Traffic Analysis Report

Trafalgar Road (RR3) Transportation Corridor Improvements from Steeles Avenue to Highway 7

Class Environmental Assessment Study

Halton Hills, Ontario

Prepared For: Halton Region

COMMUNITIES
TRANSPORTATION
BUILDINGS
INFRASTRUCTURE

MMM GROUP

May 2016 3214006-000

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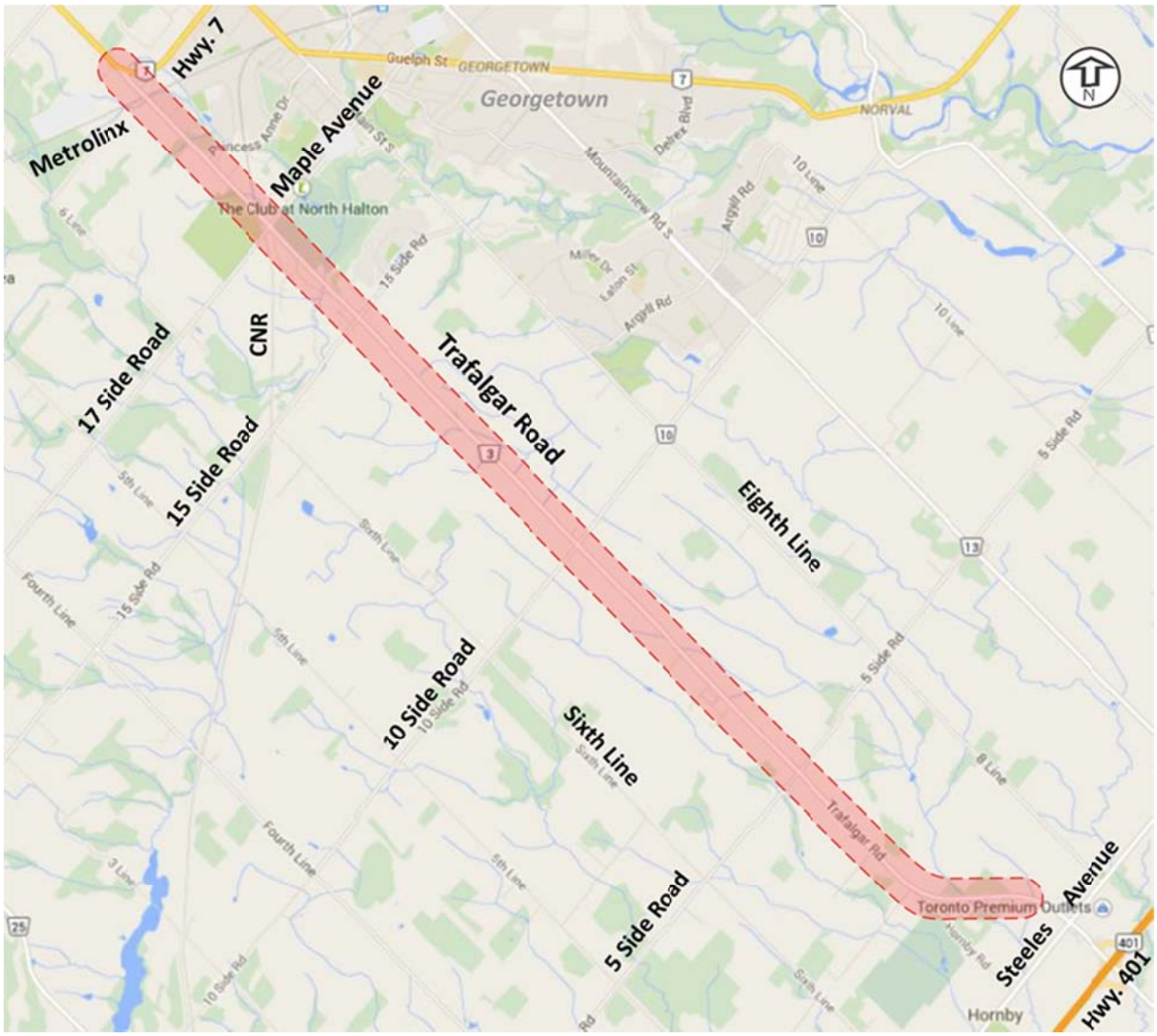
1.0 INTRODUCTION

Halton Region (the Region) retained MMM Group Limited to undertake a Preliminary Design and Class Environmental Assessment (Class EA) Study for improvements to Trafalgar Road between Steeles Avenue and Highway 7 in the Town of Halton Hills. The project limits are illustrated below in **Figure 1**.

Figure 1 Trafalgar Road Class EA Study Limits



The Region initiated the *Class EA Study for Trafalgar Road between 10 Side Road (Regional Road 10) and Highway 7* in 2003. Other planning studies were underway at the time and these included *Sustainable Halton*, the *Halton-Peel Boundary Area Transportation Study* and the

Greater Toronto (GTA) West Corridor Study. In 2009, the Class EA for Trafalgar Road was discontinued until these planning studies were completed and could provide an understanding of the impacts on the Trafalgar Road corridor. That Class EA Study had identified widening and bypass alternatives that were also considered as part of the current Trafalgar Road Class EA study. As a result of discontinuing the 2003 Class EA, the Region carried out the *Trafalgar Road Short-Term Intersection & Operations Review Study* in 2010 to address current and short-term needs. That study identified recommendations for operational improvements at the intersections with 5 and 10 Side Roads as well as a number of safety and speed management initiatives between 15 Side Road and 20 Side Road. The intersection improvements at 5 Side Road have already been constructed.

The need to widen Trafalgar Road was most recently established by the *2011 Halton Transportation Master Plan - The Road to Change 2031*. The Halton Region transportation demand forecasting model underwent a major update as part of the 2011 Transportation Master Plan development to support the Sustainable Halton exercise that led to ROPA 38 and the current Transportation Master Plan. The demand forecasting model incorporates the approved Best Planning Estimates (BPE v3.032) land use and the final improvements phasing plan outlined in the Transportation Master Plan and the *Halton Region Roads Capital Projects (2012-2031)* list. The widening from two to four lanes is planned to commence in the south (from Steeles Avenue to 10 Side Road) in 2019 and in the north (10 Side Road to Highway 7) in 2020. The anticipated road improvements also include potential grade separations at the Canadian National Railway and Metrolinx Railway crossings between 17 Side Road/Maple Avenue and Highway 7.

The current Class EA Study considers a range of alternative transportation improvements to satisfy projected travel demand on Trafalgar Road between Steeles Avenue and Highway 7. Detailed traffic analysis establishes improvement requirements from the perspective of operating performance and that analysis is documented in this *Traffic Analysis Report*. Consideration of road safety performance in the context of the safety review that was undertaken as part of the *Trafalgar Road Short Term Intersection & Operations Review*, the *Comprehensive Road Safety Action Plan* (CROSAP) screening results and the most recent available collision data summaries provided by the Region, is also documented in this *Traffic Analysis Report*.

The traffic analysis adopts available weekday peak hour turning movement volumes as a baseline condition for the purpose of building future demand projections and confirming the requirement for corridor improvements within the study limits. Available intersection turning movement data and mid-block inventory counts were rationalized to establish baseline travel demand for the purpose of assessing existing operating performance. Traffic growth to 2031 was assessed on the basis of growth rates derived from a comparison of screenline and corridor travel demand identified by the Region's travel demand forecasting models for a base year of

2011 and planning horizons of 2016 and 2031. The Region's modelling procedures reflect the influence of anticipated future trip-making trends, including mode choice and auto occupancy and therefore, these factors are reflected in the forecast turning movement volumes.

Capacity and level of service analysis establishes intersection operating performance during the weekday peak hours. Capacity analysis reflects the methodologies incorporated in the *Synchro 8* intersection analysis procedures and vehicular delay and corresponding levels of service and queuing impacts are modelled on the *Vissim* microsimulation platform to establish network operational deficiencies and appropriate mitigation strategies. Analysis of existing operating performance reflects current lane geometry and intersection traffic control. Future intersection operating performance to a 2031 planning horizon is assessed for a *Do Nothing* alternative to establish the need and justification for alternative long-term improvement strategies and to provide input to the problem and opportunity statement. The benefits of traffic control improvements have been considered as the basis for a non-structural improvement strategy for the *Do Nothing* alternative while impacts that cannot be resolved in this manner provide the basis for the need and justification for structural improvements. Future impacts are reassessed for an alternative that reflects the delivery of the transportation infrastructure improvements as programmed in the *Halton Region Roads Capital Projects (2014-2031)* list. Programmed improvements include the widening of Trafalgar Road from two to four lanes as described above.

It is relevant to point out that fully understanding the impact of the *Do Nothing* alternative required a tiered analysis approach. Assessment that will be described later in the report will demonstrate that the modelled 10 Side Road intersection capacity constraints (using microsimulation) restrict the flow of traffic to downstream intersections, particularly in the northbound direction during the afternoon peak hour. As a result, the impacts at the downstream intersections are not fully represented. To overcome this, a second tier of microsimulation modelling was undertaken to evaluated the impacts related to a *Do Nothing* alternative for those downstream intersections north of 10 Side Road. That analysis incorporated a widening of Trafalgar Road to 4 lanes to north of 10 Side Road to ensure that the projected demand reached the downstream intersections from 15 Side Road northerly.

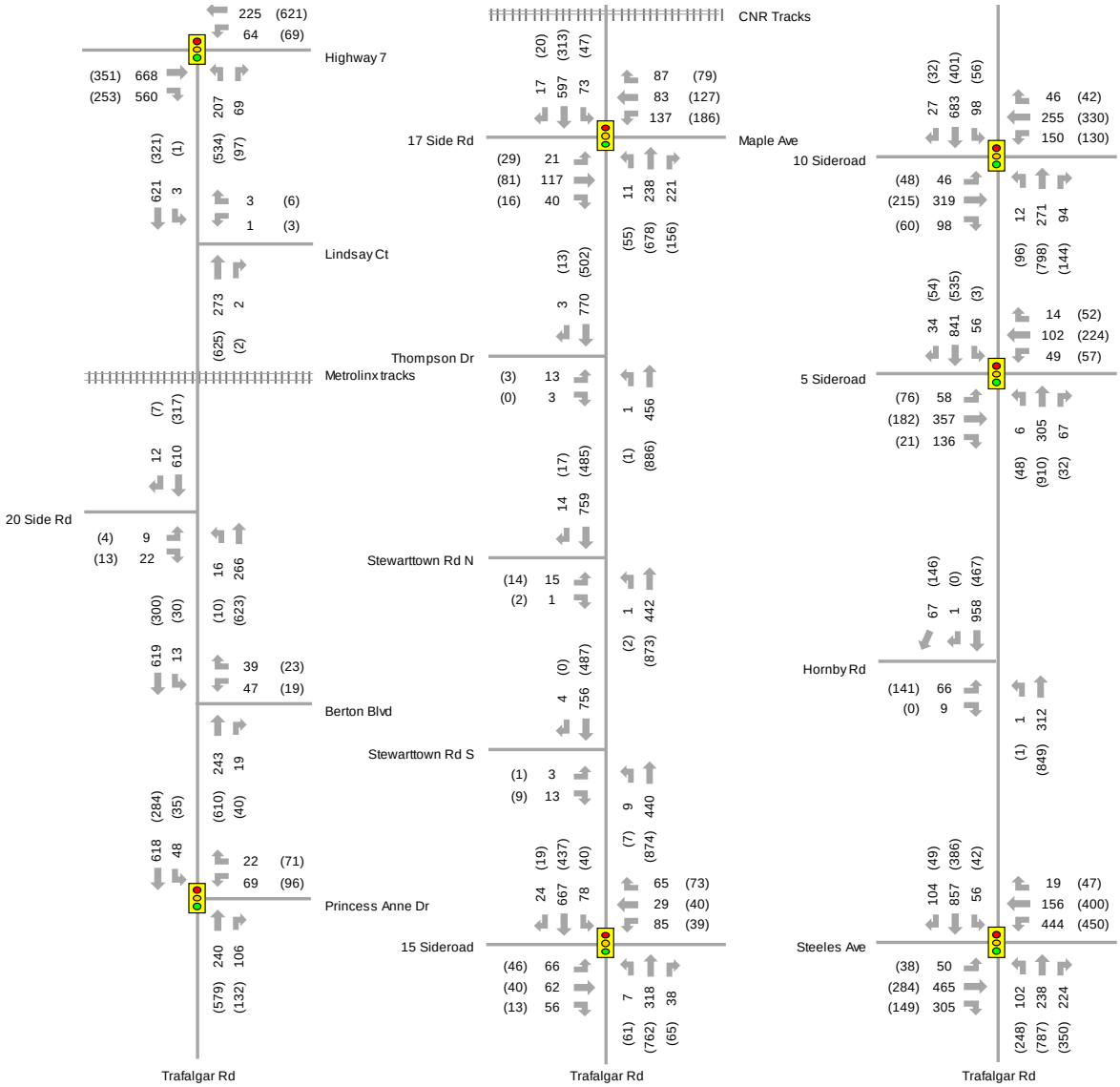
An assessment of the appropriate railroad crossing treatments for the existing at-grade crossings of the Canadian National Railway north of 17 Side Road/Maple Avenue and the Metrolinx Railway north of 20 Side Road reflects available daily railway and roadway traffic volumes and projected growth. This assessment considers the railway crossing index at each location and the established thresholds for grade separations.

2.0 EXISTING CONDITIONS

2.1 Existing Traffic Volumes

Intersection turning movement data provided by the Region reflects demand recorded in April/ May 2013 or April 2014. Available historical turning movement data collected between 2010 and 2012 and mid-block traffic data collected between 2012 and 2014 was reviewed to validate the most recent intersection turning movement volumes. The available turning movement volumes were balanced to the peak observed corridor travel demand and the corresponding weekday morning and afternoon peak hour volumes are summarized below in **Figure 2**.

Figure 2 Existing Weekday AM(PM) Peak Hour Turning Movement Volumes



2.2 Intersection Operating Performance

Current operating performance was assessed on the basis of signalized intersection capacity utilization as well as average delay and queuing impacts at all intersections. Capacity analysis was undertaken using *Synchro 8* and the delay and queuing impacts reflect output from detailed microsimulation using *Vissim*. The level of service analysis reflects the current intersection lane geometry and traffic control and a summary of the weekday peak hour operating performance is provided below in **Table 1**.

Table 1 Existing Operating Performance

Intersection and Movement	Levels of Service							
	AM Peak Hour				PM Peak Hour			
	V/C	Delay	LOS	Queue[1]	V/C	Delay	LOS	Queue[1]
Trafalgar Rd at Hornby Road								
Eastbound Left/Right	-	25/25 s	D/D	18 m	-	53/0 s	F/A	47 m
Northbound Left/Through	-	1/1 s	A/A	0 m	-	1/1 s	A/A	0 m
Southbound Through/Right	-	5/5 s	A/A	0 m	-	2/2 s	A/A	0 m
Trafalgar Rd at 5 Side Road								
Eastbound Left	0.15	24 s	C	15 m	0.33	32 s	C	20 m
Eastbound Through	0.63	24 s	C	58 m	0.37	24 s	C	36 m
Eastbound Right	0.24	7 s	A	10 m	0.05	4 s	A	4 m
Westbound Left	0.23	32 s	C	14 m	0.18	30 s	C	13 m
Westbound Through/Right	0.21	21/10 s	C/A	20 m	0.56	26/18 s	C/B	49 m
Northbound Left	0.02	13 s	B	0 m	0.11	13 s	B	6 m
Northbound Through/Right	0.31	14/9 s	B/A	36 m	0.57	12/9 s	B/A	52 m
Southbound Left	0.11	13 s	B	6 m	0.01	15 s	B	0 m
Southbound Through/Right	0.58	14/9 s	B/A	47 m	0.42	13/8 s	B/A	34 m
Trafalgar Rd at 10 Side Road								
Eastbound Left	0.21	32 s	C	9 m	0.45	44 s	D	15 m
Eastbound Through/Right	0.87	30/26 s	C/C	75 m	0.72	32/23 s	C/C	56 m
Westbound Left	1.00	187 s	F	129 m	0.85	77 s	E	60 m
Westbound Through	0.53	35 s	D	126 m	0.83	34 s	C	80 m
Westbound Right	0.10	20 s	C	6 m	0.11	21 s	C	6 m
Northbound Left	0.04	17 s	B	0 m	0.21	28 s	C	13 m
Northbound Through/Right	0.53	21/15 s	C/B	66 m	1.00	31/29 s	C/C	235 m
Southbound Left	0.20	14 s	B	13 m	0.36	21 s	C	6 m
Southbound Through/Right	0.78	17/13 s	B/B	90 m	0.52	13/11 s	B/B	47 m
Trafalgar Rd at 15 Side Road								
Eastbound Left/Through/Right	0.75	34/35/23 s	C/D/C	38 m	0.53	34/35/16 s	C/D/B	22 m
Westbound Left/Through	0.75	52/44 s	D/D	37 m	0.42	36/33 s	D/C	19 m
Westbound Right	0.23	8 s	A	6 m	0.28	14 s	B	6 m
Northbound Left	0.02	17 s	B	0 m	0.10	13 s	B	6 m
Northbound Through/Right	0.35	9/7 s	A/A	40 m	0.66	10/10 s	B/B	82 m
Southbound Left	0.13	12 s	B	9 m	0.13	18 s	B	6 m
Southbound Through/Right	0.62	9/7	A/A	68 m	0.37	5/4 s	A/A	27 m

Note: 1. Queue length reflects 95th percentile conditions

Table 1 Existing Operating Performance (Continued)

Intersection and Movement	Levels of Service							
	AM Peak Hour				PM Peak Hour			
	V/C	Delay	LOS	Queue[1]	V/C	Delay	LOS	Queue[1]
Trafalgar Rd at Stewarttown Road South								
Eastbound Left/Right	-	27/12 s	D/B	6 m	-	15/8 s	B/A	3 m
Northbound Left/Through	-	7/1 s	A/A	0 m	-	3/1 s	A/A	0 m
Southbound Through/Right	-	1/1 s	A/A	0 m	-	0/0 s	A/A	0 m
Trafalgar Rd at Stewarttown Road North								
Eastbound Left/Right	-	19/6 s	C/A	6 m	-	27/5 s	D/A	5 m
Northbound Left/Through	-	2/0 s	A/A	0 m	-	2/1 s	A/A	0 m
Southbound Through/Right	-	1/1 s	A/A	0 m	-	0/1 s	A/A	0 m
Trafalgar Rd at Thompson Drive								
Eastbound Left/Right	-	21/12 s	D/B	5 m	-	38/0 s	E/A	0 m
Northbound Left/Through	-	4/0 s	A/A	0 m	-	1/3 s	A/A	9 m
Southbound Through/Right	-	0/1 s	A/A	0 m	-	0/0 s	A/A	0 m
Trafalgar Rd at 17 Side Road/Maple Ave								
Eastbound Left/Through/Right	0.66	36/34/21 s	D/C/C	38 m	0.56	33/32/17 s	C/C/B	24 m
Westbound Left	0.44	25 s	C	28 m	0.48	25 s	C	33 m
Westbound Through/Right	0.32	24/11 s	C/B	28 m	0.38	22/16 s	C/B	31 m
Northbound Left	0.05	18 s	B	1 m	0.12	17 s	B	10 m
Northbound Through	0.34	12 s	B	32 m	0.83	15 s	B	127 m
Northbound Right	0.31	5 s	A	17 m	0.20	5 s	A	10 m
Southbound Left	0.13	13 s	B	9 m	0.18	15 s	B	6 m
Southbound Through/Right	0.69	13/9 s	B/A	67 m	0.36	11/8 s	B/A	34 m
Trafalgar Rd at Princess Anne Drive								
Westbound Left	0.35	24 s	C	18 m	0.43	32 s	C	24 m
Westbound Right	0.12	4 s	A	6 m	0.27	9 s	A	6 m
Northbound Through	0.21	5 s	A	15 m	0.43	7 s	A	46 m
Northbound Right	0.11	3 s	A	6 m	0.11	4 s	A	6 m
Southbound Left	0.07	6 s	A	5 m	0.06	12 s	B	4 m
Southbound Through	0.51	5 s	A	30 m	0.22	5 s	A	16 m
Trafalgar Rd at Berton Boulevard								
Westbound Left	-	22 s	D	12 m	-	17 s	C	11 m
Westbound Right	-	7 s	A	10 m	-	12 s	B	9 m
Northbound Through	-	0 s	A	0 m	-	1 s	A	0 m
Northbound Right	-	1 s	A	0 m	-	1 s	A	0 m
Southbound Left	-	2 s	A	0 m	-	5 s	A	6 m
Southbound Through	-	0 s	A	0 m	-	0 s	A	0 m
Trafalgar Rd at 20 Side Road								
Eastbound Left/Right	-	21/19 s	D/C	12 m	-	16/8 s	C/A	6 m
Northbound Left/Through	-	6/1 s	A/A	2 m	-	2/0 s	A/A	0 m
Southbound Through/Right	-	0/0 s	A/A	0 m	-	0/0 s	A/A	0 m

Note: 1. Queue length reflects 95th percentile conditions

Table 1 Existing Operating Performance (Continued)

Intersection and Movement	Levels of Service							
	AM Peak Hour				PM Peak Hour			
	V/C	Delay	LOS	Queue[1]	V/C	Delay	LOS	Queue[1]
Trafalgar Rd at Lindsay Court								
Westbound Left/Right	-	13/6 s	B/A	0 m	-	19/20 s	C/C	2 m
Northbound Through Right	-	0/0 s	A/A	0 m	-	3/0 s	A/A	0 m
Southbound Left/Through	-	2/1 s	A/A	0 m	-	1/0 s	A/A	0 m
Trafalgar Rd at Highway 7								
Eastbound Through	0.44	9 s	A	26 m	0.29	10 s	B	19 m
Eastbound Right	0.57	5 s	A	0 m	0.37	3 s	A	0 m
Westbound Left	0.21	17 s	B	11 m	0.20	15 s	B	11 m
Westbound Through	0.15	7 s	A	13 m	0.50	10 s	B	26 m
Northbound Left	0.62	21 s	C	38 m	0.94	47 s	D	190 m
Northbound Right	0.18	8 s	A	8 m	0.17	20 s	B	7 m

Note: 1. Queue length reflects 95th percentile conditions

The summary presented in **Table 1** demonstrates that for all stop-controlled intersections, all major street movements operate with levels of service (LOS) A during the morning and afternoon peak hours. All side-street through and right-turn movements at these locations operate with LOS B or better and all side-street left-turn movements operate with LOS D or better with the following exceptions:

- The eastbound right-turn movement from Hornby Road operates with a LOS D during the morning peak hour. A total of only 9 right-turning vehicles manoeuvre from the lane shared with left-turning traffic.
- A total of only 3 eastbound left-turning vehicles from Thompson Drive experience a LOS E during the afternoon peak hour.
- The eastbound left-turn movement from Hornby Road operates with a LOS F during the afternoon peak hour when the demand exceeds 140 vehicles.

The summary presented in **Table 1** demonstrates that for all signalized intersections, all through and right-turn movements operate with volume-to-capacity ratios of no more than 0.85 and all left-turn movements operate with volume-to-capacity ratios of no more than 0.95 with the following exceptions:

- The shared eastbound through/right-turn movement at 10 Side Road operates with volume-to-capacity ratio of 0.87 and the westbound left-turn movement operates at capacity during the morning peak hour. Capacity utilization for the westbound left-turn movement indicates that it is operating at capacity. Measures of operating performance reflect assumptions related to driver behaviour and, therefore, in the case of more aggressive driver behaviour, the assessed capacity on the basis of typical behaviour may be understated, resulting in a

reported over-capacity condition. The important factor here is that the left-turn manoeuvre can be assumed to be operating at capacity.

- The shared northbound through/right-turn movement at 10 Side Road operates at capacity during the afternoon peak hour.
- The westbound double left-turn lanes from Steeles Avenue operate at capacity during the morning peak hour.

The summary presented in **Table 1** demonstrates that for all signalized intersections, all through and right-turn movements operate with LOS C or better and all left-turn movements operate with LOS E or better with the following exceptions:

- The eastbound and westbound through movements at 15 Side Road operate with LOS D during the morning peak hour. The eastbound through movement at this location also operates with a LOS D during the afternoon peak hour.
- The eastbound through and westbound left-turn movements at 10 Side Road operate with LOS D and F, respectively during the morning peak hour. The westbound left-turn movement operates with a LOS E during the afternoon peak hour.
- The eastbound through, northbound left-turn and westbound left-turn movements at Steeles Avenue operate with LOS D, E and F, respectively during the morning and afternoon peak hours. Morning peak hour impacts also include a southbound through movement LOS D.

