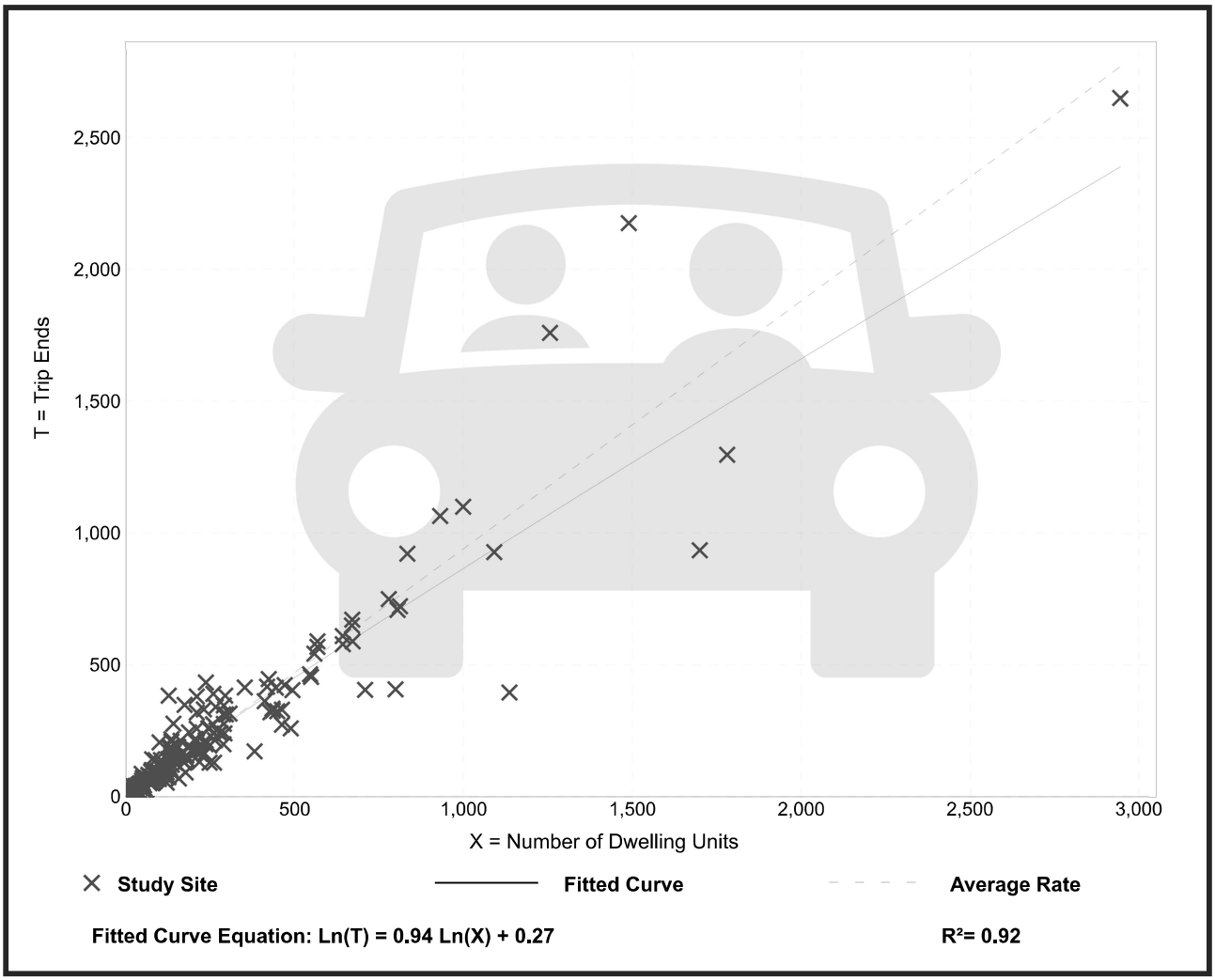
Single-Family Detached Housing
(210)

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:	208
Avg. Num. of Dwelling Units:	248
Directional Distribution:	63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.94	0.35 - 2.98	0.31