2.3 Summary

Operating performance at 10 Side Road reflects capacity constraints during each of the peak hours and on the basis of the afternoon peak hour impacts, supports the need for additional capacity on Trafalgar Road. The westbound double left turn movement from Steeles Avenue is approaching capacity during the afternoon peak hour and is operating at capacity during the morning peak hour. The most noticeable stop-controlled intersection level of service impacts under existing conditions include longer delays (LOS F) for left-turning traffic from Hornby Road.

3.0 FUTURE CONDITIONS

3.1 Travel Demand Forecasts

Traffic volume projections were established based on growth rates derived from the Region's 2011, 2016 and 2031 weekday afternoon peak hour demand forecasting models, which incorporate the final approved BPE v3.032 land use (council approved in July 2011) as well as the final improvements phasing plan outlined in the *Halton Transportation Master Plan*. The most recent available intersection and mid-block traffic volume counts reflect conditions in 2014. Therefore, growth rates considered for the purpose demand forecasting were established relative to 2014 conditions so that they could be applied, accordingly. Predicted travel demand for 2014 was interpolated between the modelled 2011 and 2016 forecasts and compound average annual growth rates were established based on the interpolated 2014 demand and the modelled 2031 forecasts. These rates were applied to the existing (2014) turning movement volumes to derive projected turning movement volumes to the project's 2031 planning horizon.

Growth rates were established on the basis of screenline travel demand forecasts as well as projected link volumes along Trafalgar Road. Screenline travel demand forecasts are typically more reliable than individual link volume forecasts because the demand forecasting model is calibrated to these aggregated volumes. However, a review of link volumes was also undertaken to ensure that projected growth would not be understated. Travel demand forecasts from the Region's model are summarized for five screenlines and for each of the base year and future planning horizons in **Table 2**.

Table 2 Weekday PM Peak Hour Screenline Travel Demand

Screenline	Planning Horizon				Traffic Growth Rate 2014 to 2031
	2011	*2014*	2016	2031	
Northbound					
North of Steeles Avenue (Fourth Line to Trafalgar Road)	2,433	*3,242*	3,782	4,012	1.26%
South of 10 Side Road (Trafalgar Road to Winston Churchill Boulevard)	3,246	*3,677*	3,964	5,478	2.37%
North of 10 Side Road (Trafalgar Road to Winston Churchill Boulevard)	3,961	*4,415*	4,715	6,987	2.74%
South of 15 Side Road (Trafalgar Road to Guelph Street)	3,362	*3,501*	3,592	4,670	1.71%
South of 17 Side Road/Maple Ave (Trafalgar Road to Mountainview Road)	3,064	*3,266*	3,400	4,329	1.67%
Southbound					
North of Steeles Avenue (Fourth Line to Trafalgar Road)	1,623	*2,296*	2,744	3,640	2.75%
South of 10 Side Road (Trafalgar Road to Winston Churchill Boulevard)	1,570	*1,749*	1,867	2,784	2.77%
North of 10 Side Road (Trafalgar Road to Winston Churchill Boulevard)	2,246	*2,397*	2,499	4,093	3.20%
South of 15 Side Road (Trafalgar Road to Guelph Street)	2,610	*2,739*	2,825	4,149	2.47%
South of 17 Side Road/Maple Ave (Trafalgar Road to Mountainview Road)	2,243	*2,369*	2,453	3,124	1.64%
Combined Direction					
North of Steeles Avenue (Fourth Line to Trafalgar Road)	4,056	*5,538*	6,526	7,652	1.92%
South of 10 Side Road (Trafalgar Road to Winston Churchill Boulevard)	4,816	*5,426*	5,831	8,262	2.50%
North of 10 Side Road (Trafalgar Road to Winston Churchill Boulevard)	6,207	*6,812*	7,214	11,080	2.90%
South of 15 Side Road (Trafalgar Road to Guelph Street)	5,972	*6,240*	6,417	8,819	2.06%
South of 17 Side Road/Maple Ave (Trafalgar Road to Mountainview Road)	5,307	*5,635*	5,853	7,453	1.66%

The screenline travel demand summaries identify estimated 2014 travel demand based on the interpolation described above, as input to establishing the 2014 to 2031 compound average annual traffic growth rates. The screenline travel demand forecasts to 2031 support the study adopting a compound growth rate application of 2.5% per annum to the existing Trafalgar Road intersection turning movement volumes from Steeles Avenue to north of 10 Side Road. The screenline projections identified for south of 17 Side Road/Maple Avenue in both directions and for south of 15 Side Road in the northbound direction reflect a lower growth rate of 1.7% per annum to 2031. However, on the basis of where these most northerly screenlines are located relative to the Georgetown community, Trafalgar Road provides the most opportunity for through travel and can be expected to draw a greater proportion of the growth in comparison to the adjacent screenline links on Eighth Line, Ninth Line/Mountainview Road and Guelph Street. The corridor travel demand forecasts for Trafalgar Road are summarized in **Table 3**.

Table 3 Weekday PM Peak Hour Trafalgar Road Corridor Travel Demand

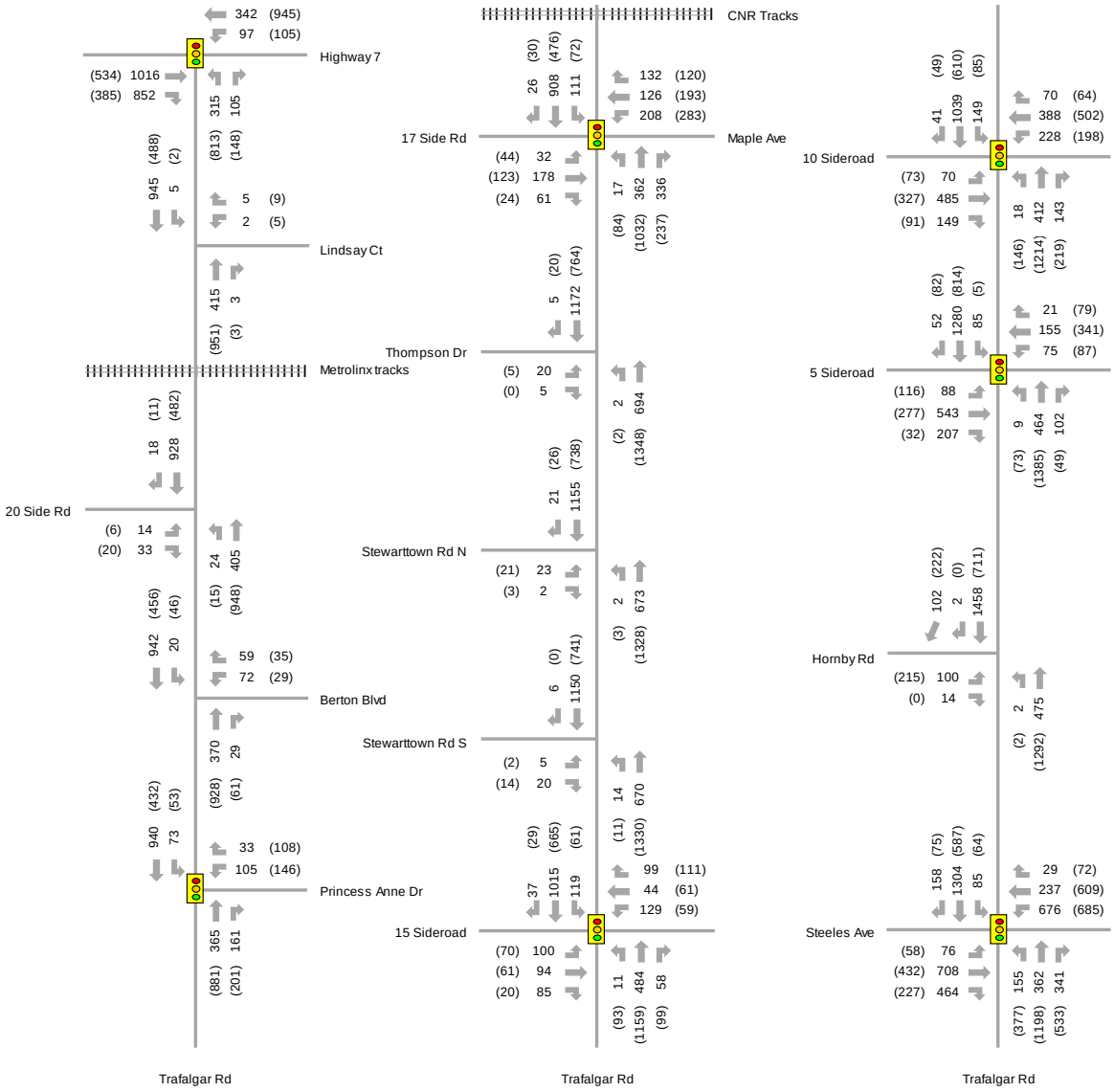
Screenline	Planning Horizon				Traffic Growth Rate 2014 to 2031
	2011	*2014*	2016	2031	
Northbound					
North of Steeles Avenue	936	*881*	825	1,076	1.2%
North of Hornby Road	976	*976*	975	1,392	2.1%
South of 10 Side Road	728	*759*	789	1,680	4.8%
South of 15 Side Road	731	*760*	789	1,291	3.2%
South of 17 Side Road/Maple Avenue	914	*971*	1,028	1,627	3.1%
North of 17 Side Road/Maple Avenue	697	*735*	773	1,139	2.6%
South of Highway 7	731	*787*	873	1,122	2.1%
Southbound					
North of Steeles Avenue	558	*513*	468	873	3.2%
North of Hornby Road	706	*672*	637	1,155	3.2%
South of 10 Side Road	550	*587*	623	927	2.7%
South of 15 Side Road	543	*549*	555	1,456	5.9%
South of 17 Side Road/Maple Avenue	643	*694*	745	1,510	4.7%
North of 17 Side Road/Maple Avenue	583	*592*	600	960	2.9%
South of Highway 7	652	*658*	664	979	2.4%
Combined Direction					
North of Steeles Avenue	1,494	*1,394*	1,293	1,949	2.0%
North of Hornby Road	1,682	*1,647*	1,612	2,547	2.6%
South of 10 Side Road	1,278	*1,345*	1,412	2,607	4.0%
South of 15 Side Road	1,274	*1,309*	1,344	2,747	4.5%
South of 17 Side Road/Maple Avenue	1,557	*1,665*	1,773	3,137	3.8%
North of 17 Side Road/Maple Avenue	1,280	*1,327*	1,373	2,099	2.7%
South of Highway 7	1,383	*1,445*	1,507	2,101	2.2%

Based on the rates outlined in **Table 3**, predicted corridor traffic growth supports a higher growth rate than that based on the screenline analysis. **Based on these conditions and notwithstanding the typical approach of applying screenline rather than specific corridor**

traffic growth rates, it is reasonable to adopt of the 2.5% growth rate established on the basis of the screenline analysis, to the entire Trafalgar Road corridor from Steeles Avenue to Highway 7, for the purpose of predicting future travel demand.

We have projected 2031 turning movement volumes throughout the project limits based on the adopted 2.5% compound average annual growth rate for the Trafalgar Road corridor. The corresponding 2031 turning movement forecasts are summarized below in **Figure 3**.

Figure 3 2031 Weekday Peak Hour Turning Movement Volumes



Note: During preliminary design, it was determined the Stewarttown Road South intersection will become a cul-de-sac due to grade differences between the new profile of Trafalgar Road and Stewarttown Road South.

3.2 Future (2031) Operating Performance: Do Nothing (Without Physical Improvements)

3.2.1 Level of Service Analysis

The existing conditions analysis summarized in **Section 2.2** confirms the requirement for additional capacity on Trafalgar Road at 10 Side Road on the basis of current capacity constraints during the afternoon peak hour. However, the level of service analysis for future conditions first considers potential traffic impacts on the basis of a *Do Nothing* scenario to assess the extent of future impacts without any physical improvement strategy. The operating performance summarized in **Table 4** reflects the existing lane geometry throughout the project limits with the exception of the planned and approved widening of Steeles Avenue to six lanes, which is programmed for completion by 2031. The analysis also incorporates suitable revisions to signal timings at currently signalized intersections. Detailed signalized intersection capacity analysis output is included in **Technical Appendix A**.

We note that, as part of the network microsimulation, the predicted capacity constraints at 10 Side Road restrict traffic flow towards downstream intersections. As a result, the queuing and delay impacts at intersections north of 10 Side Road, particularly in the northbound direction, would not be fully represented as a portion of the forecast traffic volume is held up at 10 Side Road and does not reach those intersections. In order to fully represent the future impacts throughout the network, the analysis for the intersections north of 10 Side Road has been carried out assuming that the capacity constraint at 10 Side Road were to be relieved.

Table 4 2031 Operating Performance: Do Nothing

Intersection and Movement	Levels of Service							
	AM Peak Hour				PM Peak Hour			
	V/C	Delay	LOS	Queue[1]	V/C	Delay	LOS	Queue[1]
Trafalgar Rd at Hornby Road								
Eastbound Left/Right	-	227/218 s	F/F	118 m	-	1304/0 s	F/A	913 m
Northbound Left/Through	-	11/1 s	B/A	0 m	-	110/102 s	F/F	1482 m
Southbound Through/Right	-	13/12 s	B/B	0 m	-	6/5 s	A/A	0 m
Trafalgar Rd at 5 Side Road								
Eastbound Left	0.22	33 s	C	29 m	0.80	86 s	F	61 m
Eastbound Through	0.83	33 s	C	196 m	0.49	27 s	C	82 m
Eastbound Right	0.32	11 s	B	21 m	0.06	4 s	A	7 m
Westbound Left	0.72	59 s	E	39 m	0.33	46 s	D	37 m
Westbound Through/Right	0.28	23/13 s	C/B	49 m	0.74	51/60 s	D/E	167 m
Northbound Left	0.06	23 s	C	13 m	0.26	276 s	F	22 m
Northbound Through/Right	0.46	20/16 s	B/B	80 m	0.83	316/308 s	F/F	3237 m
Southbound Left	0.24	20 s	B	26 m	0.03	34 s	C	5 m
Southbound Through/Right	0.88	25/20 s	C/C	121 m	0.60	22/18 s	C/B	88 m

Note: 1. Queue length reflects 95th percentile conditions

Table 4 2031 Operating Performance: Do Nothing (Continued)

Intersection and Movement	Levels of Service							
	AM Peak Hour				PM Peak Hour			
	V/C	Delay	LOS	Queue[1]	V/C	Delay	LOS	Queue[1]
Trafalgar Rd at 10 Side Road								
Eastbound Left	0.42	534 s	F	27 m	1.57	629 s	F	634 m
Eastbound Through/Right	1.39	528/517 s	F/F	843 m	1.30	507/493 s	F/F	827 m
Westbound Left	1.15	431 s	F	669 m	1.31	243 s	F	481 m
Westbound Through	0.64	221 s	F	669 m	1.03	121 s	F	490 m
Westbound Right	0.14	211 s	F	11 m	0.15	103 s	F	10 m
Northbound Left	0.12	22 s	C	26 m	0.49	527 s	F	1219 m
Northbound Through/Right	0.83	36/29 s	D/C	182 m	1.46	536/530 s	F/F	3260 m
Southbound Left	0.55	124 s	F	489 m	0.87	60 s	E	36 m
Southbound Through/Right	1.28	126/124 s	F/F	1306 m	0.76	22/19 s	C/B	148 m
Trafalgar Rd at 15 Side Road								
Eastbound Left/Through/Right	0.96	84/86/79 s	F/F/E	174 m	0.92	363/367/330 s	F/F/F	239 m
Westbound Left/Through	0.79	197/195 s	F/F	290 m	0.72	118/121 s	F/F	141 m
Westbound Right	0.24	129 s	F	144 m	0.37	76 s	E	83 m
Northbound Left	0.17	45 s	D	7 m	0.21	54 s	D	19 m
Northbound Through/Right	0.55	17/15 s	B/B	128 m	0.95	50/48 s	D/D	661 m
Southbound Left	0.30	28 s	C	29 m	0.94	103 s	F	40 m
Southbound Through/Right	0.98	21/18 s	C/B	328 m	0.54	5/4 s	A/A	53 m
Trafalgar Rd at Stewarttown Road South								
Eastbound Left/Right	-	57/35 s	F/D	7 m	-	110/29 s	F/D	12 m
Northbound Left/Through	-	19/4 s	C/A	52 m	-	22/22 s	C/C	314 m
Southbound Through/Right	-	2/1 s	A/A	0 m	-	1/0 s	A/A	0 m
Trafalgar Rd at Stewarttown Road North								
Eastbound Left/Right	-	51/38 s	F/E	11 m	-	181/16 s	F/C	119 m
Northbound Left/Through	-	15/1 s	C/A	0 m	-	64/64 s	F/F	808 m
Southbound Through/Right	-	1/1 s	A/A	0 m	-	1/1 s	A/A	0 m
Trafalgar Rd at Thompson Drive								
Eastbound Left/Right	-	45/26 s	E/D	7 m	-	43/0 s	E/A	16 m
Northbound Left/Through	-	13/1 s	B/A	1 m	-	60/92 s	F/F	1069 m
Southbound Through/Right	-	0/0 s	A/A	0 m	-	0/0 s	A/A	0 m
Trafalgar Rd at 17 Side Road/Maple Ave								
Eastbound Left/Through/Right	0.88	78/73/64 s	E/E/E	150 m	0.98	208/216/186 s	F/F/F	174 m
Westbound Left	0.86	118 s	F	155 m	1.03	118 s	F	228 m
Westbound Through/Right	0.51	41/27 s	D/C	80 m	0.69	53/48 s	D/D	101 m
Northbound Left	0.22	42 s	D	14 m	0.19	114 s	F	24 m
Northbound Through	0.44	16 s	B	99 m	1.03	110 s	F	1208 m
Northbound Right	0.39	8 s	A	57 m	0.26	101 s	F	23 m
Southbound Left	0.23	28 s	C	30 m	0.47	38 s	D	31 m
Southbound Through/Right	0.92	23/21 s	C/C	279 m	0.46	11/10 s	B/B	88 m

Note: 1. Queue length reflects 95th percentile conditions

Table 4 2031 Operating Performance: Do Nothing (Continued)

Intersection and Movement	Levels of Service							
	AM Peak Hour				PM Peak Hour			
	V/C	Delay	LOS	Queue[1]	V/C	Delay	LOS	Queue[1]
Trafalgar Rd at Princess Anne Drive								
Westbound Left	0.48	33 s	C	38 m	0.60	34 s	C	55 m
Westbound Right	0.16	7 s	A	9 m	0.35	16 s	B	21 m
Northbound Through	0.30	6 s	A	48 m	0.73	10 s	A	110 m
Northbound Right	0.15	4 s	A	16 m	0.19	6 s	A	16 m
Southbound Left	0.10	10 s	A	13 m	0.19	22 s	C	11 m
Southbound Through	0.71	7 s	A	78 m	0.38	6 s	A	37 m
Trafalgar Rd at Berton Boulevard								
Westbound Left	-	138 s	F/C	60 m	-	34 s	D	12 m
Westbound Right	-	18 s	A	10 m	-	19 s	C	10 m
Northbound Through	-	1 s	A	0 m	-	1 s	A	0 m
Northbound Right	-	1 s	A	0 m	-	1 s	A	0 m
Southbound Left	-	3 s	A	0 m	-	10 s	B	7 m
Southbound Through	-	0 s	A	0 m	-	0 s	A	0 m
Trafalgar Rd at 20 Side Road								
Eastbound Left/Right	-	84/69 s	F/F	44 m	-	39/13 s	E/B	7 m
Northbound Left/Through	-	21/4 s	C/A	37 m	-	5/1 s	A/A	0 m
Southbound Through/Right	-	0/0 s	A/A	0 m	-	0/0 s	A/A	0 m
Trafalgar Rd at Lindsay Court								
Westbound Left/Right	-	52/11 s	F/B	0 m	-	32/21 s	D/C	4 m
Northbound Through Right	-	0/1 s	A/A	0 m	-	2/1 s	A/A	0 m
Southbound Left/Through	-	2/1 s	A/A	0 m	-	3/0 s	A/A	0 m
Trafalgar Rd at Highway 7								
Eastbound Through	0.69	12 s	B	53 m	0.50	20 s	B	52 m
Eastbound Right	0.76	8 s	A	0 m	0.53	4 s	A	0 m
Westbound Left	0.63	31 s	C	28 m	0.49	35 s	C	32 m
Westbound Through	0.24	8 s	A	29 m	0.88	22 s	C	80 m
Northbound Left	0.75	24 s	C	69 m	0.94	28 s	C	204 m
Northbound Right	0.25	11 s	B	20 m	0.18	15 s	B	17 m

Note: 1. Queue length reflects 95th percentile conditions

A summary of the critical study area network and intersection level of service and queuing impacts is outlined below:

- Critical through movement travel demand on Trafalgar Road at 10 Side Road is expected to exceed available capacity by 30 to 45% during the morning and afternoon peak hours.
- Afternoon peak hour capacity constraints at 10 Side Road result in northbound vehicle queues extending more than 6 km. Queues on the 10 Side Road approaches to Trafalgar Road extend 500 to over 800 m and average delays for northbound and eastbound traffic are 16 and 9 minutes, respectively. All northbound, eastbound and westbound movements operate with a LOS F and these conditions are clearly prohibitive.

- Morning peak hour capacity constraints at 10 Side Road result in southbound vehicle queues that extend 1.3 km. Queues on the 10 Side Road approaches to Trafalgar Road extend 670 to 850 m. Average delay for southbound traffic is more than 2 minutes and side-street delays range between 8 and 9 minutes. All southbound, eastbound and westbound movements operate with a LOS F and these conditions are also clearly prohibitive.
- The capacity analysis demonstrates that all volume-to-capacity ratios at the 5 Side Road intersection are less than 0.85 with the exception of a morning peak hour volume-to-capacity ratio of 0.88 for the shared southbound/right-turn lane group.
- Despite sufficient capacity with the recent widening of Trafalgar Road to four lanes at 5 Side Road, the capacity constraints at 10 Side Road result in afternoon peak hour northbound queues extending more than 3 km beyond 5 Side Road. Corresponding average delays of up to 7 minutes through the 5 Side Road intersection are the direct result of the impacts at 10 Side Road. Afternoon peak hour operating performance reflects a LOS F for northbound and eastbound left-turn movements and northbound through/right-turn movements. Westbound right-turn movements are expected to operate with LOS E during the afternoon peak hour. All other movements at the 5 Side Road intersection are expected to operate at LOS D or better during the morning and afternoon peak hours with the exception of a morning peak hour westbound left-turn LOS E.
- Northbound queues on the approach to 10 Side Road extend beyond Hornby Road during the afternoon peak hour, and, therefore, the capacity of the Hornby Road approach is severely constrained. Left-turning traffic is unable to proceed through the intersection on to Trafalgar Road, resulting in queue lengths of 900 m and corresponding average delays of more than 20 minutes.
- Each of the northbound through, westbound left-turn and eastbound lanes at 17 Side Road/Maple Avenue is expected to operate at capacity during the afternoon peak hour with volume-to-capacity ratios of between 0.98 and 1.03. Average vehicle delays of 110 to 220 seconds reflect an afternoon peak hour LOS F on the eastbound and northbound approaches and for the westbound left-turn movement. Note that the northbound delay reflects impacts between 15 and 17 Side Roads only and that with queues that extend more than 650 m beyond 15 Side Road, there are corresponding incremental delays in this direction. Operating performance during the morning peak hour reflects critical movement volume-to-capacity ratios of 0.86 to 0.92 and average vehicle delays reflect a morning peak hour LOS E on the eastbound approach and a LOS F for the westbound left-turn movement. All other movements are expected to operate with a LOS D or better during the peak hours. Supplementary analysis demonstrated that while a separate eastbound left-turn lane addresses side street level of service impacts, operating constraints on Trafalgar Road remain unaddressed based on the current Trafalgar Road cross-section at this location.

- Capacity utilization at the traffic signal-controlled intersection at 15 Side Road reflects volume-to-capacity ratios of 0.92 to 0.98 and, hence, this intersection is expected to operate at capacity during the morning and afternoon peak hours. Average vehicle delays reflect morning and afternoon peak hour LOS F on the eastbound and westbound approaches with the exception of an afternoon peak hour westbound right-turn LOS E. The analysis also predicts an afternoon peak hour LOS F for the southbound left-turn movement. All other movements are expected to operate with a LOS D or better during the peak hours. Despite an afternoon peak hour northbound LOS D, the reported queuing impacts reflect the capacity constraint described above for 17 Side Road/Maple Avenue. Supplementary analysis demonstrated that while separate eastbound and westbound left-turn lanes partially address side street level of service impacts, operating constraints on Trafalgar Road remain unaddressed based on the current Trafalgar Road cross-section at this location.
- Capacity utilization at the traffic signal controlled intersections at Princess Anne Drive and Highway 7 reflects volume-to-capacity ratios less than 0.85 with the exception of a northbound left-turn volume-to-capacity ratio of 0.94 and a westbound through volume-to-capacity ratio of 0.88 at Highway 7 during the afternoon peak hour. Corresponding average vehicle delays at the traffic signal controlled intersections at Princess Anne Drive and Highway 7 reflect LOS C or better for all movements.
- Average vehicle delays at the stop-controlled intersections north of 15 Side Road to Highway 7 reflect side-street LOS E or better for left-turn movements and LOS D or better right-turn movements with the following exceptions. Eastbound left-turn movement delays of 50 to 60 seconds at Stewarttown Road North and Stewarttown Road South reflect a LOS F during the morning peak hour. Morning peak hour side-street left-turn delays of 52, 84 and 138 seconds at Lindsay Court, 20 Side Road and Berton Boulevard reflect a LOS F in each case. Morning peak hour right-turn delays at 20 Side Road also reflect a LOS F. Afternoon peak hour side-street delays of up to 180 seconds also reflect a LOS F on the side street approaches at Stewarttown Road North and Stewarttown Road South. Northbound delays at the stop-controlled intersections between 15 and 17 Side Roads also reflect poor levels of service as a result of the queuing impacts extending from 17 Side Road/Maple Avenue.

3.2.2 Summary

The analysis of a *Do Nothing* alternative has demonstrated that there is a need for the widening of Trafalgar Road to four lanes to at least north of 17 Side Road/Maple Avenue. A summary of the basis for this need is provided below:

- The afternoon peak hour northbound capacity constraint approaching 17 Side Road/Maple Avenue, without the widening of Trafalgar Road, results in prohibitive vehicle queues that extend more than 650 m beyond 15 Side Road.

- Supplementary analysis has demonstrated that local intersection improvement at 17 Side Road/Maple Avenue, including a dedicated eastbound left-turn lane, responds to side street operating constraints, but does not address Trafalgar Road capacity constraints and prohibitive northbound queuing during the afternoon peak hour.
- Supplementary analysis has demonstrated that local intersection improvements at 15 Side Road, including dedicated eastbound and westbound left-turn lanes, at least partially address side street operating constraints, but do not sufficiently address Trafalgar Road capacity constraints during the afternoon peak hour.

A widened cross-section to north of 17 Side Road/Maple Avenue would need to extend from Steeles Avenue to approximately 350 metres north of 17 Side Road/Maple Avenue (including tapers). In consideration of the 2 km section north of 17 Side Road/Maple Avenue, need and justification builds on several elements. Firstly, the impacts reflect predicted 2031 travel demand forecasts and anticipated growth beyond this planning horizon to the updated 2041 planning horizon, will further influence the need for the widening of Trafalgar Road. Secondly, the traffic analysis outlined in **Section 4.0** provides the justification for a railway grade separation at the CN Railway crossing immediately north of 17 Side Road/Maple Avenue. The preliminary design has identified a local realignment of Trafalgar Road in proximity to 17 Side Road/Maple Avenue and the railway crossing to reduce the skew of the roadway relative to the proposed grade separation. Based on that preliminary design, the realigned roadway will match the existing alignment and profile at the existing entrance to the Trafalgar Sports Park. Best design practices typically avoid lane drops on upgrades and in proximity to the leading approach to intersections. Based on this convention, the widened cross-section would need to extend beyond the Trafalgar Sports Park entrance sufficiently to accommodate merging activity without impacting the entrance. Given the proximity of the lane drop beyond the sports park entrance, to the Princess Anne Drive intersection, typical design practice could include a northbound lane drop as a right-turn movement at Princess Anne Drive. Building on these elements, the desirability for a consistent cross section supports the widening throughout the project limits to Highway 7. The analysis presented below in **Section 3.3** identifies the predicted operating performance based on this configuration.

3.3 Future (2031) Conditions: Widen from Steeles Avenue to Highway 7 (With Physical Improvements)

3.3.1 Level of Service Analysis

The traffic analysis summarized in **Section 3.2** supports the need for additional through capacity on Trafalgar Road throughout the project limits. Based on these findings, the traffic analysis includes an assessment of future impacts with the widening of Trafalgar Road between Steeles Avenue and Highway 7 to confirm that a four-lane cross-section will adequately address the need for additional through capacity.

The analysis of impacts with the planned four-lane cross-section is based on the existing alignment, the existing intersections and the existing traffic control. Since the completion of the modelling, the preliminary design team has considered profile and alignment changes to accommodate the proposed widening and alignment shift from north of 15 Side Road to north of 17 Side Road/Maple Avenue. These changes have resulted in the Stewarttown Road South and Thompson Drive not being connected to the realigned Trafalgar Road and the extension of Stewarttown Road North to a signalized intersection with the realigned Trafalgar Road.

The preliminary design also includes the introduction of traffic signal control at the Trafalgar Road intersection with Hornby Road. The discussion that follows the results of the analysis summarized in **Table 7** speaks to each of these proposed improvements in the context of the detailed analysis that was undertaken.

Table 5 2031 Operating Performance: Widen to Highway 7

Intersection and Movement	Levels of Service							
	AM Peak Hour				PM Peak Hour			
	V/C	Delay	LOS	Queue[1]	V/C	Delay	LOS	Queue[1]
Trafalgar Rd at Hornby Road								
Eastbound Left/Right	-	32/26 s	D/D	28 m	-	147/0 s	F/A	142 m
Northbound Left/Through	-	9/0 s	A/A	0 m	-	8/1 s	A/A	0 m
Southbound Through/Right	-	2/2 s	A/A	0 m	-	1/2 s	A/A	0 m
Trafalgar Rd at 5 Side Road								
Eastbound Left	0.22	32 s	C	28 m	0.80	48 s	D	42 m
Eastbound Through	0.83	31 s	C	200 m	0.49	26 s	C	82 m
Eastbound Right	0.32	16 s	B	28 m	0.06	6 s	A	8 m
Westbound Left	0.72	60 s	E	43 m	0.33	35 s	C	29 m
Westbound Through/Right	0.28	23/14 s	C/B	52 m	0.74	30/24 s	C/C	103 m
Northbound Left	0.06	23 s	C	23 m	0.26	23 s	C	22 m
Northbound Through/Right	0.46	20/18 s	C/B	84 m	0.83	22/20 s	C/C	212 m
Southbound Left	0.24	18 s	B	26 m	0.03	24 s	C	4 m
Southbound Through/Right	0.88	23/20 s	C/C	171 m	0.60	19/16 s	B/B	91 m
Trafalgar Rd at 10 Side Road								
Eastbound Left	0.24	70 s	E	28 m	0.55	76 s	E	37 m
Eastbound Through/Right	0.96	71/65 s	E/E	336 m	0.97	57/46 s	E/D	199 m
Westbound Left	0.96	55 s	D	102 m	0.96	41 s	D	112 m
Westbound Through	0.45	22 s	C	104 m	0.76	32 s	C	154 m
Westbound Right	0.10	9 s	A	8 m	0.11	19 s	B	7 m
Northbound Left	0.12	32 s	C	20 m	0.44	39 s	D	131 m
Northbound Through/Right	0.72	38/31 s	D/C	105 m	0.98	43/39 s	D/D	262 m
Southbound Left	0.53	36 s	D	49 m	0.74	40 s	D	29 m
Southbound Through/Right	0.95	37/33 s	D/C	141 m	0.56	27/27 s	C/C	73 m

Note: 1. Queue length reflects 95th percentile conditions

Table 7 2031 Operating Performance: Widen to Highway 7 (Continued)

Intersection and Movement	Levels of Service							
	AM Peak Hour				PM Peak Hour			
	V/C	Delay	LOS	Queue[1]	V/C	Delay	LOS	Queue[1]
Trafalgar Rd at 15 Side Road								
Eastbound Left/Through/Right	0.96	38/37/28 s	D/D/C	77 m	0.73	48/45/28 s	D/D/C	54 m
Westbound Left/Through	0.79	38/37 s	D/D	82 m	0.59	43/44 s	D/D	49 m
Westbound Right	0.24	7 s	A	19 m	0.36	7 s	A	14 m
Northbound Left	0.05	35 s	C	9 m	0.20	20 s	C	26 m
Northbound Through/Right	0.29	14/13 s	B/B	77 m	0.53	13/13 s	B/B	127 m
Southbound Left	0.26	21 s	C	33 m	0.27	23 s	C	17 m
Southbound Through/Right	0.52	14/12 s	B/B	101 m	0.30	7/6 s	A/A	44 m
Trafalgar Rd at Stewarttown Road South	During preliminary design, it was determined the Stewarttown Road South intersection will become a cul-de-sac due to grade differences between the new profile of Trafalgar Road and Stewarttown Road South.							
Trafalgar Rd at Stewarttown Road North								
Eastbound Left/Right	-	20/9 s	C/A	6 m	-	28/7 s	D/A	7 m
Northbound Left/Through	-	8/0 s	A/A	0 m	-	4/1 s	A/A	0 m
Southbound Through/Right	-	0/1 s	A/A	0 m	-	0/1 s	A/A	0 m
Trafalgar Rd at Thompson Drive								
Eastbound Left/Right	-	21/11 s	C/B	6 m	-	27/0 s	D/A	0 m
Northbound Left/Through	-	5/1 s	A/A	0 m	-	5/4 s	A/A	19 m
Southbound Through/Right	-	0/1 s	A/A	0 m	-	0/1 s	A/A	0 m
Trafalgar Rd at 17 Side Road/Maple Ave								
Eastbound Left/Through/Right	0.79	40/39/28 s	D/D/C	89 m	0.80	51/53/43 s	D/D/D	70 m
Westbound Left	0.59	28 s	C	58 m	0.79	40 s	D	82 m
Westbound Through/Right	0.41	24/12 s	C/B	58 m	0.56	32/23 s	C/C	78 m
Northbound Left	0.10	34 s	C	9 m	0.21	23 s	C	26 m
Northbound Through	0.56	23/19 s	C/B	84 m	0.78	21/19 s	C/B	163 m
Northbound Right	0.36	27 s	C	46 m	0.40	26 s	C	28 m
Southbound Left	0.58	16/14 s	B/B	93 m	0.27	12/9 s	B/A	45 m
Southbound Through/Right	0.79	40/39/28 s	D/D/C	89 m	0.80	51/53/43 s	D/D/D	70 m
Trafalgar Rd at Princess Anne Drive								
Westbound Left	0.46	30 s	C	38 m	0.57	30 s	C	48 m
Westbound Right	0.15	5 s	A	9 m	0.34	9 s	A	19 m
Northbound Through	0.24	5/4 s	A	25 m	0.50	8/5 s	A/A	59 m
Northbound Right	0.13	9 s	A	12 m	0.19	18 s	B	13 m
Southbound Left	0.38	5 s	A	37 m	0.20	5 s	A	22 m
Southbound Through	0.46	30 s	C	38 m	0.57	30 s	C	48 m
Trafalgar Rd at Berton Boulevard								
Westbound Left	-	19 s	C	9 m	-	16 s	C	6 m
Westbound Right	-	7 s	A	7 m	-	10 s	B	6 m
Northbound Through	-	0 s	A	0 m	-	1 s	A	0 m
Northbound Right	-	1 s	A	0 m	-	1 s	A	0 m
Southbound Left	-	2 s	A	0 m	-	7 s	A	6 m
Southbound Through	-	0 s	A	0 m	-	0 s	A	0 m

Note: 1. Queue length reflects 95th percentile conditions

Table 7 2031 Operating Performance: Widen to Highway 7 (Continued)

Intersection and Movement	Levels of Service							
	AM Peak Hour				PM Peak Hour			
	V/C	Delay	LOS	Queue[1]	V/C	Delay	LOS	Queue[1]
Trafalgar Rd at 20 Side Road								
Eastbound Left/Right	-	26/15 s	D/C	19 m	-	15/8 s	B/A	6 m
Northbound Left/Through	-	9/0 s	A/A	6 m	-	4/0 s	A/A	0 m
Southbound Through/Right	-	0/0 s	A/A	0 m	-	0/0 s	A/A	0 m
Trafalgar Rd at Lindsay Court								
Westbound Left/Right	-	22/7 s	C/A	0 m	-	13/12 s	B/B	4 m
Northbound Through Right	-	0/0 s	A/A	0 m	-	1/1 s	A/A	0 m
Southbound Left/Through	-	2/0 s	A/A	0 m	-	3/0 s	A/A	0 m
Trafalgar Rd at Highway 7								
Eastbound Through	0.69	11 s	B	54 m	0.50	20 s	B	50 m
Eastbound Right	0.76	3 s	A	0 m	0.53	1 s	A	0 m
Westbound Left	0.63	33 s	C	29 m	0.49	32 s	C	29 m
Westbound Through	0.24	9 s	A	27 m	0.88	22 s	C	75 m
Northbound Left	0.75	21 s	C	69 m	0.94	33 s	C	163 m
Northbound Right	0.25	7 s	A	19 m	0.18	17 s	B	20 m

Note: 1. Queue length reflects 95th percentile conditions

The following summary outlines the adequacy of the predicted intersection operating performance throughout the project limits based on a widening of Trafalgar Road to a basic four-lane cross-section between Steeles Avenue and Highway 7:

- Critical movements at the Trafalgar Road intersection with 10 Side Road are expected to operate at capacity during the morning and afternoon peak hours with volume-to-capacity ratios ranging between 0.95 and 0.98. All through and right-turn movements are expected to operate at LOS D or better with the exception of a LOS E for the morning and afternoon peak hour eastbound through movements and the morning peak hour eastbound right-turn movement. All left-turn movements are expected to operate at LOS E or better.
- Afternoon peak hour northbound queuing impacts identified for 10 Side Road on the basis of the *Do Nothing* alternative (more than 6 km in length) are reduced to approximately 270 m with the widening of Trafalgar Road. Afternoon peak hour eastbound and westbound queue lengths are also reduced from over 800 m and nearly 500 m, respectively (based on the *Do Nothing* alternative) to 200 m and 150 m, respectively with the widening of Trafalgar Road.
- Morning peak hour southbound queuing impacts identified for 10 Side Road on the basis of the *Do Nothing* alternative (1.3 km) are reduced to 140 m with the widening of Trafalgar Road. Eastbound and westbound queue lengths are also reduced from 850 m and 670 m, respectively (based on the *Do Nothing* alternative) to 340 m and 100 m, respectively with the widening of Trafalgar Road.

- Projected capacity utilization at 5 Side Road is the same as that identified on the basis of the *Do Nothing* alternative as Trafalgar Road has already been widened locally through the intersection i.e. all volume-to-capacity ratios at the 5 Side Road intersection are less than 0.85 with the exception of a morning peak hour volume-to-capacity ratio of 0.88 for the shared southbound/right-turn lane group. All through and right-turn movements are expected to operate at LOS C or better and all left-turn movements are expected to operate at LOS D or better with the exception of a morning peak hour westbound left-turn LOS E.

- An afternoon peak hour capacity constraint on Hornby Road at Trafalgar Road results in eastbound left-turn delays of 147 seconds and a corresponding LOS F. This analysis supports the preliminary design recommendation for the introduction of intersection traffic signal control at this location.

- All intersection movements at the signalized intersections from 15 Side Road northerly to Highway 7 are expected to operate to 2031 with volume-to-capacity ratios of 0.85 or less with the exception of an afternoon peak hour westbound through movement volume-to-capacity ratios of 0.88 and a northbound left-turn movement volume-to-capacity ratio of 0.94 at Highway 7. The morning peak hour eastbound left-turn/through/right-turn volume-to-capacity ratio of 0.96 at 15 Side Road does not reflect the side road improvements referred to in **Section 3.2** The addition of a protected eastbound left-turn lane will address the corresponding side road approach capacity deficiency. Despite adequate westbound operating performance without a westbound left-turn lane, best design practice is to provide an opposing left-turn lane if a turning lane is required on one of the approaches. The basis for this practice is to avoid a configuration with off-set left-turn manoeuvres that introduce potential site line constraints to opposing through traffic.

- Despite the predicted adequacy of operating performance at 17 Side Road/Maple Avenue without a dedicated eastbound left-turn lane, providing this configuration opposing the existing westbound left-turn lane reflects best design practices as described above.

- All through and right-turn movements at intersections from 15 Side Road to Highway 7 are expected to operate with a LOS D or better and all left-turn movements are expected to operate with a LOS E or better with the widening of Trafalgar Road to four lanes.

- Thompson Drive will connect to a two-way stop-controlled intersection at 17 Side Road/Maple Avenue via the existing Trafalgar Road alignment, noting that Trafalgar Road will be realigned to the east at this location. It is reasonable to speculate that this intersection will operating with adequate levels of service based on the projected 17 Side Road/Maple Avenue travel demand west of Trafalgar Road.

- Stewarttown Road South will end in a cul-de-sac west of the existing Trafalgar Road alignment and traffic will be diverted to the alternative connection to 15 Side Road via Mill Pond Drive or to the Stewarttown Road North extension to a signalized intersection with the

realigned Trafalgar Road. There will be sufficient capacity available at the Stewarttown Road North intersection to accommodate the combined side road approach volume of approximately 50 vehicles with the redistribution of traffic resulting from the closure of the Stewarttown Road South intersection.

3.3.2 Summary

The need for the widening of Trafalgar Road throughout the project limits was clearly supported by the traffic analysis described in **Section 3.2**. The analysis of impacts to 2031 based on the recommended widening to a basic four-lane cross-section confirms that forecast turning movement volumes can be accommodated throughout the project limits between Steeles Avenue and Highway 7.

4.0 RAILWAY CROSSING NEED AND JUSTIFICATION

The most commonly applied criteria for the introduction of a railway grade separation is the cross product of the annual average daily traffic (AADT) volume on the crossing roadway and the corresponding average daily rail traffic volume at the crossing. The criteria is said to be satisfied when the cross product, typically referred to as the Exposure Index, reaches 200,000.

4.1 CN Railway Crossing

The estimated 2013 AADT volume based on available historical and recent AADT volumes for Trafalgar Road north of the CN Railway crossing is 10,720 vehicles. Based on observed railway crossing movements in 2005 (30 per day) and 2013 (17 per day), CN Railway has identified the appropriateness of assuming that the typical existing (2014) demand is 25 trains per day. The cross product of these demand levels is 268,000 and, therefore, the Exposure Index currently exceeds the 200,000 threshold for a grade separation. Reports from CN Railway indicate that rail traffic growth is anticipated and our review of the projected travel demand also supports roadway traffic growth to 2031.

4.2 Metrolinx Railway Crossing

A similar review of available historical and recent AADT volumes for Trafalgar Road between 20 Side Road and Highway 7 supports an estimated 2014 AADT volume of 9,640 vehicles. Based on observed railway crossing movements in 2013 (12 per day, including 4 GO Trains, 6 VIA trains and 2 freight trains), the Exposure Index is currently approximately 115,680 and, therefore, falls short of the threshold for a grade separation under current conditions. Projected vehicular travel demand at the crossing based on the application of the 2.5% compound growth rate established from a review of the Region's corridor travel demand forecasts, is 14,668 vehicles. Based on the projected vehicular demand, satisfaction of the Exposure Index threshold of 200,000 would require 14 trains per day or 2 additional trains per day in comparison to the current demand. Metrolinx reports expectations that the passenger rail traffic volume on this line can be expected to double from 4 to 8 trains within the planning horizon for the Class EA and, therefore, an increase of only 2 trains daily can be expected in this context. Accordingly, the Exposure Index threshold for a grade separation would be satisfied within the planning horizon for this Class EA based on this forecast.

5.0 ROAD SAFETY REVIEW

A detailed road safety analysis was carried out as part of the *Trafalgar Road Short-Term Intersection and Operations Review Study* undertaken in 2011. That analysis was based on collision data for the period between 2005 and 2009. Detailed assessment of background conditions included an in-service road safety field review in addition to the office investigations comprising a review of collision history, network screening and an assessment of collision trends. The network screening component identifies the potential for safety improvement (PSI) for individual intersections and road sections within the study corridor. Application of safety performance functions or SPFs developed for the Region identifies the *predicted* annual number of collisions. Application of the Empirical Bayes technique provides an estimate of the *expected* number of collisions as a function of the predicted and observed number of collisions. The PSI is the difference between the predicted and expected number of collisions.

Based on synergies between the findings of the field and office investigations undertaken as part of the road safety analysis for the *Trafalgar Road Short-Term Intersection and Operations Review Study,* there were a number of recommended traffic safety and speed management initiatives and some of these have since been implemented.

Collision data provided by the Region for consideration as part of the Trafalgar Road Class EA reflects conditions between 2010 and 2014. The summaries provided in **Tables 11 and 12** compare the numbers of severe (personal injury and fatal) and property-damage-only collisions reported for each intersection and road section based on this more recent time period to the conditions between 2005 and 2009. We note that intersection improvements at 5 Side Road were in place by 2014.

The intersection collision history comparison in **Table 11** demonstrates that the total number of reported collisions throughout the project limits between 2010 and 2014 is approximately 10% less than that between 2005 and 2009. The number of severe collisions is more than 20% less and the number of property-damage-only collisions is approximately 5% less. The most notable change for an individual intersection is for the collision history at 10 Side Road, where collision frequency is greatest during both periods. The total number of intersection collisions reported between 2010 and 2014 is approximately 35% less than that between 2005 and 2009. The intersection collision frequency at all other sites between 2010 and 2014 is similar to or less than that between 2005 and 2009.

A review of the current PSI rankings provided by the Region confirms that the highest ranked Trafalgar Road intersection within the project limits is 5 Side Road with a rank of 154. Eight of the 14 collisions at this site between 2010 and 2014 occurred prior to the implementation of the intersection improvements and 4 of the remaining collisions occurred while the intersection improvements were under construction. There were only three collisions in 2014 following the completion of the intersection improvements. Two of these were turning movement collisions

and the *Apparent Driver Action* for one of the vehicles is described as *Improper turn* in each case. While the third incident resulted in a fatality, the *Apparent Driver Action* for an eastbound vehicle is described as *Disobeyed traffic control* and this appears to be the primary contributing factor. Based on the timing of the intersection improvements and the nature of the collisions that have occurred since the completion of those improvements, there is no longer a basis for identifying any collision prone characteristics or trends at 5 Side Road.

The PSI ranking for Hornby Road is 168 and with only 4 collisions at this site over five years, the data does not support a trend. Consideration of other factors including operating performance and the impact on private entrances has resulted in recommendations for the implementation of traffic signal control and the elimination of the channelized southbound ramp to Hornby Road.

Table 6 2010 to 2014 Intersection Collision History

Trafalgar Road Intersection	Collision Severity					
	2010 to 2014			2005 to 2009		
	Severe[1]	PDO	Total	Severe[1]	PDO	Total
Hornby Road S	1	3	4	2	1	3
Hornby Road N	2	2	4	1	1	2
5 Side Road	3	11	14	4	11	15
10 Side Road	4	12	16	4	21	25
15 Side Road	2	8	10	2	8	10
Stewarttown Road S	1	1	2	0	1	1
Stewarttown Road N	0	0	0	1	0	1
Thompson Drive	0	0	0	0	0	0
17 Side Road/Maple Avenue	0	10	10	1	11	12
Princess Anne Drive	0	6	6	0	3	3
Berton Boulevard	0	2	2	0	0	0
20 Side Road	0	1	1	0	1	1
Lindsay Court	1	1	2	0	1	1
Highway 7	1	2	3	4	3	7
Total	*15*	*59*	*74*	*19*	*62*	*81*

Note: 1. Severe collisions include those classified as Fatal or Injury in the Motor Vehicle Collision Report

The next highest intersection PSI ranking is for 15 Side Road and it is 177. While the number of collisions alone does not appear to point to trend over the five years, 5 of the 10 collisions were southbound rear-end collisions. The *Apparent Driver Action* for 3 of these cases is described as *Following too close* and, therefore, it would appear that driver error is the primary contributing factor. There is not sufficient evidence of a collision trend at this location.