Data Plot and Equation



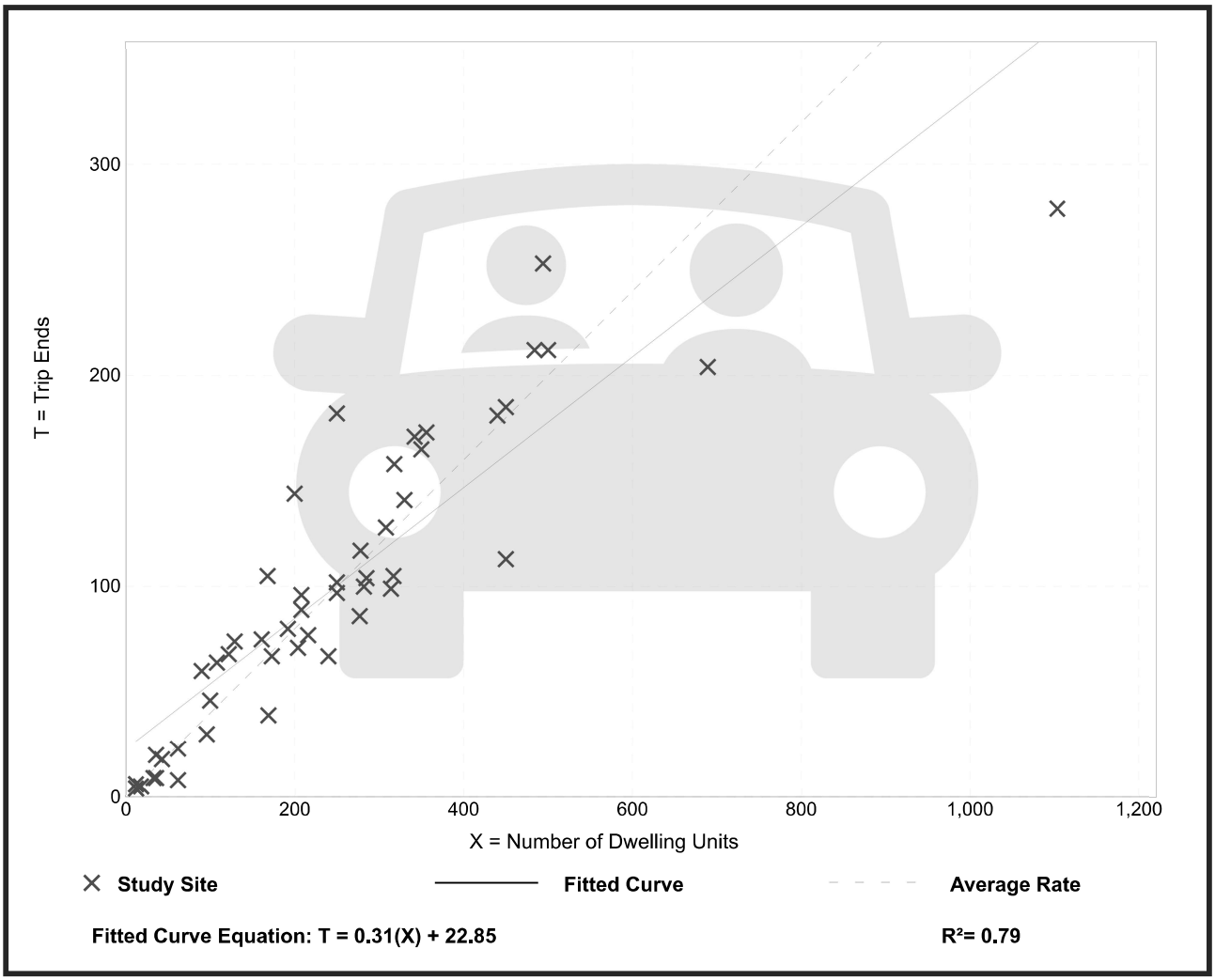
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

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: 49
Avg. Num. of Dwelling Units: 249
Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.40	0.13 - 0.73	0.12