The next highest intersection PSI ranking is for 10 Side Road and it is 193. While there has been a reduction in the collision frequency in comparison to conditions between 2005 and 2009, 13 of the 16 collisions at this location have been rear-end collisions and 7 of these were in the northbound direction. The Apparent Driver Action for one of the vehicles in 6 of these cases is described at *Speed too fast for conditions*, *Lost control*, *Exceeding the speed limit* or *Following too close* and, therefore, driver error appears to be the primary contributing factor. Notwithstanding, the capacity and level of service analysis supports intersection improvements at this location with the widening of Trafalgar Road to north of 10 Side Road and, therefore, the improved lane geometry can be expected to positively impact any relationship between the potential for rear end collisions and the current congestion and queuing impacts.

The PSI rankings for all other study area intersections are between 234 and 299 and the data do not support any collision prone conditions or trends.

The mid-block collision history comparison in **Table 12** demonstrates that the total number of reported collisions throughout the project limits between 2010 and 2014 is more than 30% less than that between 2005 and 2009.

Table 7 2010 to 2014 Midblock Collision History

Trafalgar Road Intersection	Collision Severity					
	2010 to 2014			2005 to 2009		
	Severe[1]	PDO	Total	Severe[1]	PDO	Total
Steeles Avenue to Hornby Road S	2	11	13	7	18	25
Hornby Road S to Hornby Road N	2	3	5	1	4	5
Hornby Road N to 5 Side Road	2	12	14	6	7	13
5 Side Road to 10 Side Road	5	20	25	10	21	31
10 Side Road to 15 Side Road	6	14	20	9	30	39
15 Side Road to Stewarttown Road S	0	1	1	2	4	6
Stewarttown Road S to Stewarttown Road N	0	1	1	1	1	2
Stewarttown Road N to Thompson Drive	0	0	0	2	2	4
Thompson Dr to 17 Side Road/Maple Ave	0	1	1	0	4	4
17 Side Rd/Maple Ave to Princess Anne Dr	3	9	12	0	1	1
Princess Anne Drive to Berton Boulevard	0	0	0	2	3	5
Berton Boulevard to 20 Side Road	0	0	0	0	1	1
20 Side Road to Lindsay Court	0	1	1	1	0	1
Lindsay Court to Highway 7	1	2	3	1	1	2
Total	*21*	*75*	*96*	*42*	*97*	*139*

Note: 1. Severe collisions include those classified as Fatal or Injury in the Motor Vehicle Collision Report

The number of severe collisions is 50% less and the number of property-damage-only collisions more than 20% less. The most notable changes for individual road sections are for the collision histories between Steeles Avenue and Hornby Road and between 10 Side Road and 15 Side Road. In each case, the total number of mid-block collisions reported between 2010 and 2014 is approximately 50% less than that between 2005 and 2009. The mid-block collision frequency for all other road sections between 2010 and 2014 is similar to or less than that between 2005 and 2009 with the exception of the section between 17 Side Road/Maple Avenue and Princess Anne Drive, where there were 12 collisions between 2010 and 2014 and only a single collision between 2005 and 2009. A review of the collision history within these limits confirms that 2 of the 3 collisions that occurred south of the railway crossing were northbound rear-end collisions and that 5 of the 9 collisions that occurred north of the railway crossing were southbound rear-end collisions. In all cases, the *Vehicle Manoeuvre* for at least one of the vehicles is described as *Stopped* or *Slowing/stopping* and it is reasonable to speculate that a train movement across the at-grade rail crossing may have been a contributing factor. Traffic analysis has demonstrated the justification for a railway grade separation at this location and, therefore, any potential for rear-end collisions related to the crossing will be eliminated with the implementation of this improvement.

A review of the current PSI rankings provided by the Region confirms that the highest ranked road sections within the project limits are between Steeles Avenue and 15 Side Road. Road section collision frequency outside of these limits reflects no more than 3 collisions in an individual road section with the exception of the section between 17 Side Road/Maple Avenue and Princess Anne Drive, as described above.

The PSI ranking for the Trafalgar Road section between Steeles Avenue and the Hornby Road intersection is 133 and the ranking for the section between the Hornby Road intersection and the southbound ramp from Trafalgar Road to Hornby Road is 162. A total of 18 mid-block collisions occurred within these combined limits. Three of these involved a wild animal strike and, therefore, these were clearly unrelated to road geometry and/or traffic control. The *Driver Condition* for one of the vehicles involved in 8 of the remaining 15 collisions is described as *Inattentive* or *Fatigue* and, therefore, neither lane geometry nor traffic control is likely the primary contributing factor in these collisions. The remaining 7 collisions include 4 rear-end collisions, 2 sideswipe collisions and a single motor vehicle collision. The 4 rear-end collisions include 2 in each direction and in 3 of the 4 cases, the *Apparent Driver Action* for one of the vehicles is described as either *Speed too fast* for conditions or *Following too closely*. Based on the characteristics of the collisions between Steeles Avenue and Hornby Road, there do not appear to be any collision prone conditions within these limits.

The PSI ranking for the Trafalgar Road section between the southbound lane to Hornby Road and 5 Side Road is 72. Three of the 14 collisions within these limits involved a wild animal strike and, therefore, these were clearly unrelated to road geometry and/or traffic control. The *Driver*

Condition for one of the vehicles involved in 2 of the remaining 11 collisions is described as *Inattentive* or *Fatigue* and, therefore, neither lane geometry nor traffic control is likely the primary contributing factor in these collisions. The remaining 9 collisions include 7 rear-end collisions and 2 single motor vehicle collisions. The *Environmental* and *Road Surface Conditions* are described as *Clear* and *Dry*, respectively in all 7 cases and, therefore, these were not contributing factors in any of the rear-end collisions. The *Apparent Drive Action* for 4 of the 7 rear-end collisions is described as *Following too close* and, therefore, driver error appears to be at least one of the contributing factors for these incidents. The 7 rear-end collisions included 4 in the northbound direction and 3 in the southbound direction and, therefore, this collision experience is not focussed in a single direction. While there is not sufficient evidence of a collision trend, the traffic analysis has identified the requirement for the widening of Trafalgar Road to four lanes to north of 10 Side Road based on existing travel demand. In light of the justification for this improvement from a roadway capacity perspective and the benefits of such an improvement with respect to rear-end collision potential, there is no further requirement to assess the contributing factors to these rear-end collisions. Based on the collision history and the planned improvements, there are no further collision prone conditions identified by this review.

The PSI ranking for the Trafalgar Road section between 5 Side Road and 10 Side Road is 58. Two of the 25 collisions within these limits involved a wild animal strike and, therefore, these were clearly unrelated to road geometry and/or traffic control. The *Driver Condition* for one of the vehicles involved in 7 of the remaining 23 collisions is described as *Inattentive*, *Fatigue* or *Had been drinking* and, therefore, neither lane geometry nor traffic control is likely the primary contributing factor in these collisions. The remaining 16 collisions include 6 rear-end, 2 turning movement, 3 single motor vehicle and 4 approaching collisions and one described as *Other*. Driver error appears to have been at least one of the contributing factors in 3 of the 6 rear-end collisions as the *Apparent Driver Action* is described as *Following too close*. *Apparent Driver Action* for one of the vehicles involved in 1 of the 2 turning movement collisions is described as *Improper turn*. *Environmental Conditions* are described as either *Snow* or *Rain* for each of the approach collisions and *Road Surface Conditions* are described as either *Ice*, *Wet* or *Slush* for 3 of these 4 collisions. These conditions appear to be primary contributing factors in the 4 approach collisions in which *Apparent Driver Action* and *Driver Condition* do not appear to be contributing factors. The collision characteristics outlined above do not support any collision prone conditions or collision trend between 5 and 10 Side Roads.

The PSI ranking for the Trafalgar Road section between 10 Side Road and 15 Side Road is 43. One of the 20 collisions within these limits involved a wild animal strike and, therefore, these were clearly unrelated to road geometry and/or traffic control. The *Driver Condition* for one of the vehicles involved in 7 of the remaining 19 collisions is described as *Inattentive*, *Fatigue* or *Had been drinking* and, therefore, neither lane geometry nor traffic control is likely the primary

contributing factor in these collisions. The remaining 12 collisions include 5 rear-end, 1 sideswipe, 1 angle, 1 approaching and 4 single motor vehicle collisions. Apparent Driver Action is described as Following too close in the case of 3 of the 5 rear-end collisions and appears to be the primary contributing factor. Environmental and *Road Surface conditions* are described as *Snow* and *Packed snow*, respectively and *Apparent Driver Action* is described as *Lost control* on of the remaining rear-end collisions. Accordingly, neither lane geometry nor traffic control appear to be contributing factors to these 5 rear-end collisions. *Environmental Conditions* are described as *Snow* for 2 of the 4 single motor vehicle collisions and *Road Surface Conditions* are described as *Loose snow* for one of these collisions. The collision characteristics outlined above do not support any collision prone conditions or collision trend between 10 and 15 Side Roads.

Based on the general reduction in intersection and mid-block collision frequency evident from the comparison of conditions between 2010 and 2014 to those between 2005 and 2009, it is reasonable to find that the road safety analysis undertaken as part of the *Trafalgar Road Short-Term Intersection and Operations Review Study* sufficiently addressed the need for improvements in this regard. The only location where there was an increase in collisions is the Trafalgar Road section between 17 Side Road/Maple Avenue and Princess Anne Drive. In this case, the implementation of the recommended railway grade separation is expected to address the conditions related to many of these collisions.

6.0 STUDY FINDINGS AND RECOMMENDATIONS

The following points summarize the key study findings and recommendations arising from a review of existing operating performance and an evaluation of future operating conditions along Trafalgar Road between Steeles Avenue and Highway 7.

6.1 Existing Conditions

- All through and right-turn movements at study area intersections north of Steeles Avenue currently operate with a LOS D or better and all left-turn movements operate with a LOS E or better with the exception of a morning peak hour westbound left-turn LOS F at 10 Side Road and an afternoon peak hour eastbound left-turn LOS F at Hornby Road.
- Operating performance at 10 Side Road reflects capacity constraints during the morning and afternoon peak hours and on the basis of the afternoon peak hour impacts, supports the need for additional capacity on Trafalgar Road at this location.

6.2 Future (2031) Conditions: Do Nothing (Without Physical Improvements)

- Operating performance at 10 Side Road is severely constrained based on the existing lane geometry. Demand exceeds capacity by 30 to 45%. Afternoon peak hour northbound queue lengths of more than 6 km and corresponding side-street queue lengths of 500 to 800 m reflect prohibitive operating conditions during this period. Morning peak hour southbound queue lengths of 1.3 km and side-street queue lengths of 670 to 850 m reflect similarly prohibitive conditions.
- Impacts continue to be manageable at 5 Side Road with the previous widening to four lanes through this intersection and conditions will need to be monitored for traffic signal control at Hornby Road based on a side-street left-turn delay of approximately 3 minutes and a LOS F.
- The 17 Side Road/Maple Avenue intersection will operate with insufficient capacity during the afternoon peak hour and this is demonstrated by northbound queue lengths that extend more than 650 m beyond 15 Side Road. Addition of an eastbound left-turn lane at 17 Side Road/Maple Avenue addresses side road approach impacts at this location, but does not address the severe northbound impact on Trafalgar Road.
- The 15 Side Road intersection will operate at capacity during the afternoon peak hour and the northbound capacity constraint at 17 Side Road/Maple Avenue causes queuing more than 650 m beyond 15 Side Road. Addition of eastbound and westbound left-turn lanes at 15 Side Road addresses the side road capacity constraints, but does not address the Trafalgar Road capacity constraint. Further analysis indicates that without the capacity constraint at 17 Side Road/Maple Avenue, the northbound capacity constraint at 15 Side

Road itself would result in a 95th percentile 400 m queue length with the existing Trafalgar Road cross-section.

- While the predicted 15 Side Road impacts may not be critical, the *at-capacity* condition infers that the lane geometry would not accommodate additional growth beyond 2031. Furthermore, the turning movement volume projections are based only on the application of a growth rate to the current side street volumes and, while speculative, this approach may *potentially* understate future impacts if there is a greater orientation of *Vision Georgetown* traffic to 15 Side Road. In this context, impacts at this location may not be manageable.
- The evaluation of predicted operating performance supports a recommended cross-section widening of Trafalgar Road from two lanes to four lanes to north of 17 Side Road/Maple Avenue. Based on the influence of the planned adjacent grade separation with the realignment and profile changes to Trafalgar Road (note that the grade separation is justified regardless of any cross-section improvements), best design practices support the widening of Trafalgar Road to at least Princess Anne Drive. Building on these elements, the desirability for a consistent cross-section supports the widening throughout the project limits to Highway 7.

6.3 Future (2031) Conditions: Widen from Steeles Avenue to Highway 7 (With Physical Improvements)

- The analysis of impacts to 2031 confirms that forecast turning movement volumes can be accommodated throughout the project limits with the widening of Trafalgar Road between Steeles Avenue and Highway 7.

6.4 Railway Crossing Assessment

- The cross-product of daily railway and roadway traffic, or the Exposure Index, at the CN Railway crossing is currently 268,000 and, therefore, exceeds the 200,000 threshold for a grade separation. In fact, the threshold would be satisfied based on an existing railway volume of only 19 trains, in comparison to the reported demand of 25 trains, without accounting for potential growth in vehicular demand. Reports from CN Railway indicate that rail traffic growth is anticipated and our review of the projected travel demand also supports roadway traffic growth to 2031.
- The current conditions at the Metrolinx Railway crossing reflect an Exposure Index of approximately 115,680 and, therefore, the index falls short of the threshold for a grade separation under current conditions. Based on projected roadway vehicular demand, satisfaction of the Exposure Index threshold of 200,000 requires 16 trains per day or 4 additional trains per day in comparison to the current demand. Metrolinx reports expectations that the rail traffic volume on this line can be expected to double within the

planning horizon for the Class EA and, therefore, the Exposure Index threshold for a grade separation would be satisfied within the planning horizon for this Class EA.

6.5 Road Safety Review

A detailed road safety analysis was carried as part of the *Trafalgar Road Short-Term Intersection and Operations Review Study* undertaken in 2011 based on collision data for the five year period between 2005 and 2009. A number of traffic safety and speed management initiatives were recommended by that study and some of these have since been implemented. Collision data provided by the Region for consideration as part of the Trafalgar Road Class EA reflects conditions between 2010 and 2014 and the findings of a comparison of the recent data to that evaluated in 2011, together with a review of the recent collision history are summarized below:

- The total number of reported intersection collisions throughout the project limits between 2010 and 2014 is approximately 10% less than that between 2005 and 2009. The intersection collision frequency at all sites between 2010 and 2014 is similar to or less than that between 2005 and 2009.
- The current potential for safety improvement (PSI) rankings provided by the Region for intersections are greatest for 5 Side Road (154), Hornby Road (168), 15 Side Road (177) and 10 Side Road. A review of the collision records for these sites does not confirm any collision prone conditions or trends. Notwithstanding this, 13 of the 16 collisions at 10 Side Road have been rear-end collisions and while driver error appears to be the primary contributing factor in many of the incidents, the widening of Trafalgar Road through this intersection can be expected to positively impact any relationship between the potential for rear-end collisions and the current congestion and queuing impacts.
- The total number of reported mid-block collisions throughout the project limits between 2010 and 2014 is more than 30% less than that between 2005 and 2009. The mid-block collision frequency for all road sections between 2010 and 2014 is similar to or less than that between 2005 and 2009 with the exception of the section between 17 Side Road/Maple Avenue and Princess Anne Drive.
- A review of the collision history between 17 Side Road/Maple Avenue and Princess Anne Drive confirms that 7 of the 12 collisions were rear-end collisions that may have occurred on the approaches to the CN Railway crossing. Traffic analysis has demonstrated the justification for a railway grade separation at this location and, therefore, any potential for rear-end collisions related to the crossing will be eliminated with the implementation of this improvement.
- The current potential for safety improvement (PSI) rankings provided by the Region for mid-block road sections are greatest for Trafalgar Road between Steeles Avenue and Hornby

Road (133) between Hornby Road and the southbound ramp to Hornby Road (162), between the southbound ramp to Hornby Road and 5 Side Road (72), between 5 and 10 Side Roads (58) and between 10 and 15 Side Roads (43). A review of the collision records for these sections does not confirm any collision prone conditions or trends.

- Based on the general reduction in intersection and mid-block collision frequency evident from the comparison of conditions between 2010 and 2014 to those between 2005 and 2009, it is reasonable to find that the road safety analysis undertaken as part of the *Trafalgar Road Short-Term Intersection and Operations Review Study* sufficiently addressed the need for improvements in this regard. The only location where there was an increase in collisions is the Trafalgar Road section between 17 Side Road/Maple Avenue and Princess Anne Drive. In this case, the implementation of the recommended railway grade separation is expected to address the conditions related to many of these collisions.

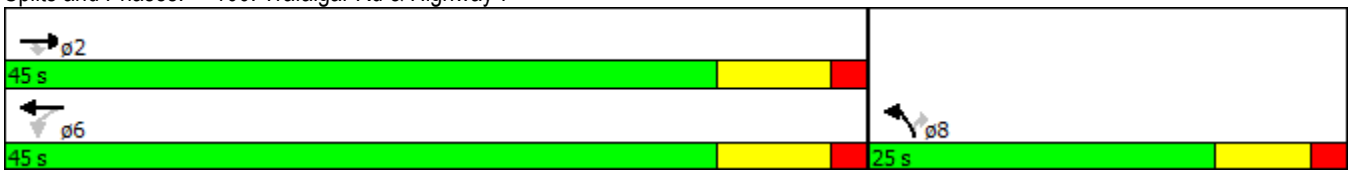
APPENDIX A – Capacity Analysis: Existing Conditions

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	668	560	64	225	207	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		140.0	125.0		0.0	78.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3374	1524	1703	3252	1467	1429
Flt Permitted			0.381		0.950	
Satd. Flow (perm)	3374	1524	683	3252	1467	1429
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		596				73
Link Speed (k/h)	60			60	60	
Link Distance (m)	301.0			313.5	233.8	
Travel Time (s)	18.1			18.8	14.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	7%	6%	6%	11%	23%	13%
Adj. Flow (vph)	711	596	68	239	220	73
Shared Lane Traffic (%)						
Lane Group Flow (vph)	711	596	68	239	220	73
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	27.9	27.9	27.9	27.9	17.0	17.0
Total Split (s)	45.0	45.0	45.0	45.0	25.0	25.0
Total Split (%)	64.3%	64.3%	64.3%	64.3%	35.7%	35.7%
Maximum Green (s)	37.1	37.1	37.1	37.1	18.0	18.0
Yellow Time (s)	5.9	5.9	5.9	5.9	5.0	5.0
All-Red Time (s)	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)	7.9	7.9	7.9	7.9	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.5	4.5	4.5	4.5	3.0	3.0
Recall Mode	Min	Min	Min	Min	None	None
Act Effct Green (s)	26.2	26.2	26.2	26.2	13.3	13.3
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.24	0.24
v/c Ratio	0.44	0.57	0.21	0.15	0.62	0.18
Control Delay	10.5	3.4	10.6	8.5	28.1	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.5	3.4	10.6	8.5	28.1	7.0
LOS	B	A	B	A	C	A
Approach Delay	7.3			9.0	22.8	
Approach LOS	A			A	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 54.8			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 9.9		Intersection LOS: A	
Intersection Capacity Utilization 65.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 100: Trafalgar Rd & Highway 7

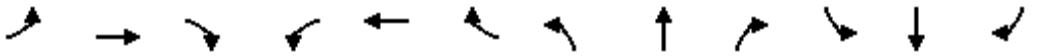


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	69	22	240	106	48	618
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0		70.0	145.0	
Storage Lanes	1	1		1	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1736	1417	1667	1455	1703	1792
Flt Permitted	0.950				0.590	
Satd. Flow (perm)	1736	1417	1667	1455	1058	1792
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		25		122		
Link Speed (k/h)	60		60			60
Link Distance (m)	206.8		933.6			536.0
Travel Time (s)	12.4		56.0			32.2
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	4%	14%	14%	11%	6%	6%
Adj. Flow (vph)	79	25	276	122	55	710
Shared Lane Traffic (%)						
Lane Group Flow (vph)	79	25	276	122	55	710
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	25.0	25.0	25.0	25.0
Minimum Split (s)	23.0	23.0	32.0	32.0	32.0	32.0
Total Split (s)	31.0	31.0	59.0	59.0	59.0	59.0
Total Split (%)	34.4%	34.4%	65.6%	65.6%	65.6%	65.6%
Maximum Green (s)	25.0	25.0	52.0	52.0	52.0	52.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	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)	6.0	6.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	10.0	10.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	10.5	10.5	62.5	62.5	62.5	62.5
Actuated g/C Ratio	0.13	0.13	0.77	0.77	0.77	0.77
v/c Ratio	0.35	0.12	0.21	0.11	0.07	0.51
Control Delay	36.7	13.5	4.3	1.1	4.0	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.7	13.5	4.3	1.1	4.0	6.8
LOS	D	B	A	A	A	A
Approach Delay	31.1		3.4			6.6
Approach LOS	C		A			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 81			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 7.6		Intersection LOS: A	
Intersection Capacity Utilization 59.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 500: Trafalgar Rd & Princess Anne Dr

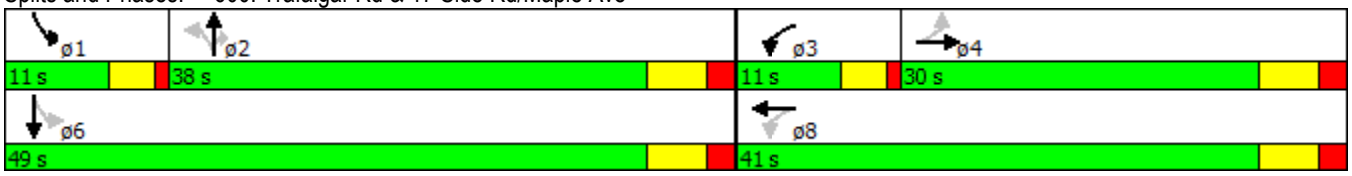


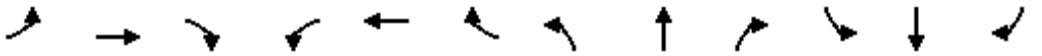
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	117	40	137	83	87	11	238	221	73	597	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	50.0		0.0	60.0		65.0	45.0		0.0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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		0.970			0.923				0.850		0.996	
Flt Protected		0.994		0.950			0.950			0.950		
Satd. Flow (prot)	0	1728	0	1719	1670	0	1671	1759	1495	1703	1785	0
Flt Permitted		0.936		0.411			0.344			0.512		
Satd. Flow (perm)	0	1627	0	744	1670	0	605	1759	1495	918	1785	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			69				238		2	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		190.9			211.3			130.2			933.6	
Travel Time (s)		11.5			12.7			7.8			56.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	6%	6%	6%	5%	5%	5%	8%	8%	8%	6%	6%	6%
Adj. Flow (vph)	23	126	43	147	89	94	12	256	238	78	642	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	192	0	147	183	0	12	256	238	78	660	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	29.0	29.0		11.0	29.0		21.0	21.0	21.0	11.0	21.0	
Total Split (s)	30.0	30.0		11.0	41.0		38.0	38.0	38.0	11.0	49.0	
Total Split (%)	33.3%	33.3%		12.2%	45.6%		42.2%	42.2%	42.2%	12.2%	54.4%	
Maximum Green (s)	24.0	24.0		7.0	35.0		32.0	32.0	32.0	7.0	43.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0		4.0	6.0		6.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		0.2	3.0		3.0	3.0	3.0	0.2	3.0	
Recall Mode	None	None		None	None		Max	Max	Max	None	Max	
Walk Time (s)	7.0	7.0			7.0		7.0	7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0			16.0		8.0	8.0	8.0		8.0	
Pedestrian Calls (#/hr)	0	0			0		0	0	0		0	
Act Effct Green (s)		13.7		26.8	24.8		34.4	34.4	34.4	45.1	43.1	
Actuated g/C Ratio		0.17		0.34	0.31		0.43	0.43	0.43	0.56	0.54	
v/c Ratio		0.66		0.44	0.32		0.05	0.34	0.31	0.13	0.69	
Control Delay		39.1		23.4	14.3		17.3	18.8	3.8	9.7	18.9	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		39.1		23.4	14.3		17.3	18.8	3.8	9.7	18.9	
LOS		D		C	B		B	B	A	A	B	
Approach Delay		39.1			18.4			11.7			18.0	
Approach LOS		D			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 79.9			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 18.5		Intersection LOS: B	
Intersection Capacity Utilization 77.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 600: Trafalgar Rd & 17 Side Rd/Maple Ave



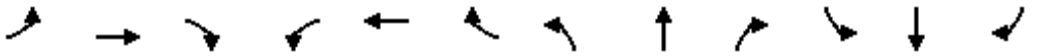


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	66	62	56	85	29	65	7	318	38	78	667	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	100.0		0.0	105.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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		0.959				0.850		0.984			0.995	
Flt Protected		0.982			0.964		0.950			0.950		
Satd. Flow (prot)	0	1677	0	0	1724	1442	1805	1604	0	1641	1750	0
Flt Permitted		0.832			0.592		0.305			0.533		
Satd. Flow (perm)	0	1421	0	0	1059	1442	580	1604	0	921	1750	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22				69		13			4	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		110.9			149.1			3110.1			364.3	
Travel Time (s)		6.7			8.9			186.6			21.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	10%	5%	6%	7%	12%	0%	17%	13%	10%	8%	8%
Adj. Flow (vph)	70	66	60	90	31	69	7	338	40	83	710	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	196	0	0	121	69	7	378	0	83	736	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	20.0	20.0		20.0	20.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	27.0	27.0		27.0	27.0	
Total Split (s)	25.0	25.0		25.0	25.0	25.0	65.0	65.0		65.0	65.0	
Total Split (%)	27.8%	27.8%		27.8%	27.8%	27.8%	72.2%	72.2%		72.2%	72.2%	
Maximum Green (s)	19.0	19.0		19.0	19.0	19.0	58.0	58.0		58.0	58.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	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	0.0	
Total Lost Time (s)		6.0			6.0	6.0	7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		15.1			15.1	15.1	59.6	59.6		59.6	59.6	
Actuated g/C Ratio		0.17			0.17	0.17	0.68	0.68		0.68	0.68	
v/c Ratio		0.75			0.66	0.23	0.02	0.35		0.13	0.62	
Control Delay		47.7			51.3	9.8	5.9	7.3		6.5	11.3	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		47.7			51.3	9.8	5.9	7.3		6.5	11.3	
LOS		D			D	A	A	A		A	B	
Approach Delay		47.7			36.2			7.3			10.8	
Approach LOS		D			D			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 87.7			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 17.6		Intersection LOS: B	
Intersection Capacity Utilization 86.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1000: Trafalgar Rd & 15 Side Rd



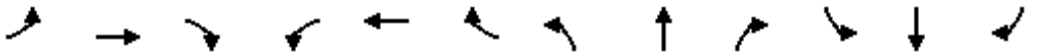
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	319	98	150	255	46	12	271	94	98	683	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	170.0		20.0	95.0		0.0	150.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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		0.965				0.850		0.961			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1543	1784	0	1687	1845	1429	1671	1623	0	1597	1792	0
Flt Permitted	0.505			0.257			0.216			0.416		
Satd. Flow (perm)	820	1784	0	456	1845	1429	380	1623	0	699	1792	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16				97		22			3	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		303.7			255.9			2774.5			3110.1	
Travel Time (s)		18.2			15.4			166.5			186.6	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	17%	3%	2%	7%	3%	13%	8%	12%	14%	13%	5%	15%
Adj. Flow (vph)	47	329	101	155	263	47	12	279	97	101	704	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	430	0	155	263	47	12	376	0	101	732	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	20.0		7.0	20.0	
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	11.0	27.0		11.0	27.0	
Total Split (s)	28.0	28.0		28.0	28.0	28.0	22.0	40.0		22.0	40.0	
Total Split (%)	31.1%	31.1%		31.1%	31.1%	31.1%	24.4%	44.4%		24.4%	44.4%	
Maximum Green (s)	21.0	21.0		21.0	21.0	21.0	18.0	33.0		18.0	33.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	3.0	5.0		3.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		-2.5	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		4.5	7.0	7.0	4.0	7.0		4.0	7.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	3.0	5.0		3.0	5.0	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Act Effct Green (s)	21.1	21.1		23.6	21.1	21.1	41.6	33.1		45.3	40.5	
Actuated g/C Ratio	0.27	0.27		0.30	0.27	0.27	0.54	0.43		0.58	0.52	
v/c Ratio	0.21	0.87		1.12	0.53	0.10	0.04	0.53		0.20	0.78	
Control Delay	26.5	47.3		145.9	29.6	1.2	6.9	19.9		7.9	23.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	26.5	47.3		145.9	29.6	1.2	6.9	19.9		7.9	23.9	
LOS	C	D		F	C	A	A	B		A	C	
Approach Delay		45.2			65.5			19.5			22.0	
Approach LOS		D			E			B			C	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 77.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.12
Intersection Signal Delay: 36.0 Intersection LOS: D
Intersection Capacity Utilization 93.2% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1100: Trafalgar Rd & 10 Side Rd

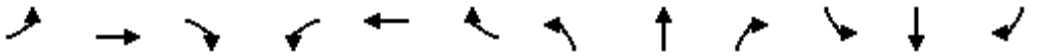


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	58	357	136	49	102	14	6	305	67	56	847	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	72.0		0.0	95.0		95.0	205.0		205.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	60.0			75.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.982			0.973			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1810	1538	1703	1760	0	1556	3028	0	1656	3292	0
Flt Permitted	0.681			0.384			0.257			0.477		
Satd. Flow (perm)	1232	1810	1538	688	1760	0	421	3028	0	831	3292	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140		6			30			5	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		592.1			514.5			208.6			347.7	
Travel Time (s)		35.5			30.9			12.5			20.9	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	16%	16%	16%	9%	9%	9%
Adj. Flow (vph)	60	368	140	51	105	14	6	314	69	58	873	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	368	140	51	119	0	6	383	0	58	908	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0		7.0	25.0		7.0	25.0	
Minimum Split (s)	38.4	38.4	38.4	38.4	38.4		11.0	33.0		11.0	33.0	
Total Split (s)	41.4	41.4	41.4	41.4	41.4		15.0	61.0		15.0	61.0	
Total Split (%)	35.3%	35.3%	35.3%	35.3%	35.3%		12.8%	52.0%		12.8%	52.0%	
Maximum Green (s)	35.0	35.0	35.0	35.0	35.0		11.0	55.0		11.0	55.0	
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6		3.0	4.6		3.0	4.6	
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8		1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	25.0	25.0	25.0	25.0	25.0			20.0			20.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effct Green (s)	23.2	23.2	23.2	23.2	23.2		35.0	29.1		37.2	33.9	
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.32		0.49	0.41		0.52	0.47	
v/c Ratio	0.15	0.63	0.24	0.23	0.21		0.02	0.31		0.11	0.58	
Control Delay	20.9	27.7	5.4	23.8	19.9		9.7	15.9		9.8	16.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.9	27.7	5.4	23.8	19.9		9.7	15.9		9.8	16.7	
LOS	C	C	A	C	B		A	B		A	B	
Approach Delay		21.5			21.1			15.8			16.3	
Approach LOS		C			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 117.4			
Actuated Cycle Length: 71.7			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 18.0		Intersection LOS: B	
Intersection Capacity Utilization 80.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1200: Trafalgar Rd & 5 Side Rd

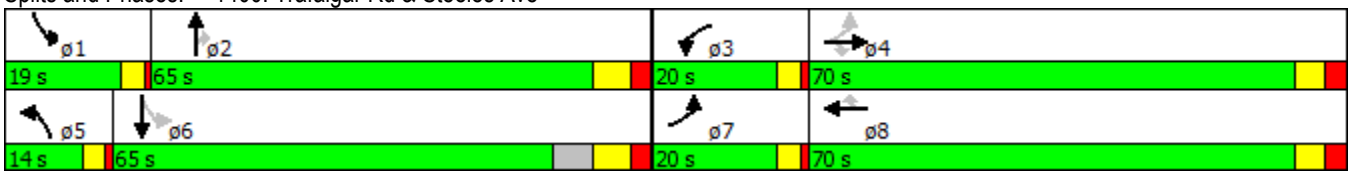


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	465	305	444	156	19	102	238	224	56	857	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		50.0	140.0		100.0	100.0		0.0	190.0		190.0
Storage Lanes	1		1	2		1	2		1	1		0
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1410	3112	1429	3335	2865	1392	2398	3252	1429	1583	3398	0
Flt Permitted	0.639			0.950			0.950			0.583		
Satd. Flow (perm)	949	3112	1429	3335	2865	1392	2398	3252	1429	972	3398	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			149			107			257		8	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		303.8			305.5			398.9			380.0	
Travel Time (s)		18.2			18.3			23.9			22.8	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	28%	16%	13%	5%	26%	16%	46%	11%	13%	14%	4%	9%
Adj. Flow (vph)	57	534	351	510	179	22	117	274	257	64	985	120
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	534	351	510	179	22	117	274	257	64	1105	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	25.0	25.0	7.0	25.0	
Minimum Split (s)	14.0	30.0	30.0	14.0	30.0	30.0	14.0	33.0	33.0	14.0	33.0	
Total Split (s)	20.0	70.0	70.0	20.0	70.0	70.0	14.0	65.0	65.0	19.0	65.0	
Total Split (%)	11.5%	40.2%	40.2%	11.5%	40.2%	40.2%	8.0%	37.4%	37.4%	10.9%	37.4%	
Maximum Green (s)	16.0	63.0	63.0	16.0	63.0	63.0	10.0	57.0	57.0	15.0	57.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	
Lost Time Adjust (s)	0.0	-1.0	-1.0	-1.0	-1.0	1.0	0.0	-1.0	-1.0	0.0	-1.0	
Total Lost Time (s)	4.0	6.0	6.0	3.0	6.0	8.0	4.0	7.0	7.0	4.0	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		16.0	16.0		16.0	16.0		12.0	12.0		12.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	47.2	36.0	36.0	17.2	45.7	43.7	10.0	57.1	57.1	64.8	53.1	
Actuated g/C Ratio	0.35	0.26	0.26	0.13	0.33	0.32	0.07	0.42	0.42	0.47	0.39	
v/c Ratio	0.16	0.65	0.72	1.21	0.19	0.04	0.67	0.20	0.34	0.13	0.83	
Control Delay	25.7	48.9	34.9	165.9	34.8	0.2	82.9	27.8	4.8	19.1	44.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	25.7	48.9	34.9	165.9	34.8	0.2	82.9	27.8	4.8	19.1	44.6	
LOS	C	D	C	F	C	A	F	C	A	B	D	
Approach Delay		42.3			127.8			28.7			43.2	
Approach LOS		D			F			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 174			
Actuated Cycle Length: 136.5			
Natural Cycle: 95			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.21			
Intersection Signal Delay: 57.6		Intersection LOS: E	
Intersection Capacity Utilization 75.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1400: Trafalgar Rd & Steeles Ave

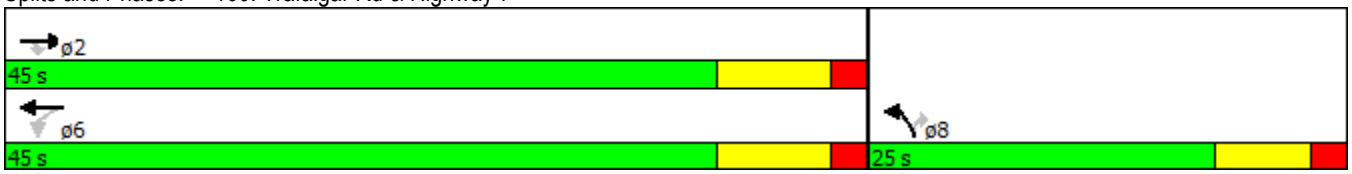


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	351	253	69	621	534	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		140.0	125.0		0.0	78.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3438	1509	1736	3505	1770	1615
Flt Permitted			0.523		0.950	
Satd. Flow (perm)	3438	1509	955	3505	1770	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		278				107
Link Speed (k/h)	60			60	60	
Link Distance (m)	301.0			313.5	233.8	
Travel Time (s)	18.1			18.8	14.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	5%	7%	4%	3%	2%	0%
Adj. Flow (vph)	386	278	76	682	587	107
Shared Lane Traffic (%)						
Lane Group Flow (vph)	386	278	76	682	587	107
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	27.9	27.9	27.9	27.9	17.0	17.0
Total Split (s)	45.0	45.0	45.0	45.0	25.0	25.0
Total Split (%)	64.3%	64.3%	64.3%	64.3%	35.7%	35.7%
Maximum Green (s)	37.1	37.1	37.1	37.1	18.0	18.0
Yellow Time (s)	5.9	5.9	5.9	5.9	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	-1.0	0.0
Total Lost Time (s)	7.9	7.9	7.9	7.9	6.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.5	4.5	4.5	4.5	3.0	3.0
Recall Mode	Min	Min	Min	Min	None	None
Act Effct Green (s)	20.9	20.9	20.9	20.9	19.0	18.0
Actuated g/C Ratio	0.39	0.39	0.39	0.39	0.35	0.33
v/c Ratio	0.29	0.37	0.20	0.50	0.94	0.17
Control Delay	12.0	3.3	12.6	14.0	44.9	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	3.3	12.6	14.0	44.9	4.5
LOS	B	A	B	B	D	A
Approach Delay	8.3			13.8	38.7	
Approach LOS	A			B	D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 53.8			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 20.3		Intersection LOS: C	
Intersection Capacity Utilization 81.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 100: Trafalgar Rd & Highway 7

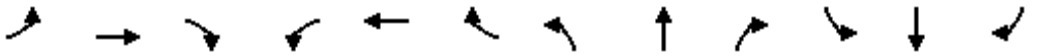


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	96	71	579	132	35	284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0		70.0	145.0	
Storage Lanes	1	1		1	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1736	1524	1792	1509	1805	1712
Flt Permitted	0.950				0.415	
Satd. Flow (perm)	1736	1524	1792	1509	788	1712
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		72		135		
Link Speed (k/h)	60		60			60
Link Distance (m)	206.8		933.6			536.0
Travel Time (s)	12.4		56.0			32.2
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	4%	6%	6%	7%	0%	11%
Adj. Flow (vph)	98	72	591	135	36	290
Shared Lane Traffic (%)						
Lane Group Flow (vph)	98	72	591	135	36	290
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	25.0	25.0	25.0	25.0
Minimum Split (s)	23.0	23.0	32.0	32.0	32.0	32.0
Total Split (s)	26.0	26.0	64.0	64.0	64.0	64.0
Total Split (%)	28.9%	28.9%	71.1%	71.1%	71.1%	71.1%
Maximum Green (s)	20.0	20.0	57.0	57.0	57.0	57.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	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)	6.0	6.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	10.0	10.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	11.0	11.0	63.8	63.8	63.8	63.8
Actuated g/C Ratio	0.13	0.13	0.77	0.77	0.77	0.77
v/c Ratio	0.43	0.27	0.43	0.11	0.06	0.22
Control Delay	38.9	11.1	6.1	1.1	4.3	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	11.1	6.1	1.1	4.3	4.5
LOS	D	B	A	A	A	A
Approach Delay	27.1		5.1			4.5
Approach LOS	C		A			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 83			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 8.0		Intersection LOS: A	
Intersection Capacity Utilization 53.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 500: Trafalgar Rd & Princess Anne Dr

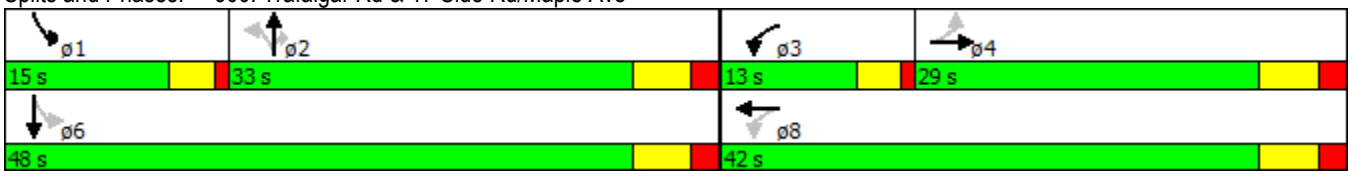


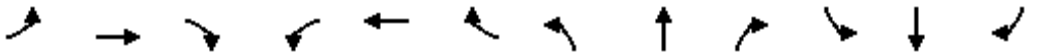
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	81	16	186	127	79	55	678	156	47	313	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	50.0		0.0	60.0		65.0	45.0		0.0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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			0.943				0.850		0.991	
Flt Protected		0.989		0.950			0.950			0.950		
Satd. Flow (prot)	0	1809	0	1787	1774	0	1752	1845	1568	1719	1793	0
Flt Permitted		0.858		0.525			0.553			0.136		
Satd. Flow (perm)	0	1569	0	988	1774	0	1020	1845	1568	246	1793	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			41				133		5	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		190.9			211.3			130.2			933.6	
Travel Time (s)		11.5			12.7			7.8			56.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	3%	3%	3%	5%	5%	5%
Adj. Flow (vph)	30	84	17	194	132	82	57	706	162	49	326	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	131	0	194	214	0	57	706	162	49	347	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	29.0	29.0		11.0	29.0		21.0	21.0	21.0	11.0	21.0	
Total Split (s)	29.0	29.0		13.0	42.0		33.0	33.0	33.0	15.0	48.0	
Total Split (%)	32.2%	32.2%		14.4%	46.7%		36.7%	36.7%	36.7%	16.7%	53.3%	
Maximum Green (s)	23.0	23.0		9.0	36.0		27.0	27.0	27.0	11.0	42.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0		4.0	6.0		6.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		0.2	3.0		3.0	3.0	3.0	0.2	3.0	
Recall Mode	None	None		None	None		Max	Max	Max	None	Max	
Walk Time (s)	7.0	7.0			7.0		7.0	7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0			16.0		8.0	8.0	8.0		8.0	
Pedestrian Calls (#/hr)	0	0			0		0	0	0		0	
Act Effct Green (s)		11.2		25.5	23.4		35.8	35.8	35.8	44.1	42.1	
Actuated g/C Ratio		0.14		0.33	0.30		0.46	0.46	0.46	0.57	0.54	
v/c Ratio		0.56		0.48	0.38		0.12	0.83	0.20	0.18	0.36	
Control Delay		38.7		23.5	18.8		16.6	32.5	5.6	10.1	12.0	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		38.7		23.5	18.8		16.6	32.5	5.6	10.1	12.0	
LOS		D		C	B		B	C	A	B	B	
Approach Delay		38.7			21.1			26.9			11.7	
Approach LOS		D			C			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 77.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 23.2		Intersection LOS: C	
Intersection Capacity Utilization 78.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 600: Trafalgar Rd & 17 Side Rd/Maple Ave



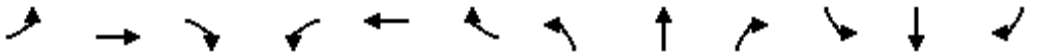


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	40	13	39	40	73	61	762	65	40	437	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	100.0		0.0	105.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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		0.983				0.850		0.988			0.994	
Flt Protected		0.977			0.976		0.950			0.950		
Satd. Flow (prot)	0	1808	0	0	1854	1615	1736	1808	0	1752	1770	0
Flt Permitted		0.808			0.817		0.466			0.243		
Satd. Flow (perm)	0	1495	0	0	1552	1615	851	1808	0	448	1770	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				80		10			5	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		110.9			149.1			3110.1			364.3	
Travel Time (s)		6.7			8.9			186.6			21.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	4%	4%	2%	3%	7%	0%
Adj. Flow (vph)	51	44	14	43	44	80	67	837	71	44	480	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	109	0	0	87	80	67	908	0	44	501	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	20.0	20.0		20.0	20.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	27.0	27.0		27.0	27.0	
Total Split (s)	25.0	25.0		25.0	25.0	25.0	65.0	65.0		65.0	65.0	
Total Split (%)	27.8%	27.8%		27.8%	27.8%	27.8%	72.2%	72.2%		72.2%	72.2%	
Maximum Green (s)	19.0	19.0		19.0	19.0	19.0	58.0	58.0		58.0	58.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	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	0.0	
Total Lost Time (s)		6.0			6.0	6.0	7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		11.0			11.0	11.0	62.6	62.6		62.6	62.6	
Actuated g/C Ratio		0.13			0.13	0.13	0.76	0.76		0.76	0.76	
v/c Ratio		0.53			0.42	0.28	0.10	0.66		0.13	0.37	
Control Delay		40.5			38.8	10.5	5.0	10.2		5.8	5.9	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		40.5			38.8	10.5	5.0	10.2		5.8	5.9	
LOS		D			D	B	A	B		A	A	
Approach Delay		40.5			25.2			9.8			5.9	
Approach LOS		D			C			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 82.5			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 73.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1000: Trafalgar Rd & 15 Side Rd

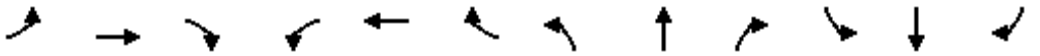


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	215	60	130	330	42	96	798	144	56	401	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	170.0		20.0	95.0		0.0	150.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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		0.967				0.850		0.977			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1641	1724	0	1703	1845	1442	1671	1754	0	1719	1647	0
Flt Permitted	0.288			0.398			0.422			0.085		
Satd. Flow (perm)	497	1724	0	713	1845	1442	742	1754	0	154	1647	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				97		16			7	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		303.7			255.9			2774.5			3110.1	
Travel Time (s)		18.2			15.4			166.5			186.6	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	10%	7%	5%	6%	3%	12%	8%	6%	5%	5%	15%	3%
Adj. Flow (vph)	51	229	64	138	351	45	102	849	153	60	427	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	293	0	138	351	45	102	1002	0	60	461	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0		4.0	20.0	
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	8.0	27.0		8.0	27.0	
Total Split (s)	28.0	28.0		28.0	28.0	28.0	8.0	54.0		8.0	54.0	
Total Split (%)	31.1%	31.1%		31.1%	31.1%	31.1%	8.9%	60.0%		8.9%	60.0%	
Maximum Green (s)	21.0	21.0		21.0	21.0	21.0	4.0	47.0		4.0	47.0	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	3.0	5.0		3.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	-2.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0	7.0	4.0	5.0		4.0	7.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	3.0	5.0		3.0	5.0	
Recall Mode	None	None		None	None	None	None	Max		None	Max	
Act Effct Green (s)	20.0	20.0		20.0	20.0	20.0	53.3	49.2		53.3	47.2	
Actuated g/C Ratio	0.23	0.23		0.23	0.23	0.23	0.61	0.56		0.61	0.54	
v/c Ratio	0.45	0.72		0.85	0.83	0.11	0.21	1.01		0.36	0.52	
Control Delay	44.2	41.5		75.6	51.1	0.8	7.2	52.5		12.4	16.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	44.2	41.5		75.6	51.1	0.8	7.2	52.5		12.4	16.0	
LOS	D	D		E	D	A	A	D		B	B	
Approach Delay		41.9			53.2			48.3			15.6	
Approach LOS		D			D			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 87.4			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 41.7		Intersection LOS: D	
Intersection Capacity Utilization 96.4%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1100: Trafalgar Rd & 10 Side Rd

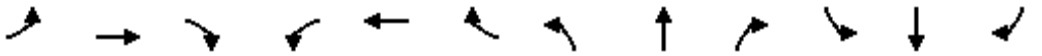


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	182	21	57	224	52	48	910	32	3	535	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	72.0		0.0	95.0		95.0	205.0		205.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	60.0			75.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.972			0.995			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1792	1524	1752	1793	0	1752	3487	0	1719	3390	0
Flt Permitted	0.478			0.637			0.344			0.233		
Satd. Flow (perm)	857	1792	1524	1175	1793	0	635	3487	0	422	3390	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65		10			4			12	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		592.1			514.5			208.6			347.7	
Travel Time (s)		35.5			30.9			12.5			20.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	3%	3%	3%	5%	5%	5%
Adj. Flow (vph)	80	192	22	60	236	55	51	958	34	3	563	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	192	22	60	291	0	51	992	0	3	620	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0		7.0	25.0		7.0	25.0	
Minimum Split (s)	38.4	38.4	38.4	38.4	38.4		11.0	33.0		11.0	33.0	
Total Split (s)	41.4	41.4	41.4	41.4	41.4		15.0	61.0		15.0	61.0	
Total Split (%)	35.3%	35.3%	35.3%	35.3%	35.3%		12.8%	52.0%		12.8%	52.0%	
Maximum Green (s)	35.0	35.0	35.0	35.0	35.0		11.0	55.0		11.0	55.0	
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6		3.0	4.6		3.0	4.6	
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8		1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	25.0	25.0	25.0	25.0	25.0			20.0			20.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effct Green (s)	19.6	19.6	19.6	19.6	19.6		37.2	34.0		35.2	29.3	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29		0.55	0.50		0.52	0.43	
v/c Ratio	0.33	0.37	0.05	0.18	0.56		0.11	0.57		0.01	0.42	
Control Delay	26.4	24.0	0.2	22.9	26.5		8.1	14.4		7.7	15.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.4	24.0	0.2	22.9	26.5		8.1	14.4		7.7	15.8	
LOS	C	C	A	C	C		A	B		A	B	
Approach Delay		22.9			25.8			14.1			15.7	
Approach LOS		C			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 117.4			
Actuated Cycle Length: 68.2			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 17.4		Intersection LOS: B	
Intersection Capacity Utilization 78.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1200: Trafalgar Rd & 5 Side Rd