Data Plot and Equation



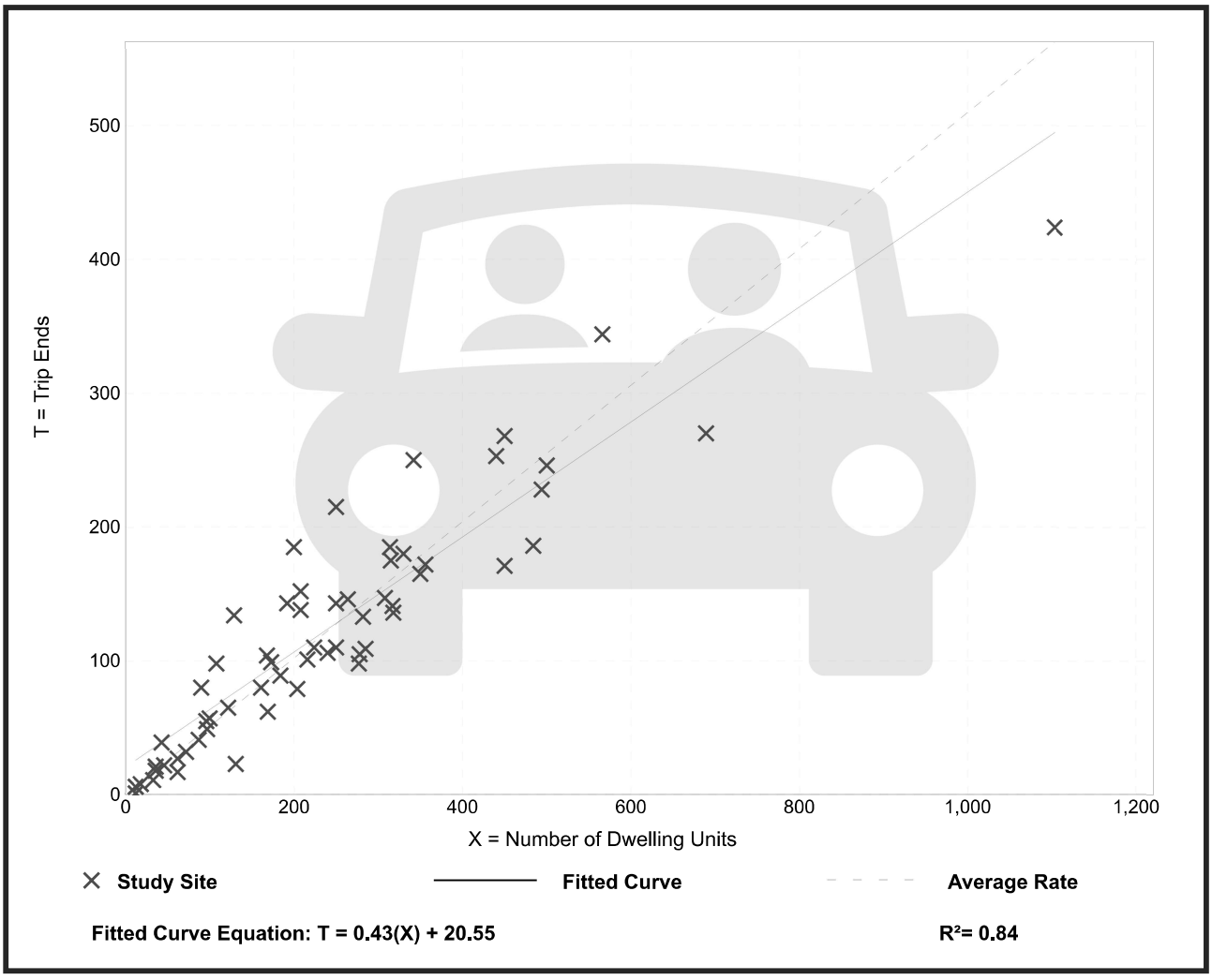
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

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: 59
Avg. Num. of Dwelling Units: 241
Directional Distribution: 63% entering, 37% exiting

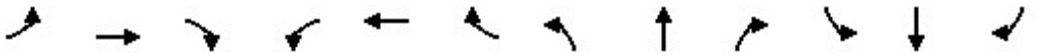
Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.08 - 1.04	0.15