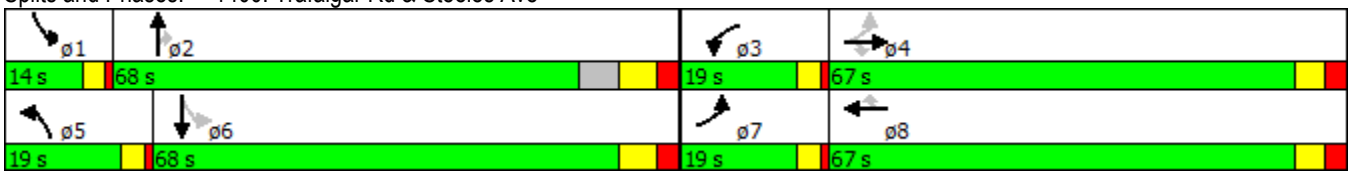


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	284	149	450	400	47	248	787	350	42	386	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		50.0	140.0		100.0	100.0		0.0	190.0		190.0
Storage Lanes	1		1	2		1	2		1	1		0
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	3139	1205	3467	3312	1553	3127	3471	1568	1641	3193	0
Flt Permitted	0.504			0.950			0.950			0.300		
Satd. Flow (perm)	847	3139	1205	3467	3312	1553	3127	3471	1568	518	3193	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			159			107			309		9	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		303.8			305.5			398.9			380.0	
Travel Time (s)		18.2			18.3			23.9			22.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	13%	15%	34%	1%	9%	4%	12%	4%	3%	10%	10%	20%
Adj. Flow (vph)	40	302	159	479	426	50	264	837	372	45	411	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	302	159	479	426	50	264	837	372	45	463	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	25.0	25.0	7.0	25.0	
Minimum Split (s)	14.0	30.0	30.0	14.0	30.0	30.0	14.0	33.0	33.0	14.0	33.0	
Total Split (s)	19.0	67.0	67.0	19.0	67.0	67.0	19.0	68.0	68.0	14.0	68.0	
Total Split (%)	11.0%	38.7%	38.7%	11.0%	38.7%	38.7%	11.0%	39.3%	39.3%	8.1%	39.3%	
Maximum Green (s)	15.0	60.0	60.0	15.0	60.0	60.0	15.0	60.0	60.0	10.0	60.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	7.0	7.0	3.0	7.0	7.0	4.0	8.0	8.0	4.0	8.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		16.0	16.0		16.0	16.0		12.0	12.0		12.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	30.3	19.3	19.3	16.2	29.1	29.1	15.0	41.8	41.8	43.3	31.8	
Actuated g/C Ratio	0.29	0.18	0.18	0.15	0.28	0.28	0.14	0.40	0.40	0.41	0.30	
v/c Ratio	0.13	0.52	0.45	0.89	0.46	0.10	0.59	0.60	0.46	0.15	0.47	
Control Delay	23.2	42.8	10.8	65.1	35.4	0.4	50.1	27.8	6.7	14.4	30.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	23.2	42.8	10.8	65.1	35.4	0.4	50.1	27.8	6.7	14.4	30.6	
LOS	C	D	B	E	D	A	D	C	A	B	C	
Approach Delay		31.1			48.5			26.5			29.2	
Approach LOS		C			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 173			
Actuated Cycle Length: 104.6			
Natural Cycle: 95			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 33.7		Intersection LOS: C	
Intersection Capacity Utilization 72.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1400: Trafalgar Rd & Steeles Ave



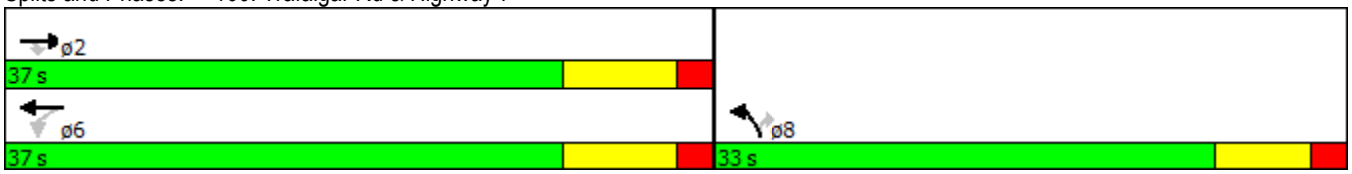
APPENDIX B – Capacity Analysis: 2031 Do Nothing

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1016	852	97	342	315	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		140.0	125.0		0.0	78.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3374	1524	1703	3252	1467	1429
Flt Permitted			0.198		0.950	
Satd. Flow (perm)	3374	1524	355	3252	1467	1429
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		897				34
Link Speed (k/h)	60			60	60	
Link Distance (m)	301.0			313.5	233.8	
Travel Time (s)	18.1			18.8	14.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	6%	6%	11%	23%	13%
Adj. Flow (vph)	1069	897	102	360	332	111
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1069	897	102	360	332	111
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	27.9	27.9	27.9	27.9	17.0	17.0
Total Split (s)	37.0	37.0	37.0	37.0	33.0	33.0
Total Split (%)	52.9%	52.9%	52.9%	52.9%	47.1%	47.1%
Maximum Green (s)	29.1	29.1	29.1	29.1	26.0	26.0
Yellow Time (s)	5.9	5.9	5.9	5.9	5.0	5.0
All-Red Time (s)	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)	7.9	7.9	7.9	7.9	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.5	4.5	4.5	4.5	3.0	3.0
Recall Mode	Min	Min	Min	Min	None	None
Act Effct Green (s)	28.3	28.3	28.3	28.3	18.6	18.6
Actuated g/C Ratio	0.46	0.46	0.46	0.46	0.30	0.30
v/c Ratio	0.69	0.76	0.63	0.24	0.75	0.25
Control Delay	17.3	6.3	37.8	11.8	31.3	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	6.3	37.8	11.8	31.3	13.2
LOS	B	A	D	B	C	B
Approach Delay	12.3			17.6	26.8	
Approach LOS	B			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 62			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 15.4		Intersection LOS: B	
Intersection Capacity Utilization 82.6%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 100: Trafalgar Rd & Highway 7

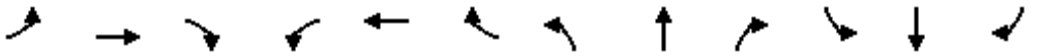


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	105	33	365	161	73	940
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0		70.0	145.0	
Storage Lanes	1	1		1	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1736	1417	1667	1455	1703	1792
Flt Permitted	0.950				0.534	
Satd. Flow (perm)	1736	1417	1667	1455	957	1792
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		35		169		
Link Speed (k/h)	60		60			60
Link Distance (m)	206.8		933.6			536.0
Travel Time (s)	12.4		56.0			32.2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	14%	14%	11%	6%	6%
Adj. Flow (vph)	111	35	384	169	77	989
Shared Lane Traffic (%)						
Lane Group Flow (vph)	111	35	384	169	77	989
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	25.0	25.0	25.0	25.0
Minimum Split (s)	23.0	23.0	32.0	32.0	32.0	32.0
Total Split (s)	23.0	23.0	67.0	67.0	67.0	67.0
Total Split (%)	25.6%	25.6%	74.4%	74.4%	74.4%	74.4%
Maximum Green (s)	17.0	17.0	60.0	60.0	60.0	60.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	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)	6.0	6.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	10.0	10.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	11.7	11.7	68.3	68.3	68.3	68.3
Actuated g/C Ratio	0.13	0.13	0.78	0.78	0.78	0.78
v/c Ratio	0.48	0.16	0.30	0.15	0.10	0.71
Control Delay	42.4	12.9	5.1	1.1	4.6	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	12.9	5.1	1.1	4.6	11.5
LOS	D	B	A	A	A	B
Approach Delay	35.3		3.9			11.0
Approach LOS	D		A			B

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 88.1			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 10.8		Intersection LOS: B	
Intersection Capacity Utilization 68.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 500: Trafalgar Rd & Princess Anne Dr

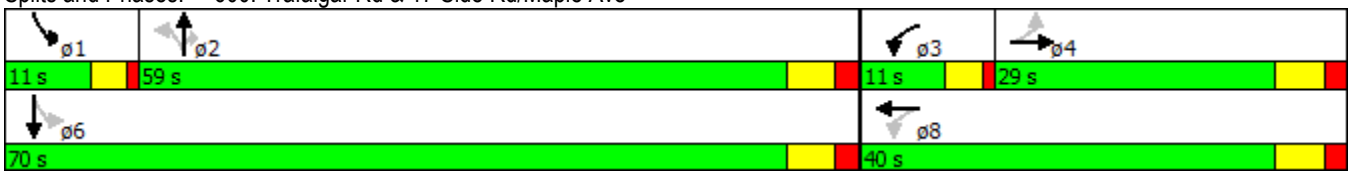


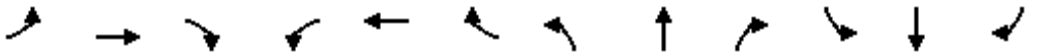
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	178	62	208	126	132	17	362	336	111	908	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	50.0		0.0	60.0		65.0	45.0		0.0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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		0.969			0.923				0.850		0.996	
Flt Protected		0.994		0.950			0.950			0.950		
Satd. Flow (prot)	0	1726	0	1719	1670	0	1671	1759	1495	1703	1785	0
Flt Permitted		0.923		0.289			0.096			0.415		
Satd. Flow (perm)	0	1603	0	523	1670	0	169	1759	1495	744	1785	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			50				354		2	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		190.9			211.3			130.2			933.6	
Travel Time (s)		11.5			12.7			7.8			56.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	6%	6%	5%	5%	5%	8%	8%	8%	6%	6%	6%
Adj. Flow (vph)	34	187	65	219	133	139	18	381	354	117	956	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	286	0	219	272	0	18	381	354	117	983	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	29.0	29.0		11.0	29.0		21.0	21.0	21.0	11.0	21.0	
Total Split (s)	29.0	29.0		11.0	40.0		59.0	59.0	59.0	11.0	70.0	
Total Split (%)	26.4%	26.4%		10.0%	36.4%		53.6%	53.6%	53.6%	10.0%	63.6%	
Maximum Green (s)	23.0	23.0		7.0	34.0		53.0	53.0	53.0	7.0	64.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0		4.0	6.0		6.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
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	None	None		None	None		Max	Max	Max	None	Max	
Walk Time (s)	7.0	7.0			7.0		7.0	7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0			16.0		8.0	8.0	8.0		8.0	
Pedestrian Calls (#/hr)	0	0			0		0	0	0		0	
Act Effct Green (s)		21.3		34.3	32.3		53.0	53.0	53.0	66.0	64.0	
Actuated g/C Ratio		0.20		0.32	0.30		0.49	0.49	0.49	0.61	0.59	
v/c Ratio		0.88		0.90	0.51		0.22	0.44	0.39	0.23	0.93	
Control Delay		68.7		70.6	29.1		24.9	20.5	3.1	10.4	37.2	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		68.7		70.6	29.1		24.9	20.5	3.1	10.4	37.2	
LOS		E		E	C		C	C	A	B	D	
Approach Delay		68.7			47.6			12.4			34.4	
Approach LOS		E			D			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 108.3			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 34.3		Intersection LOS: C	
Intersection Capacity Utilization 104.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 600: Trafalgar Rd & 17 Side Rd/Maple Ave



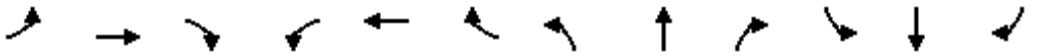


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	94	85	129	44	99	11	484	58	119	1015	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	100.0		0.0	105.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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		0.959				0.850		0.984			0.995	
Flt Protected		0.982			0.964		0.950			0.950		
Satd. Flow (prot)	0	1677	0	0	1724	1442	1805	1604	0	1641	1750	0
Flt Permitted		0.694			0.524		0.058			0.376		
Satd. Flow (perm)	0	1185	0	0	937	1442	110	1604	0	649	1750	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				104		10			3	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		110.9			149.1			2798.3			364.3	
Travel Time (s)		6.7			8.9			167.9			21.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	10%	5%	6%	7%	12%	0%	17%	13%	10%	8%	8%
Adj. Flow (vph)	105	99	89	136	46	104	12	509	61	125	1068	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	293	0	0	182	104	12	570	0	125	1107	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	20.0	20.0		20.0	20.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	27.0	27.0		27.0	27.0	
Total Split (s)	36.0	36.0		36.0	36.0	36.0	84.0	84.0		84.0	84.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%	30.0%	70.0%	70.0%		70.0%	70.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0	30.0	77.0	77.0		77.0	77.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	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	0.0	
Total Lost Time (s)		6.0			6.0	6.0	7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		29.3			29.3	29.3	77.0	77.0		77.0	77.0	
Actuated g/C Ratio		0.25			0.25	0.25	0.65	0.65		0.65	0.65	
v/c Ratio		0.96			0.79	0.24	0.17	0.55		0.30	0.98	
Control Delay		86.0			67.2	8.2	15.5	14.0		11.8	43.9	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		86.0			67.2	8.2	15.5	14.0		11.8	43.9	
LOS		F			E	A	B	B		B	D	
Approach Delay		86.0			45.7			14.0			40.6	
Approach LOS		F			D			B			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 119.3			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 40.3		Intersection LOS: D	
Intersection Capacity Utilization 111.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1000: Trafalgar Rd & 15 Side Rd

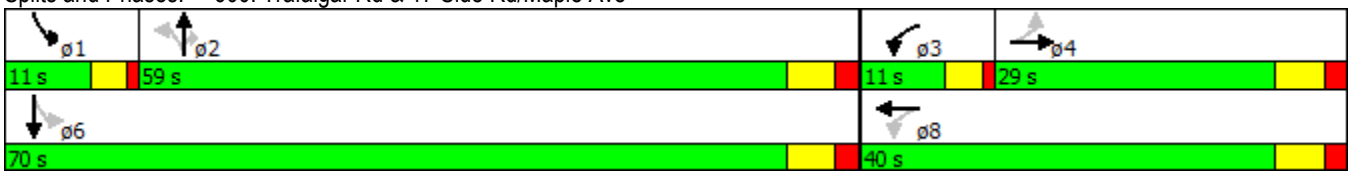


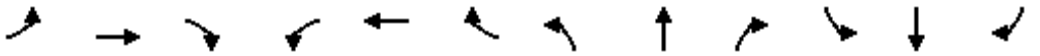
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	178	62	208	126	132	17	362	336	111	908	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	50.0		0.0	60.0		65.0	45.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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		0.961			0.923				0.850		0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1723	0	1719	1670	0	1671	1759	1495	1703	1785	0
Flt Permitted	0.592			0.281			0.114			0.422		
Satd. Flow (perm)	1061	1723	0	508	1670	0	201	1759	1495	756	1785	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			50				354		2	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		190.9			211.3			130.2			933.6	
Travel Time (s)		11.5			12.7			7.8			56.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	6%	6%	5%	5%	5%	8%	8%	8%	6%	6%	6%
Adj. Flow (vph)	34	187	65	219	133	139	18	381	354	117	956	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	252	0	219	272	0	18	381	354	117	983	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	29.0	29.0		11.0	29.0		21.0	21.0	21.0	11.0	21.0	
Total Split (s)	29.0	29.0		11.0	40.0		59.0	59.0	59.0	11.0	70.0	
Total Split (%)	26.4%	26.4%		10.0%	36.4%		53.6%	53.6%	53.6%	10.0%	63.6%	
Maximum Green (s)	23.0	23.0		7.0	34.0		53.0	53.0	53.0	7.0	64.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		4.0	6.0		6.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
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	None	None		None	None		Max	Max	Max	None	Max	
Walk Time (s)	7.0	7.0			7.0		7.0	7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0			16.0		8.0	8.0	8.0		8.0	
Pedestrian Calls (#/hr)	0	0			0		0	0	0		0	
Act Effct Green (s)	18.8	18.8		31.9	29.9		53.1	53.1	53.1	66.1	64.1	
Actuated g/C Ratio	0.18	0.18		0.30	0.28		0.50	0.50	0.50	0.62	0.60	
v/c Ratio	0.18	0.79		0.94	0.54		0.18	0.43	0.38	0.22	0.91	
Control Delay	38.8	57.8		80.1	30.1		21.6	19.5	3.0	9.8	33.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	38.8	57.8		80.1	30.1		21.6	19.5	3.0	9.8	33.3	
LOS	D	E		F	C		C	B	A	A	C	
Approach Delay		55.5			52.4			11.8			30.8	
Approach LOS		E			D			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 106			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 32.1		Intersection LOS: C	
Intersection Capacity Utilization 98.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 600: Trafalgar Rd & 17 Side Rd/Maple Ave



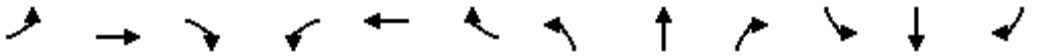


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	94	85	129	44	99	11	484	58	119	1015	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	30.0		30.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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		0.929			0.896			0.984			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1640	0	1703	1541	0	1805	1604	0	1641	1750	0
Flt Permitted	0.589			0.496			0.110			0.401		
Satd. Flow (perm)	1066	1640	0	889	1541	0	209	1604	0	693	1750	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			90			10			3	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		110.9			149.1			2798.3			364.3	
Travel Time (s)		6.7			8.9			167.9			21.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	10%	5%	6%	7%	12%	0%	17%	13%	10%	8%	8%
Adj. Flow (vph)	105	99	89	136	46	104	12	509	61	125	1068	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	188	0	136	150	0	12	570	0	125	1107	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		27.0	27.0		27.0	27.0	
Total Split (s)	36.0	36.0		36.0	36.0		84.0	84.0		84.0	84.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%		70.0%	70.0%		70.0%	70.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0		77.0	77.0		77.0	77.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		5.0	5.0		5.0	5.0	
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		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
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	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	20.2	20.2		20.2	20.2		77.3	77.3		77.3	77.3	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.70	0.70		0.70	0.70	
v/c Ratio	0.54	0.57		0.84	0.42		0.08	0.51		0.26	0.90	
Control Delay	50.9	39.5		81.6	20.2		9.0	10.6		9.1	27.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	50.9	39.5		81.6	20.2		9.0	10.6		9.1	27.5	
LOS	D	D		F	C		A	B		A	C	
Approach Delay		43.6			49.4			10.6			25.7	
Approach LOS		D			D			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 110.5			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 27.0		Intersection LOS: C	
Intersection Capacity Utilization 111.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1000: Trafalgar Rd & 15 Side Rd

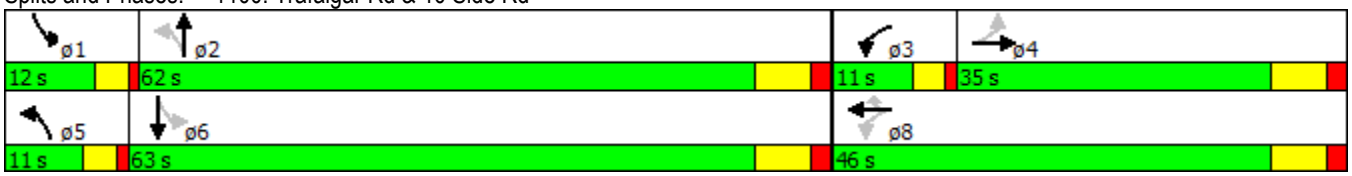


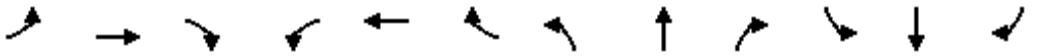
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	485	149	228	388	70	18	412	143	149	1039	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	170.0		20.0	95.0		0.0	150.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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		0.965				0.850		0.961			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1543	1784	0	1687	1845	1429	1671	1623	0	1597	1792	0
Flt Permitted	0.437			0.125			0.078			0.216		
Satd. Flow (perm)	710	1784	0	222	1845	1429	137	1623	0	363	1792	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				73		19			2	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		303.7			255.9			2774.5			3110.1	
Travel Time (s)		18.2			15.4			166.5			186.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	17%	3%	2%	7%	3%	13%	8%	12%	14%	13%	5%	15%
Adj. Flow (vph)	74	511	157	240	408	74	19	434	151	157	1094	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	668	0	240	408	74	19	585	0	157	1137	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	20.0		7.0	20.0	
Minimum Split (s)	14.0	14.0		11.0	14.0	14.0	11.0	27.0		11.0	27.0	
Total Split (s)	35.0	35.0		11.0	46.0	46.0	11.0	62.0		12.0	63.0	
Total Split (%)	29.2%	29.2%		9.2%	38.3%	38.3%	9.2%	51.7%		10.0%	52.5%	
Maximum Green (s)	28.0	28.0		7.0	39.0	39.0	7.0	55.0		8.0	56.0	
Yellow Time (s)	5.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
All-Red Time (s)	2.0	2.0		1.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	-2.0		-2.5	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	5.0		1.5	7.0	7.0	4.0	7.0		4.0	7.0	
Lead/Lag	Lag	Lag		Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Recall Mode	None	None		None	Max	Max	None	Min		None	Min	
Act Effct Green (s)	28.1	30.1		44.6	39.1	39.1	58.6	48.6		62.4	56.4	
Actuated g/C Ratio	0.25	0.26		0.39	0.34	0.34	0.52	0.43		0.55	0.50	
v/c Ratio	0.42	1.39		1.15	0.64	0.14	0.12	0.83		0.55	1.28	
Control Delay	46.4	221.6		135.1	37.9	7.3	12.4	39.4		20.0	161.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	46.4	221.6		135.1	37.9	7.3	12.4	39.4		20.0	161.6	
LOS	D	F		F	D	A	B	D		B	F	
Approach Delay		204.1			67.1			38.5			144.4	
Approach LOS		F			E			D			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 113.7			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.39			
Intersection Signal Delay: 122.0		Intersection LOS: F	
Intersection Capacity Utilization 126.9%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1100: Trafalgar Rd & 10 Side Rd



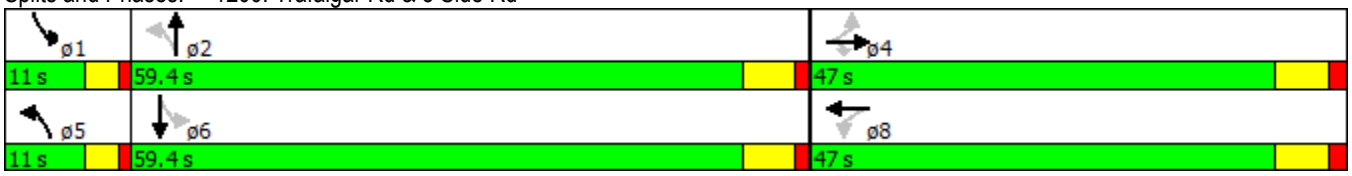


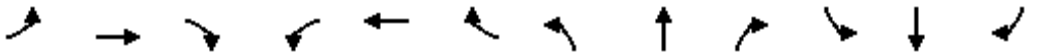
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	88	543	207	75	155	21	9	464	102	85	1280	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	72.0		0.0	95.0		95.0	205.0		205.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	60.0			75.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.982			0.973			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1810	1538	1703	1760	0	1556	3028	0	1656	3292	0
Flt Permitted	0.616			0.161			0.084			0.335		
Satd. Flow (perm)	1115	1810	1538	289	1760	0	138	3028	0	584	3292	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			144		6			29			5	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		592.1			514.5			208.6			347.7	
Travel Time (s)		35.5			30.9			12.5			20.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	16%	16%	16%	9%	9%	9%
Adj. Flow (vph)	93	572	218	79	163	22	9	488	107	89	1347	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	572	218	79	185	0	9	595	0	89	1402	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0		7.0	25.0		7.0	25.0	
Minimum Split (s)	38.4	38.4	38.4	38.4	38.4		11.0	33.0		11.0	33.0	
Total Split (s)	47.0	47.0	47.0	47.0	47.0		11.0	59.4		11.0	59.4	
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		9.4%	50.6%		9.4%	50.6%	
Maximum Green (s)	40.6	40.6	40.6	40.6	40.6		7.0	53.4		7.0	53.4	
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6		3.0	4.6		3.0	4.6	
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8		1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	25.0	25.0	25.0	25.0	25.0			20.0			20.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effct Green (s)	40.7	40.7	40.7	40.7	40.7		53.0	45.5		55.4	52.1	
Actuated g/C Ratio	0.38	0.38	0.38	0.38	0.38		0.49	0.42		0.52	0.49	
v/c Ratio	0.22	0.83	0.32	0.72	0.28		0.06	0.46		0.24	0.88	
Control Delay	25.8	43.4	10.5	68.4	24.8		12.6	22.6		14.3	32.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.8	43.4	10.5	68.4	24.8		12.6	22.6		14.3	32.5	
LOS	C	D	B	E	C		B	C		B	C	
Approach Delay		33.4			37.8			22.5			31.4	
Approach LOS		C			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 117.4			
Actuated Cycle Length: 107.3			
Natural Cycle: 95			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 30.8		Intersection LOS: C	
Intersection Capacity Utilization 102.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 1200: Trafalgar Rd & 5 Side Rd