Data Plot and Equation



Appendix F: Future Total Capacity Analysis

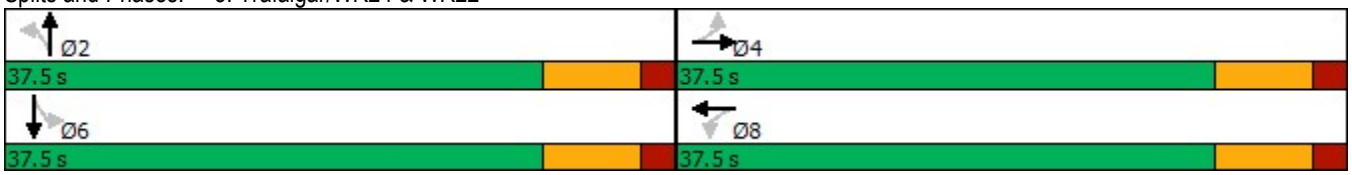


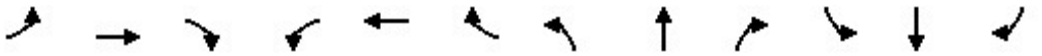
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	100	71	55	70	32	18	110	34	58	262	52
Future Volume (vph)	42	100	71	55	70	32	18	110	34	58	262	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00							
Frt		0.955			0.972			0.965			0.975	
Flt Protected		0.990			0.983		0.950			0.950		
Satd. Flow (prot)	0	1728	0	0	1620	0	1404	1698	0	1659	1708	0
Flt Permitted		0.896			0.809		0.555			0.657		
Satd. Flow (perm)	0	1564	0	0	1332	0	820	1698	0	1147	1708	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			21			25			16	
Link Speed (k/h)		70			70			40			40	
Link Distance (m)		523.9			684.4			847.5			805.2	
Travel Time (s)		26.9			35.2			76.3			72.5	
Confl. Peds. (#/hr)			1	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 (%)	17%	2%	0%	9%	4%	41%	30%	12%	0%	10%	11%	3%
Adj. Flow (vph)	46	109	77	60	76	35	20	120	37	63	285	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	232	0	0	171	0	20	157	0	63	342	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		30.0	30.0		30.0	30.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		37.5	37.5		37.5	37.5	
Total Split (s)	37.5	37.5		37.5	37.5		37.5	37.5		37.5	37.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.5			7.5		7.5	7.5		7.5	7.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		15.9			15.9		30.5	30.5		30.5	30.5	
Actuated g/C Ratio		0.26			0.26		0.50	0.50		0.50	0.50	
v/c Ratio		0.53			0.47		0.05	0.18		0.11	0.40	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		20.9			21.5		9.2	8.2		9.5	11.3	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		20.9			21.5		9.2	8.2		9.5	11.3	
LOS		C			C		A	A		A	B	
Approach Delay		20.9			21.5			8.3			11.0	
Approach LOS		C			C			A			B	
Queue Length 50th (m)		18.0			13.9		1.0	7.3		3.4	20.4	
Queue Length 95th (m)		36.1			29.2		4.4	17.9		9.9	42.1	
Internal Link Dist (m)		499.9			660.4			823.5			781.2	
Turn Bay Length (m)							30.0			30.0		
Base Capacity (vph)		785			662		407	855		568	855	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.30			0.26		0.05	0.18		0.11	0.40	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 61.4			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 14.7		Intersection LOS: B	
Intersection Capacity Utilization 75.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Trafalgar/WR24 & WR22