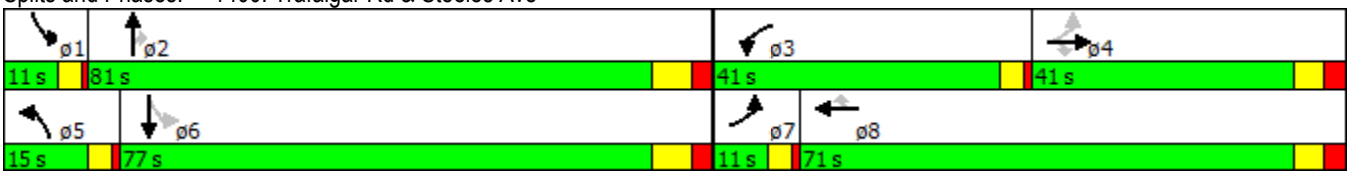


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	708	464	676	237	29	155	362	341	85	1304	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		50.0	140.0		100.0	100.0		0.0	190.0		190.0
Storage Lanes	1		1	2		1	2		1	1		0
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1410	4472	1429	3335	4117	1392	2398	3252	1429	1583	3398	0
Flt Permitted	0.591			0.950			0.950			0.514		
Satd. Flow (perm)	877	4472	1429	3335	4117	1392	2398	3252	1429	857	3398	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			107			82			359		9	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		303.8			305.5			398.9			380.0	
Travel Time (s)		18.2			18.3			23.9			22.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	28%	16%	13%	5%	26%	16%	46%	11%	13%	14%	4%	9%
Adj. Flow (vph)	80	745	488	712	249	31	163	381	359	89	1373	166
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	745	488	712	249	31	163	381	359	89	1539	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	25.0	25.0	7.0	25.0	
Minimum Split (s)	11.0	30.0	30.0	11.0	30.0	30.0	11.0	33.0	33.0	11.0	33.0	
Total Split (s)	11.0	41.0	41.0	41.0	71.0	71.0	15.0	81.0	81.0	11.0	77.0	
Total Split (%)	6.3%	23.6%	23.6%	23.6%	40.8%	40.8%	8.6%	46.6%	46.6%	6.3%	44.3%	
Maximum Green (s)	7.0	34.0	34.0	37.0	64.0	64.0	11.0	73.0	73.0	7.0	69.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	
Lost Time Adjust (s)	0.0	-1.0	-1.0	-1.0	-1.0	1.0	0.0	-1.0	-1.0	0.0	-1.0	
Total Lost Time (s)	4.0	6.0	6.0	3.0	6.0	8.0	4.0	7.0	7.0	4.0	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		16.0	16.0		16.0	16.0		16.0	16.0		16.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	44.0	35.0	35.0	38.0	65.0	63.0	11.0	74.0	74.0	80.0	70.0	
Actuated g/C Ratio	0.25	0.20	0.20	0.22	0.37	0.36	0.06	0.43	0.43	0.46	0.40	
v/c Ratio	0.33	0.83	1.31	0.98	0.16	0.06	1.08	0.28	0.44	0.21	1.12	
Control Delay	38.2	75.6	197.9	94.9	36.7	0.2	167.8	33.2	4.4	24.4	111.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	38.2	75.6	197.9	94.9	36.7	0.2	167.8	33.2	4.4	24.4	111.6	
LOS	D	E	F	F	D	A	F	C	A	C	F	
Approach Delay		118.8			77.3			46.1			106.9	
Approach LOS		F			E			D			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 174			
Actuated Cycle Length: 174			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.31			
Intersection Signal Delay: 92.7		Intersection LOS: F	
Intersection Capacity Utilization 103.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 1400: Trafalgar Rd & Steeles Ave

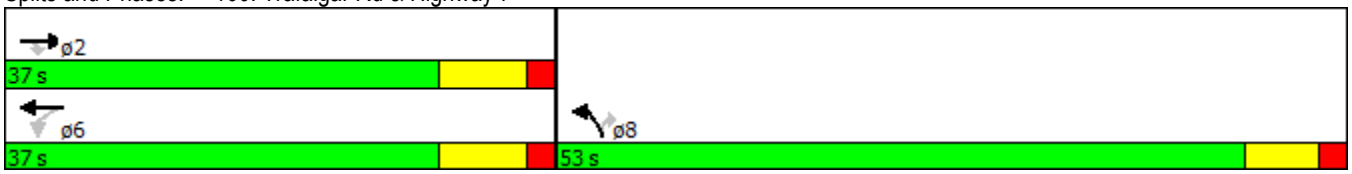


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	534	385	105	945	813	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		140.0	125.0		0.0	78.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3438	1509	1736	3505	1770	1615
Flt Permitted			0.385		0.950	
Satd. Flow (perm)	3438	1509	703	3505	1770	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		405				109
Link Speed (k/h)	60			60	60	
Link Distance (m)	301.0			313.5	233.8	
Travel Time (s)	18.1			18.8	14.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	7%	4%	3%	2%	0%
Adj. Flow (vph)	562	405	111	995	856	156
Shared Lane Traffic (%)						
Lane Group Flow (vph)	562	405	111	995	856	156
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	27.9	27.9	27.9	27.9	17.0	17.0
Total Split (s)	37.0	37.0	37.0	37.0	53.0	53.0
Total Split (%)	41.1%	41.1%	41.1%	41.1%	58.9%	58.9%
Maximum Green (s)	29.1	29.1	29.1	29.1	46.0	46.0
Yellow Time (s)	5.9	5.9	5.9	5.9	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	-1.0	0.0
Total Lost Time (s)	7.9	7.9	7.9	7.9	6.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.5	4.5	4.5	4.5	3.0	3.0
Recall Mode	Min	Min	Min	Min	None	None
Act Effct Green (s)	28.1	28.1	28.1	28.1	44.6	43.6
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.51	0.50
v/c Ratio	0.50	0.53	0.49	0.88	0.94	0.18
Control Delay	26.0	5.3	33.2	38.3	39.9	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	5.3	33.2	38.3	39.9	4.8
LOS	C	A	C	D	D	A
Approach Delay	17.3			37.8	34.5	
Approach LOS	B			D	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 86.7			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 30.3		Intersection LOS: C	
Intersection Capacity Utilization 96.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 100: Trafalgar Rd & Highway 7

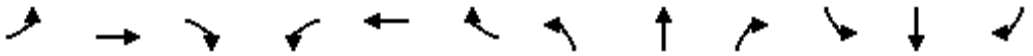


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	146	108	881	201	53	432
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0		70.0	145.0	
Storage Lanes	1	1		1	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1736	1524	1792	1509	1805	1712
Flt Permitted	0.950				0.216	
Satd. Flow (perm)	1736	1524	1792	1509	410	1712
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		114		212		
Link Speed (k/h)	60		60			60
Link Distance (m)	206.8		933.6			536.0
Travel Time (s)	12.4		56.0			32.2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	6%	6%	7%	0%	11%
Adj. Flow (vph)	154	114	927	212	56	455
Shared Lane Traffic (%)						
Lane Group Flow (vph)	154	114	927	212	56	455
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	25.0	25.0	25.0	25.0
Minimum Split (s)	23.0	23.0	32.0	32.0	32.0	32.0
Total Split (s)	23.0	23.0	67.0	67.0	67.0	67.0
Total Split (%)	25.6%	25.6%	74.4%	74.4%	74.4%	74.4%
Maximum Green (s)	17.0	17.0	60.0	60.0	60.0	60.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	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)	6.0	6.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	10.0	10.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	13.2	13.2	62.9	62.9	62.9	62.9
Actuated g/C Ratio	0.15	0.15	0.71	0.71	0.71	0.71
v/c Ratio	0.60	0.35	0.73	0.19	0.19	0.38
Control Delay	44.9	9.8	13.1	1.2	7.2	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	9.8	13.1	1.2	7.2	6.7
LOS	D	A	B	A	A	A
Approach Delay	29.9		10.9			6.8
Approach LOS	C		B			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 89.1			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 12.5		Intersection LOS: B	
Intersection Capacity Utilization 65.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 500: Trafalgar Rd & Princess Anne Dr

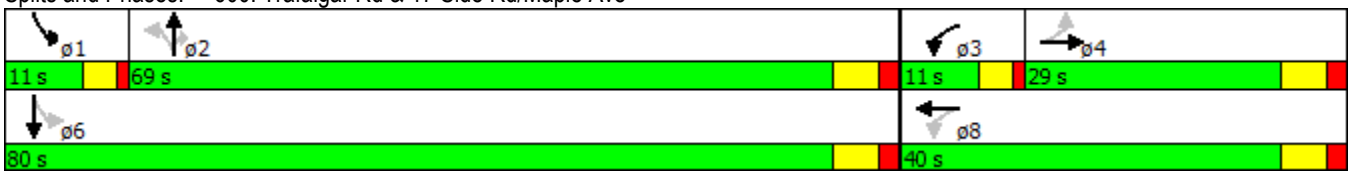


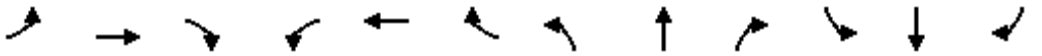
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	44	123	24	283	193	120	84	1032	237	72	476	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	50.0		0.0	60.0		65.0	45.0		0.0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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		0.983			0.943				0.850		0.991	
Flt Protected		0.989		0.950			0.950			0.950		
Satd. Flow (prot)	0	1811	0	1787	1774	0	1752	1845	1568	1719	1793	0
Flt Permitted		0.738		0.397			0.449			0.058		
Satd. Flow (perm)	0	1351	0	747	1774	0	828	1845	1568	105	1793	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			26				132		5	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		190.9			211.3			130.2			933.6	
Travel Time (s)		11.5			12.7			7.8			56.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	3%	3%	3%	5%	5%	5%
Adj. Flow (vph)	46	129	25	298	203	126	88	1086	249	76	501	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	200	0	298	329	0	88	1086	249	76	533	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	29.0	29.0		11.0	29.0		21.0	21.0	21.0	11.0	21.0	
Total Split (s)	29.0	29.0		11.0	40.0		69.0	69.0	69.0	11.0	80.0	
Total Split (%)	24.2%	24.2%		9.2%	33.3%		57.5%	57.5%	57.5%	9.2%	66.7%	
Maximum Green (s)	23.0	23.0		7.0	34.0		63.0	63.0	63.0	7.0	74.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0		4.0	6.0		6.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		0.2	3.0		3.0	3.0	3.0	0.2	3.0	
Recall Mode	None	None		None	None		Max	Max	Max	None	Max	
Walk Time (s)	7.0	7.0			7.0		7.0	7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0			16.0		8.0	8.0	8.0		8.0	
Pedestrian Calls (#/hr)	0	0			0		0	0	0		0	
Act Effct Green (s)		19.3		32.3	30.3		65.4	65.4	65.4	76.1	74.1	
Actuated g/C Ratio		0.17		0.28	0.26		0.56	0.56	0.56	0.65	0.64	
v/c Ratio		0.88		1.11	0.68		0.19	1.05	0.27	0.46	0.47	
Control Delay		81.6		123.9	43.4		15.8	68.8	7.7	21.1	13.0	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		81.6		123.9	43.4		15.8	68.8	7.7	21.1	13.0	
LOS		F		F	D		B	E	A	C	B	
Approach Delay		81.6			81.7			54.8			14.0	
Approach LOS		F			F			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 116.4			
Natural Cycle: 140			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.11			
Intersection Signal Delay: 53.9		Intersection LOS: D	
Intersection Capacity Utilization 106.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 600: Trafalgar Rd & 17 Side Rd/Maple Ave



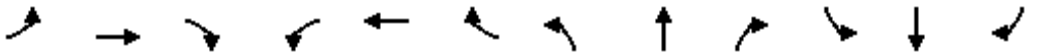


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	61	20	59	61	111	93	1159	99	61	665	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	100.0		0.0	105.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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				0.850		0.988			0.994	
Flt Protected		0.977			0.976		0.950			0.950		
Satd. Flow (prot)	0	1806	0	0	1854	1615	1736	1808	0	1752	1770	0
Flt Permitted		0.714			0.714		0.328			0.045		
Satd. Flow (perm)	0	1320	0	0	1357	1615	599	1808	0	83	1770	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				117		10			5	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		110.9			149.1			2761.3			364.3	
Travel Time (s)		6.7			8.9			165.7			21.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	4%	4%	2%	3%	7%	0%
Adj. Flow (vph)	74	64	21	62	64	117	98	1220	104	64	700	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	159	0	0	126	117	98	1324	0	64	731	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	20.0	20.0		20.0	20.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	27.0	27.0		27.0	27.0	
Total Split (s)	25.0	25.0		25.0	25.0	25.0	95.0	95.0		95.0	95.0	
Total Split (%)	20.8%	20.8%		20.8%	20.8%	20.8%	79.2%	79.2%		79.2%	79.2%	
Maximum Green (s)	19.0	19.0		19.0	19.0	19.0	88.0	88.0		88.0	88.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	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	0.0	
Total Lost Time (s)		6.0			6.0	6.0	7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		16.9			16.9	16.9	88.5	88.5		88.5	88.5	
Actuated g/C Ratio		0.14			0.14	0.14	0.75	0.75		0.75	0.75	
v/c Ratio		0.82			0.65	0.35	0.22	0.98		1.05	0.55	
Control Delay		79.5			64.0	11.1	6.3	35.7		152.9	8.6	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		79.5			64.0	11.1	6.3	35.7		152.9	8.6	
LOS		E			E	B	A	D		F	A	
Approach Delay		79.5			38.5			33.7			20.2	
Approach LOS		E			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 118.4			
Natural Cycle: 130			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 32.8		Intersection LOS: C	
Intersection Capacity Utilization 103.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 1000: Trafalgar Rd & 15 Side Rd

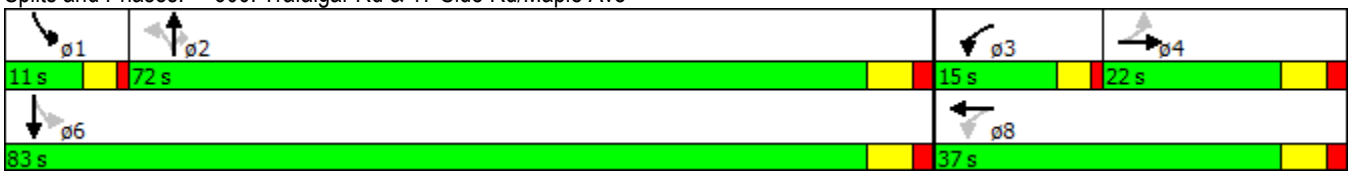


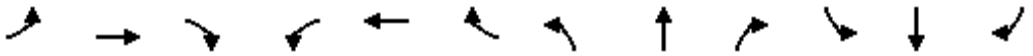
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	44	123	24	283	193	120	84	1032	237	72	476	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	50.0		0.0	60.0		65.0	45.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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		0.976			0.943				0.850		0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1818	0	1787	1774	0	1752	1845	1568	1719	1793	0
Flt Permitted	0.562			0.367			0.455			0.055		
Satd. Flow (perm)	1047	1818	0	690	1774	0	839	1845	1568	100	1793	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			25				139		5	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		190.9			211.3			130.2			933.6	
Travel Time (s)		11.5			12.7			7.8			56.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	3%	3%	3%	5%	5%	5%
Adj. Flow (vph)	46	129	25	298	203	126	88	1086	249	76	501	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	154	0	298	329	0	88	1086	249	76	533	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	29.0	29.0		11.0	29.0		21.0	21.0	21.0	11.0	21.0	
Total Split (s)	22.0	22.0		15.0	37.0		72.0	72.0	72.0	11.0	83.0	
Total Split (%)	18.3%	18.3%		12.5%	30.8%		60.0%	60.0%	60.0%	9.2%	69.2%	
Maximum Green (s)	16.0	16.0		11.0	31.0		66.0	66.0	66.0	7.0	77.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		4.0	6.0		6.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		0.2	3.0		3.0	3.0	3.0	0.2	3.0	
Recall Mode	None	None		None	None		Max	Max	Max	None	Max	
Walk Time (s)	7.0	7.0			7.0		7.0	7.0	7.0		7.0	
Flash Dont Walk (s)	16.0	16.0			16.0		8.0	8.0	8.0		8.0	
Pedestrian Calls (#/hr)	0	0			0		0	0	0		0	
Act Effct Green (s)	13.6	13.6		30.6	28.6		68.3	68.3	68.3	79.1	77.1	
Actuated g/C Ratio	0.12	0.12		0.26	0.24		0.58	0.58	0.58	0.67	0.66	
v/c Ratio	0.38	0.71		1.06	0.73		0.18	1.01	0.26	0.47	0.45	
Control Delay	57.4	66.2		109.4	48.2		14.3	57.6	6.6	21.3	11.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	57.4	66.2		109.4	48.2		14.3	57.6	6.6	21.3	11.7	
LOS	E	E		F	D		B	E	A	C	B	
Approach Delay		64.2			77.3			46.0			12.9	
Approach LOS		E			E			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 117.7			
Natural Cycle: 140			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.06			
Intersection Signal Delay: 47.1		Intersection LOS: D	
Intersection Capacity Utilization 101.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 600: Trafalgar Rd & 17 Side Rd/Maple Ave



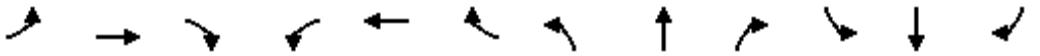


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	61	20	59	61	111	93	1159	99	61	665	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	30.0		30.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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		0.963			0.903			0.988			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1830	0	1805	1716	0	1736	1808	0	1752	1770	0
Flt Permitted	0.399			0.702			0.337			0.050		
Satd. Flow (perm)	743	1830	0	1334	1716	0	616	1808	0	92	1770	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			65			10			5	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		110.9			149.1			2761.3			364.3	
Travel Time (s)		6.7			8.9			165.7			21.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	4%	4%	2%	3%	7%	0%
Adj. Flow (vph)	74	64	21	62	64	117	98	1220	104	64	700	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	85	0	62	181	0	98	1324	0	64	731	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		27.0	27.0		27.0	27.0	
Total Split (s)	25.0	25.0		25.0	25.0		95.0	95.0		95.0	95.0	
Total Split (%)	20.8%	20.8%		20.8%	20.8%		79.2%	79.2%		79.2%	79.2%	
Maximum Green (s)	19.0	19.0		19.0	19.0		88.0	88.0		88.0	88.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		5.0	5.0		5.0	5.0	
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		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
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	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	14.3	14.3		14.3	14.3		89.2	89.2		89.2	89.2	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.77	0.77		0.77	0.77	
v/c Ratio	0.81	0.36		0.38	0.68		0.21	0.96		0.91	0.54	
Control Delay	103.6	43.6		52.8	43.6		5.7	29.8		109.4	7.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	103.6	43.6		52.8	43.6		5.7	29.8		109.4	7.8	
LOS	F	D		D	D		A	C		F	A	
Approach Delay		71.5			45.9			28.2			15.9	
Approach LOS		E			D			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 116.5			
Natural Cycle: 130			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 28.7		Intersection LOS: C	
Intersection Capacity Utilization 109.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 1000: Trafalgar Rd & 15 Side Rd

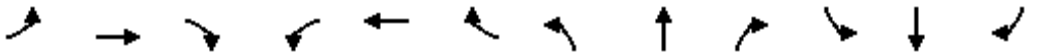


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	327	91	198	502	64	146	1214	219	85	610	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	170.0		20.0	95.0		0.0	150.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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		0.967				0.850		0.977			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1641	1724	0	1703	1845	1442	1671	1754	0	1719	1647	0
Flt Permitted	0.148			0.133			0.223			0.052		
Satd. Flow (perm)	256	1724	0	238	1845	1442	392	1754	0	94	1647	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9				62		11			5	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		303.7			255.9			2774.5			3110.1	
Travel Time (s)		18.2			15.4			166.5			186.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	10%	7%	5%	6%	3%	12%	8%	6%	5%	5%	15%	3%
Adj. Flow (vph)	77	344	96	208	528	67	154	1278	231	89	642	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	440	0	208	528	67	154	1509	0	89	694	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		4.0	7.0	7.0	4.0	20.0		4.0	20.0	
Minimum Split (s)	14.0	14.0		8.0	14.0	14.0	8.0	27.0		8.0	27.0	
Total Split (s)	33.0	33.0		12.0	45.0	45.0	11.0	87.0		8.0	84.0	
Total Split (%)	23.6%	23.6%		8.6%	32.1%	32.1%	7.9%	62.1%		5.7%	60.0%	
Maximum Green (s)	26.0	26.0		8.0	38.0	38.0	7.0	80.0		4.0	77.0	
Yellow Time (s)	5.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
All-Red Time (s)	2.0	2.0		1.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-0.5	-1.0	0.0	0.0	-2.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		3.5	6.0	7.0	4.0	5.0		4.0	7.0	
Lead/Lag	Lag	Lag		Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Act Effct Green (s)	27.0	27.0		41.5	39.0	38.0	90.0	82.0		84.0	77.0	
Actuated g/C Ratio	0.19	0.19		0.30	0.28	0.27	0.64	0.59		0.60	0.55	
v/c Ratio	1.57	1.30		1.31	1.03	0.15	0.49	1.46		0.87	0.76	
Control Delay	371.4	197.3		211.0	96.4	11.1	15.0	240.4		81.1	31.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	371.4	197.3		211.0	96.4	11.1	15.0	240.4		81.1	31.2	
LOS	F	F		F	F	B	B	F		F	C	
Approach Delay		223.2			119.0			219.5			36.9	
Approach LOS		F			F			F			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 140			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.57			
Intersection Signal Delay: 160.6		Intersection LOS: F	
Intersection Capacity Utilization 131.7%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1100: Trafalgar Rd & 10 Side Rd

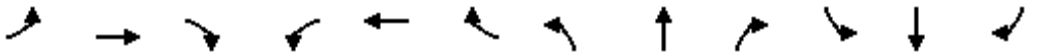


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	116	277	32	87	341	79	73	1385	49	5	814	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	72.0		0.0	95.0		95.0	205.0		205.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	60.0			75.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.972			0.995			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1792	1524	1752	1793	0	1752	3487	0	1719	3390	0
Flt Permitted	0.257			0.456			0.193			0.083		
Satd. Flow (perm)	461	1792	1524	841	1793	0	356	3487	0	150	3390	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65		11			4			12	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		592.1			514.5			208.6			347.7	
Travel Time (s)		35.5			30.9			12.5			20.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	3%	3%	3%	5%	5%	5%
Adj. Flow (vph)	122	292	34	92	359	83	77	1458	52	5	857	86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	292	34	92	442	0	77	1510	0	5	943	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0		7.0	25.0		7.0	25.0	
Minimum Split (s)	38.4	38.4	38.4	38.4	38.4		11.0	33.0		11.0	33.0	
Total Split (s)	45.0	45.0	45.0	45.0	45.0		11.0	61.4		11.0	61.4	
Total Split (%)	38.3%	38.3%	38.3%	38.3%	38.3%		9.4%	52.3%		9.4%	52.3%	
Maximum Green (s)	38.6	38.6	38.6	38.6	38.6		7.0	55.4		7.0	55.4	
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6		3.0	4.6		3.0	4.6	
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8		1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	25.0	25.0	25.0	25.0	25.0			20.0			20.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effct Green (s)	33.0	33.0	33.0	33.0	33.0		55.4	52.1		53.1	45.8	
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33		0.56	0.52		0.53	0.46	
v/c Ratio	0.80	0.49	0.06	0.33	0.74		0.26	0.83		0.03	0.60	
Control Delay	69.2	30.9	1.7	30.7	38.0		13.4	26.4		11.2	23.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	69.2	30.9	1.7	30.7	38.0		13.4	26.4		11.2	23.5	
LOS	E	C	A	C	D		B	C		B	C	
Approach Delay		39.1			36.7			25.8			23.4	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 117.4			
Actuated Cycle Length: 99.8			
Natural Cycle: 95			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 28.5		Intersection LOS: C	
Intersection Capacity Utilization 99.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1200: Trafalgar Rd & 5 Side Rd