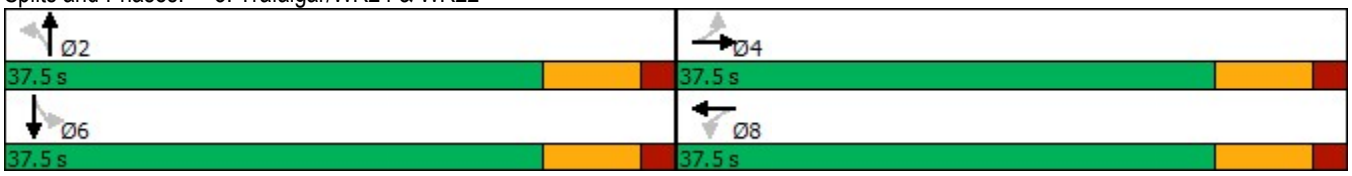


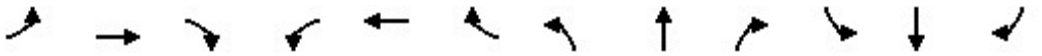
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	81	33	38	122	108	82	325	56	44	166	55
Future Volume (vph)	81	81	33	38	122	108	82	325	56	44	166	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.977			0.946			0.978			0.962	
Flt Protected		0.980			0.993		0.950			0.950		
Satd. Flow (prot)	0	1839	0	0	1767	0	1674	1822	0	1601	1764	0
Flt Permitted		0.724			0.923		0.610			0.485		
Satd. Flow (perm)	0	1359	0	0	1642	0	1075	1822	0	817	1764	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			54			14			27	
Link Speed (k/h)		70			70			40			40	
Link Distance (m)		523.9			684.4			847.5			805.2	
Travel Time (s)		26.9			35.2			76.3			72.5	
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 (%)	0%	0%	0%	3%	2%	2%	9%	3%	4%	14%	5%	4%
Adj. Flow (vph)	88	88	36	41	133	117	89	353	61	48	180	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	212	0	0	291	0	89	414	0	48	240	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		30.0	30.0		30.0	30.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		37.5	37.5		37.5	37.5	
Total Split (s)	37.5	37.5		37.5	37.5		37.5	37.5		37.5	37.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.5			7.5		7.5	7.5		7.5	7.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		16.8			16.8		30.0	30.0		30.0	30.0	
Actuated g/C Ratio		0.27			0.27		0.49	0.49		0.49	0.49	
v/c Ratio		0.56			0.60		0.17	0.46		0.12	0.28	
Control Delay		24.0			21.5		10.8	12.8		10.6	9.9	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		24.0			21.5		10.8	12.8		10.6	9.9	
LOS		C			C		B	B		B	A	
Approach Delay		24.0			21.5			12.5			10.0	
Approach LOS		C			C			B			A	
Queue Length 50th (m)		18.9			22.9		4.9	26.0		2.6	12.3	
Queue Length 95th (m)		36.6			43.5		14.4	55.8		9.1	29.3	
Internal Link Dist (m)		499.9			660.4			823.5			781.2	
Turn Bay Length (m)							30.0			30.0		
Base Capacity (vph)		668			826		522	892		396	871	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.32			0.35		0.17	0.46		0.12	0.28	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 61.8			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 15.8		Intersection LOS: B	
Intersection Capacity Utilization 93.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 3: Trafalgar/WR24 & WR22



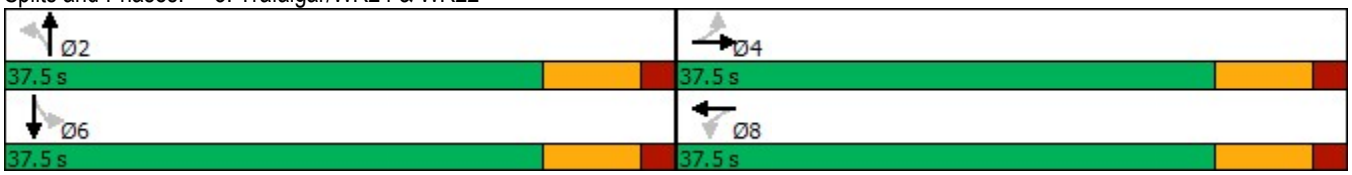


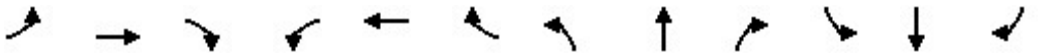
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	110	92	55	73	35	21	114	34	68	283	44
Future Volume (vph)	32	110	92	55	73	35	21	114	34	68	283	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00							
Frt		0.947			0.971			0.966			0.980	
Flt Protected		0.993			0.983		0.950			0.950		
Satd. Flow (prot)	0	1733	0	0	1614	0	1404	1699	0	1659	1713	0
Flt Permitted		0.923			0.795		0.545			0.655		
Satd. Flow (perm)	0	1611	0	0	1304	0	805	1699	0	1144	1713	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52			22			24			12	
Link Speed (k/h)		70			70			40			40	
Link Distance (m)		523.9			684.4			847.5			805.2	
Travel Time (s)		26.9			35.2			76.3			72.5	
Confl. Peds. (#/hr)			1	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 (%)	17%	2%	0%	9%	4%	41%	30%	12%	0%	10%	11%	3%
Adj. Flow (vph)	35	120	100	60	79	38	23	124	37	74	308	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	255	0	0	177	0	23	161	0	74	356	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		30.0	30.0		30.0	30.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		37.5	37.5		37.5	37.5	
Total Split (s)	37.5	37.5		37.5	37.5		37.5	37.5		37.5	37.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.5			7.5		7.5	7.5		7.5	7.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		16.1			16.1		30.1	30.1		30.1	30.1	
Actuated g/C Ratio		0.26			0.26		0.49	0.49		0.49	0.49	
v/c Ratio		0.55			0.49		0.06	0.19		0.13	0.42	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		20.4			21.9		9.4	8.5		9.8	11.8	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		20.4			21.9		9.4	8.5		9.8	11.8	
LOS		C			C		A	A		A	B	
Approach Delay		20.4			21.9			8.6			11.5	
Approach LOS		C			C			A			B	
Queue Length 50th (m)		19.2			14.5		1.2	7.6		4.0	21.8	
Queue Length 95th (m)		38.1			30.2		5.0	18.7		11.5	45.1	
Internal Link Dist (m)		499.9			660.4			823.5			781.2	
Turn Bay Length (m)							30.0			30.0		
Base Capacity (vph)		817			651		396	847		562	848	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.31			0.27		0.06	0.19		0.13	0.42	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 61.2			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 14.9		Intersection LOS: B	
Intersection Capacity Utilization 87.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 3: Trafalgar/WR24 & WR22



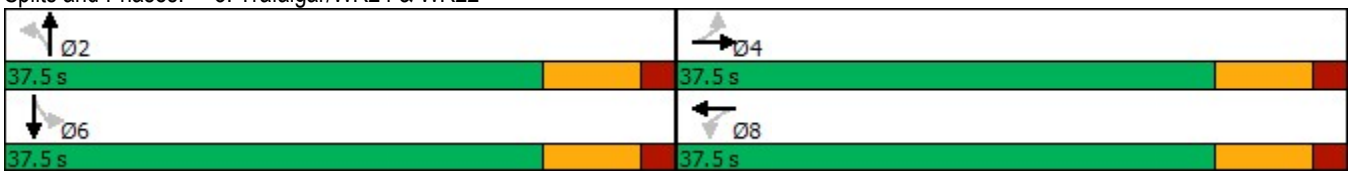


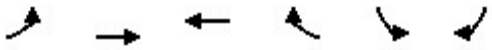
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	86	39	38	135	121	103	347	56	50	172	42
Future Volume (vph)	66	86	39	38	135	121	103	347	56	50	172	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.973			0.944			0.979			0.970	
Flt Protected		0.983			0.994		0.950			0.950		
Satd. Flow (prot)	0	1837	0	0	1765	0	1674	1824	0	1601	1778	0
Flt Permitted		0.731			0.927		0.613			0.457		
Satd. Flow (perm)	0	1366	0	0	1646	0	1080	1824	0	770	1778	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			56			13			20	
Link Speed (k/h)		70			70			40			40	
Link Distance (m)		523.9			684.4			847.5			805.2	
Travel Time (s)		26.9			35.2			76.3			72.5	
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 (%)	0%	0%	0%	3%	2%	2%	9%	3%	4%	14%	5%	4%
Adj. Flow (vph)	72	93	42	41	147	132	112	377	61	54	187	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	207	0	0	320	0	112	438	0	54	233	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		30.0	30.0		30.0	30.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		37.5	37.5		37.5	37.5	
Total Split (s)	37.5	37.5		37.5	37.5		37.5	37.5		37.5	37.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.5			7.5		7.5	7.5		7.5	7.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		17.7			17.7		30.1	30.1		30.1	30.1	
Actuated g/C Ratio		0.28			0.28		0.48	0.48		0.48	0.48	
v/c Ratio		0.52			0.64		0.22	0.50		0.15	0.27	
Control Delay		22.0			22.3		12.0	14.0		11.8	10.7	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		22.0			22.3		12.0	14.0		11.8	10.7	
LOS		C			C		B	B		B	B	
Approach Delay		22.0			22.3			13.6			10.9	
Approach LOS		C			C			B			B	
Queue Length 50th (m)		17.8			26.1		6.5	29.1		3.1	12.7	
Queue Length 95th (m)		34.6			48.2		18.8	64.4		10.8	31.3	
Internal Link Dist (m)		499.9			660.4			823.5			781.2	
Turn Bay Length (m)							30.0			30.0		
Base Capacity (vph)		665			818		517	880		369	862	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.31			0.39		0.22	0.50		0.15	0.27	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 62.8			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 16.4		Intersection LOS: B	
Intersection Capacity Utilization 91.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 3: Trafalgar/WR24 & WR22

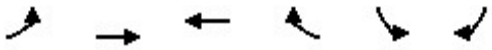




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	130	113	27	83	14
Future Volume (Veh/h)	5	130	113	27	83	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	141	123	29	90	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	152				288	138
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	152				288	138
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				87	98
cM capacity (veh/h)	1429				700	911

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	146	152	105
Volume Left	5	0	90
Volume Right	0	29	15
cSH	1429	1700	724
Volume to Capacity	0.00	0.09	0.15
Queue Length 95th (m)	0.1	0.0	3.8
Control Delay (s)	0.3	0.0	10.8
Lane LOS	A		B
Approach Delay (s)	0.3	0.0	10.8
Approach LOS			B

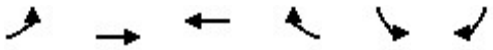
Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	142	166	93	53	10
Future Volume (Veh/h)	15	142	166	93	53	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	154	180	101	58	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	281				416	230
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	281				416	230
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				90	99
cM capacity (veh/h)	1282				585	809

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	170	281	69
Volume Left	16	0	58
Volume Right	0	101	11
cSH	1282	1700	612
Volume to Capacity	0.01	0.17	0.11
Queue Length 95th (m)	0.3	0.0	2.9
Control Delay (s)	0.8	0.0	11.6
Lane LOS	A		B
Approach Delay (s)	0.8	0.0	11.6
Approach LOS			B

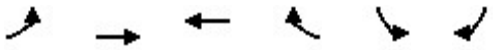
Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	30.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	130	113	26	105	28
Future Volume (Veh/h)	10	130	113	26	105	28
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	141	123	28	114	30
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	151				300	137
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	151				300	137
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				83	97
cM capacity (veh/h)	1430				686	911

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	152	151	144
Volume Left	11	0	114
Volume Right	0	28	30
cSH	1430	1700	723
Volume to Capacity	0.01	0.09	0.20
Queue Length 95th (m)	0.2	0.0	5.6
Control Delay (s)	0.6	0.0	11.2
Lane LOS	A		B
Approach Delay (s)	0.6	0.0	11.2
Approach LOS			B

Intersection Summary			
Average Delay		3.8	
Intersection Capacity Utilization		29.3%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	142	166	115	51	21
Future Volume (Veh/h)	29	142	166	115	51	21
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	154	180	125	55	23
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	305				460	242
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	305				460	242
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				90	97
cM capacity (veh/h)	1256				545	796

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	186	305	78
Volume Left	32	0	55
Volume Right	0	125	23
cSH	1256	1700	601
Volume to Capacity	0.03	0.18	0.13
Queue Length 95th (m)	0.6	0.0	3.4
Control Delay (s)	1.6	0.0	11.9
Lane LOS	A		B
Approach Delay (s)	1.6	0.0	11.9
Approach LOS			B

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		