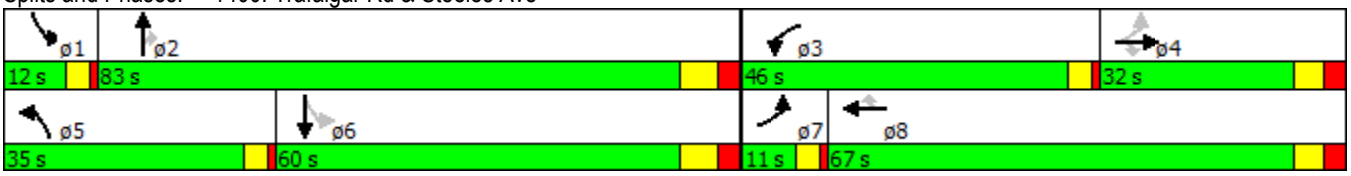


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	58	432	227	685	609	72	377	1198	533	64	587	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		50.0	140.0		100.0	100.0		0.0	190.0		190.0
Storage Lanes	1		1	2		1	2		1	1		0
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	4510	1205	3467	4759	1553	3127	3471	1568	1641	3193	0
Flt Permitted	0.397			0.950			0.950			0.103		
Satd. Flow (perm)	668	4510	1205	3467	4759	1553	3127	3471	1568	178	3193	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			239			107			341		8	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		303.8			305.5			398.9			380.0	
Travel Time (s)		18.2			18.3			23.9			22.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	13%	15%	34%	1%	9%	4%	12%	4%	3%	10%	10%	20%
Adj. Flow (vph)	61	455	239	721	641	76	397	1261	561	67	618	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	455	239	721	641	76	397	1261	561	67	697	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	25.0	25.0	7.0	25.0	
Minimum Split (s)	11.0	30.0	30.0	11.0	30.0	30.0	11.0	33.0	33.0	11.0	33.0	
Total Split (s)	11.0	32.0	32.0	46.0	67.0	67.0	35.0	83.0	83.0	12.0	60.0	
Total Split (%)	6.4%	18.5%	18.5%	26.6%	38.7%	38.7%	20.2%	48.0%	48.0%	6.9%	34.7%	
Maximum Green (s)	7.0	25.0	25.0	42.0	60.0	60.0	31.0	75.0	75.0	8.0	52.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	7.0	7.0	3.0	7.0	7.0	4.0	8.0	8.0	4.0	8.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		16.0	16.0		16.0	16.0		16.0	16.0		16.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	33.5	23.4	23.4	38.8	56.9	56.9	25.7	71.4	71.4	65.2	53.4	
Actuated g/C Ratio	0.20	0.14	0.14	0.24	0.35	0.35	0.16	0.44	0.44	0.40	0.33	
v/c Ratio	0.35	0.71	0.63	0.88	0.39	0.12	0.81	0.83	0.64	0.48	0.67	
Control Delay	40.0	74.4	15.3	73.4	42.0	2.4	80.9	47.3	17.0	34.9	51.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	40.0	74.4	15.3	73.4	42.0	2.4	80.9	47.3	17.0	34.9	51.9	
LOS	D	E	B	E	D	A	F	D	B	C	D	
Approach Delay		52.9			55.7			45.7			50.4	
Approach LOS		D			E			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 173			
Actuated Cycle Length: 163.6			
Natural Cycle: 115			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 50.2		Intersection LOS: D	
Intersection Capacity Utilization 90.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1400: Trafalgar Rd & Steeles Ave



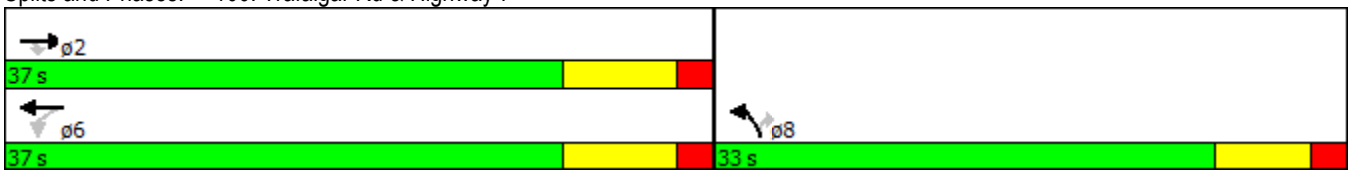
APPENDIX C – Capacity Analysis: 2031 Widen to Highway 7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1016	852	97	342	315	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		140.0	125.0		0.0	78.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3374	1524	1703	3252	1467	1429
Flt Permitted			0.198		0.950	
Satd. Flow (perm)	3374	1524	355	3252	1467	1429
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		897				34
Link Speed (k/h)	60			60	60	
Link Distance (m)	301.0			313.5	233.8	
Travel Time (s)	18.1			18.8	14.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	6%	6%	11%	23%	13%
Adj. Flow (vph)	1069	897	102	360	332	111
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1069	897	102	360	332	111
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	27.9	27.9	27.9	27.9	17.0	17.0
Total Split (s)	37.0	37.0	37.0	37.0	33.0	33.0
Total Split (%)	52.9%	52.9%	52.9%	52.9%	47.1%	47.1%
Maximum Green (s)	29.1	29.1	29.1	29.1	26.0	26.0
Yellow Time (s)	5.9	5.9	5.9	5.9	5.0	5.0
All-Red Time (s)	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)	7.9	7.9	7.9	7.9	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.5	4.5	4.5	4.5	3.0	3.0
Recall Mode	Min	Min	Min	Min	None	None
Act Effct Green (s)	28.3	28.3	28.3	28.3	18.6	18.6
Actuated g/C Ratio	0.46	0.46	0.46	0.46	0.30	0.30
v/c Ratio	0.69	0.76	0.63	0.24	0.75	0.25
Control Delay	17.3	6.3	37.8	11.8	31.3	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	6.3	37.8	11.8	31.3	13.2
LOS	B	A	D	B	C	B
Approach Delay	12.3			17.6	26.8	
Approach LOS	B			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 62			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 15.4		Intersection LOS: B	
Intersection Capacity Utilization 82.6%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 100: Trafalgar Rd & Highway 7

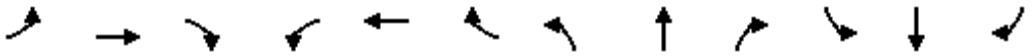


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	105	33	365	161	73	940
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0		70.0	145.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.954			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1736	1417	3045	0	1703	3406
Flt Permitted	0.950				0.445	
Satd. Flow (perm)	1736	1417	3045	0	798	3406
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		35	139			
Link Speed (k/h)	60		60			60
Link Distance (m)	206.8		933.6			536.0
Travel Time (s)	12.4		56.0			32.2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	14%	14%	11%	6%	6%
Adj. Flow (vph)	111	35	384	169	77	989
Shared Lane Traffic (%)						
Lane Group Flow (vph)	111	35	553	0	77	989
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	25.0		25.0	25.0
Minimum Split (s)	23.0	23.0	32.0		32.0	32.0
Total Split (s)	29.0	29.0	61.0		61.0	61.0
Total Split (%)	32.2%	32.2%	67.8%		67.8%	67.8%
Maximum Green (s)	23.0	23.0	54.0		54.0	54.0
Yellow Time (s)	4.0	4.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	7.0		7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		Max	Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	10.0	10.0	18.0		18.0	18.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	11.4	11.4	62.2		62.2	62.2
Actuated g/C Ratio	0.14	0.14	0.76		0.76	0.76
v/c Ratio	0.46	0.15	0.24		0.13	0.38
Control Delay	38.6	12.1	3.4		5.1	5.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	38.6	12.1	3.4		5.1	5.2
LOS	D	B	A		A	A
Approach Delay	32.2		3.4			5.2
Approach LOS	C		A			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 81.7			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.46			
Intersection Signal Delay: 6.9		Intersection LOS: A	
Intersection Capacity Utilization 66.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 500: Trafalgar Rd & Princess Anne Dr

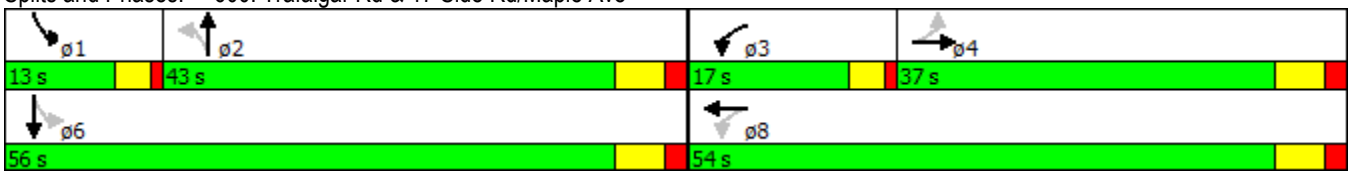


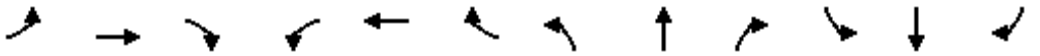
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	178	62	208	126	132	17	362	336	111	908	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	50.0		0.0	60.0		65.0	45.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.969			0.923			0.928			0.996	
Flt Protected		0.994		0.950			0.950			0.950		
Satd. Flow (prot)	0	1726	0	1719	1670	0	1671	3102	0	1703	3392	0
Flt Permitted		0.925		0.328			0.277			0.239		
Satd. Flow (perm)	0	1607	0	594	1670	0	487	3102	0	428	3392	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			61			230			3	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		190.9			211.3			130.2			933.6	
Travel Time (s)		11.5			12.7			7.8			56.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	6%	6%	5%	5%	5%	8%	8%	8%	6%	6%	6%
Adj. Flow (vph)	34	187	65	219	133	139	18	381	354	117	956	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	286	0	219	272	0	18	735	0	117	983	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	29.0	29.0		11.0	29.0		21.0	21.0		11.0	21.0	
Total Split (s)	37.0	37.0		17.0	54.0		43.0	43.0		13.0	56.0	
Total Split (%)	33.6%	33.6%		15.5%	49.1%		39.1%	39.1%		11.8%	50.9%	
Maximum Green (s)	31.0	31.0		13.0	48.0		37.0	37.0		9.0	50.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		1.0	2.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0		4.0	6.0		6.0	6.0		4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		None	Max	
Walk Time (s)	7.0	7.0			7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	16.0	16.0			16.0		8.0	8.0			8.0	
Pedestrian Calls (#/hr)	0	0			0		0	0			0	
Act Effct Green (s)		21.9		40.1	38.1		37.9	37.9		52.3	50.3	
Actuated g/C Ratio		0.22		0.40	0.38		0.38	0.38		0.52	0.50	
v/c Ratio		0.79		0.59	0.41		0.10	0.56		0.36	0.58	
Control Delay		51.7		27.1	18.8		25.6	19.4		17.3	20.4	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		51.7		27.1	18.8		25.6	19.4		17.3	20.4	
LOS		D		C	B		C	B		B	C	
Approach Delay		51.7			22.5			19.5			20.1	
Approach LOS		D			C			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 100.4			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 23.8		Intersection LOS: C	
Intersection Capacity Utilization 81.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 600: Trafalgar Rd & 17 Side Rd/Maple Ave



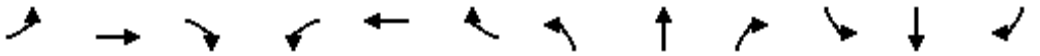


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	94	85	129	44	99	11	484	58	119	1015	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	100.0		0.0	105.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.959				0.850		0.984			0.995	
Flt Protected		0.982			0.964		0.950			0.950		
Satd. Flow (prot)	0	1677	0	0	1724	1442	1805	3047	0	1641	3326	0
Flt Permitted		0.694			0.524		0.213			0.429		
Satd. Flow (perm)	0	1185	0	0	937	1442	405	3047	0	741	3326	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				104		21			6	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		110.9			149.1			2798.3			364.3	
Travel Time (s)		6.7			8.9			167.9			21.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	10%	5%	6%	7%	12%	0%	17%	13%	10%	8%	8%
Adj. Flow (vph)	105	99	89	136	46	104	12	509	61	125	1068	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	293	0	0	182	104	12	570	0	125	1107	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	20.0	20.0		20.0	20.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	27.0	27.0		27.0	27.0	
Total Split (s)	36.0	36.0		36.0	36.0	36.0	84.0	84.0		84.0	84.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%	30.0%	70.0%	70.0%		70.0%	70.0%	
Maximum Green (s)	30.0	30.0		30.0	30.0	30.0	77.0	77.0		77.0	77.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	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	0.0	
Total Lost Time (s)		6.0			6.0	6.0	7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		29.3			29.3	29.3	77.0	77.0		77.0	77.0	
Actuated g/C Ratio		0.25			0.25	0.25	0.65	0.65		0.65	0.65	
v/c Ratio		0.96			0.79	0.24	0.05	0.29		0.26	0.52	
Control Delay		86.0			67.2	8.2	8.5	9.4		10.9	12.3	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		86.0			67.2	8.2	8.5	9.4		10.9	12.3	
LOS		F			E	A	A	A		B	B	
Approach Delay		86.0			45.7			9.4			12.2	
Approach LOS		F			D			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 119.3			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 24.5		Intersection LOS: C	
Intersection Capacity Utilization 84.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1000: Trafalgar Rd & 15 Side Rd



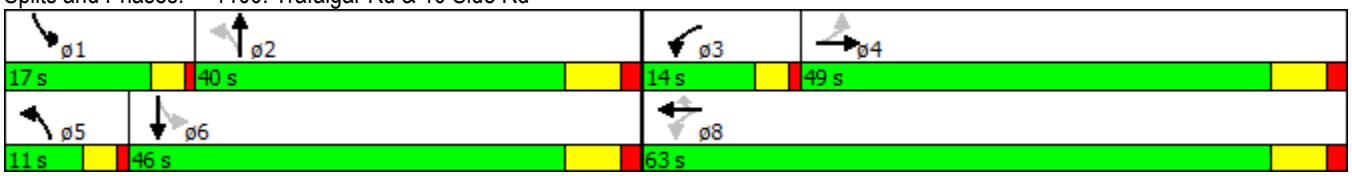
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	485	149	228	388	70	18	412	143	149	1039	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	170.0		20.0	95.0		0.0	150.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.965				0.850		0.961			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1543	1784	0	1687	1845	1429	1671	3083	0	1597	3405	0
Flt Permitted	0.523			0.087			0.127			0.252		
Satd. Flow (perm)	849	1784	0	154	1845	1429	223	3083	0	424	3405	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				109		40			3	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		303.7			255.9			201.9			311.8	
Travel Time (s)		18.2			15.4			12.1			18.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	17%	3%	2%	7%	3%	13%	8%	12%	14%	13%	5%	15%
Adj. Flow (vph)	74	511	157	240	408	74	19	434	151	157	1094	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	668	0	240	408	74	19	585	0	157	1137	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		

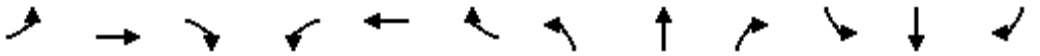
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	20.0		7.0	20.0	
Minimum Split (s)	14.0	14.0		11.0	14.0	14.0	11.0	27.0		11.0	27.0	
Total Split (s)	49.0	49.0		14.0	63.0	63.0	11.0	40.0		17.0	46.0	
Total Split (%)	40.8%	40.8%		11.7%	52.5%	52.5%	9.2%	33.3%		14.2%	38.3%	
Maximum Green (s)	42.0	42.0		10.0	56.0	56.0	7.0	33.0		13.0	39.0	
Yellow Time (s)	5.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
All-Red Time (s)	2.0	2.0		1.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	-2.0		-2.5	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	5.0		1.5	7.0	7.0	4.0	7.0		4.0	7.0	
Lead/Lag	Lag	Lag		Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Recall Mode	None	None		None	Max	Max	None	Min		None	Min	
Act Effct Green (s)	42.1	44.1		61.6	56.1	56.1	38.9	28.9		47.5	40.3	
Actuated g/C Ratio	0.37	0.38		0.54	0.49	0.49	0.34	0.25		0.41	0.35	
v/c Ratio	0.24	0.96		0.96	0.45	0.10	0.12	0.72		0.53	0.95	
Control Delay	29.2	61.0		77.7	22.0	1.4	21.3	42.3		28.6	53.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	29.2	61.0		77.7	22.0	1.4	21.3	42.3		28.6	53.2	
LOS	C	E		E	C	A	C	D		C	D	
Approach Delay		57.8			38.4			41.7			50.2	
Approach LOS		E			D			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 114.6
Natural Cycle: 120
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 47.8 Intersection LOS: D
Intersection Capacity Utilization 99.7% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1100: Trafalgar Rd & 10 Side Rd



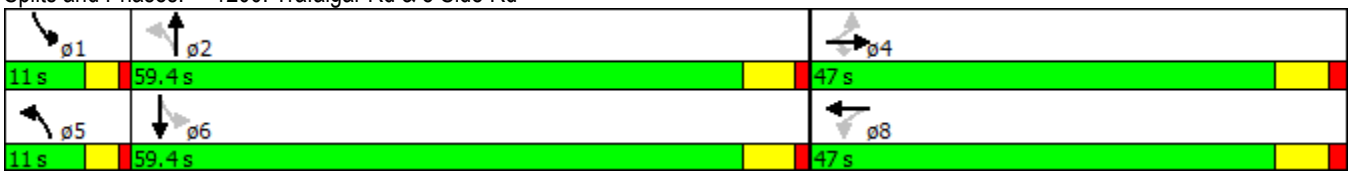


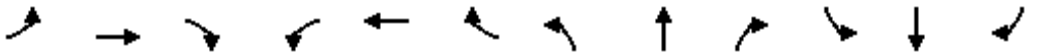
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	88	543	207	75	155	21	9	464	102	85	1280	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	72.0		0.0	95.0		95.0	205.0		205.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	60.0			75.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.982			0.973			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1810	1538	1703	1760	0	1556	3028	0	1656	3292	0
Flt Permitted	0.616			0.161			0.084			0.335		
Satd. Flow (perm)	1115	1810	1538	289	1760	0	138	3028	0	584	3292	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			144		6			29			5	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		592.1			514.5			208.6			347.7	
Travel Time (s)		35.5			30.9			12.5			20.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	16%	16%	16%	9%	9%	9%
Adj. Flow (vph)	93	572	218	79	163	22	9	488	107	89	1347	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	572	218	79	185	0	9	595	0	89	1402	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0		7.0	25.0		7.0	25.0	
Minimum Split (s)	38.4	38.4	38.4	38.4	38.4		11.0	33.0		11.0	33.0	
Total Split (s)	47.0	47.0	47.0	47.0	47.0		11.0	59.4		11.0	59.4	
Total Split (%)	40.0%	40.0%	40.0%	40.0%	40.0%		9.4%	50.6%		9.4%	50.6%	
Maximum Green (s)	40.6	40.6	40.6	40.6	40.6		7.0	53.4		7.0	53.4	
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6		3.0	4.6		3.0	4.6	
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8		1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	25.0	25.0	25.0	25.0	25.0			20.0			20.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effct Green (s)	40.7	40.7	40.7	40.7	40.7		53.0	45.5		55.4	52.1	
Actuated g/C Ratio	0.38	0.38	0.38	0.38	0.38		0.49	0.42		0.52	0.49	
v/c Ratio	0.22	0.83	0.32	0.72	0.28		0.06	0.46		0.24	0.88	
Control Delay	25.8	43.4	10.5	68.4	24.8		12.6	22.6		14.3	32.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.8	43.4	10.5	68.4	24.8		12.6	22.6		14.3	32.5	
LOS	C	D	B	E	C		B	C		B	C	
Approach Delay		33.4			37.8			22.5			31.4	
Approach LOS		C			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 117.4			
Actuated Cycle Length: 107.3			
Natural Cycle: 95			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 30.8		Intersection LOS: C	
Intersection Capacity Utilization 102.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 1200: Trafalgar Rd & 5 Side Rd



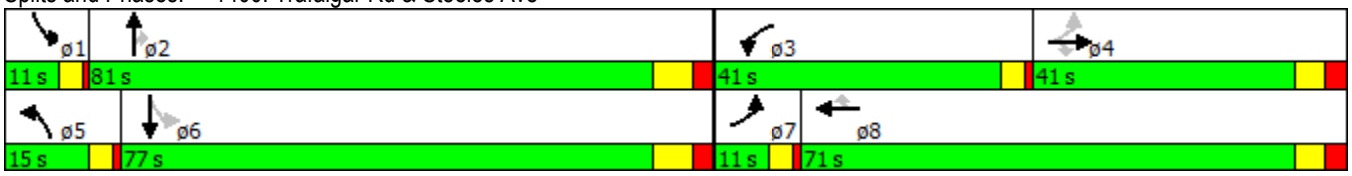


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	708	464	676	237	29	155	362	341	85	1304	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		50.0	140.0		100.0	100.0		0.0	190.0		190.0
Storage Lanes	1		1	2		1	2		1	1		0
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1410	4472	1429	3335	4117	1392	2398	3252	1429	1583	3398	0
Flt Permitted	0.591			0.950			0.950			0.514		
Satd. Flow (perm)	877	4472	1429	3335	4117	1392	2398	3252	1429	857	3398	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			107			82			359		9	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		303.8			305.5			398.9			380.0	
Travel Time (s)		18.2			18.3			23.9			22.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	28%	16%	13%	5%	26%	16%	46%	11%	13%	14%	4%	9%
Adj. Flow (vph)	80	745	488	712	249	31	163	381	359	89	1373	166
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	745	488	712	249	31	163	381	359	89	1539	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	25.0	25.0	7.0	25.0	
Minimum Split (s)	11.0	30.0	30.0	11.0	30.0	30.0	11.0	33.0	33.0	11.0	33.0	
Total Split (s)	11.0	41.0	41.0	41.0	71.0	71.0	15.0	81.0	81.0	11.0	77.0	
Total Split (%)	6.3%	23.6%	23.6%	23.6%	40.8%	40.8%	8.6%	46.6%	46.6%	6.3%	44.3%	
Maximum Green (s)	7.0	34.0	34.0	37.0	64.0	64.0	11.0	73.0	73.0	7.0	69.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	
Lost Time Adjust (s)	0.0	-1.0	-1.0	-1.0	-1.0	1.0	0.0	-1.0	-1.0	0.0	-1.0	
Total Lost Time (s)	4.0	6.0	6.0	3.0	6.0	8.0	4.0	7.0	7.0	4.0	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		16.0	16.0		16.0	16.0		16.0	16.0		16.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	44.0	35.0	35.0	38.0	65.0	63.0	11.0	74.0	74.0	80.0	70.0	
Actuated g/C Ratio	0.25	0.20	0.20	0.22	0.37	0.36	0.06	0.43	0.43	0.46	0.40	
v/c Ratio	0.33	0.83	1.31	0.98	0.16	0.06	1.08	0.28	0.44	0.21	1.12	
Control Delay	38.2	75.6	197.9	94.9	36.7	0.2	167.8	33.2	4.4	24.4	111.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	38.2	75.6	197.9	94.9	36.7	0.2	167.8	33.2	4.4	24.4	111.6	
LOS	D	E	F	F	D	A	F	C	A	C	F	
Approach Delay		118.8			77.3			46.1			106.9	
Approach LOS		F			E			D			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 174			
Actuated Cycle Length: 174			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.31			
Intersection Signal Delay: 92.7		Intersection LOS: F	
Intersection Capacity Utilization 103.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 1400: Trafalgar Rd & Steeles Ave

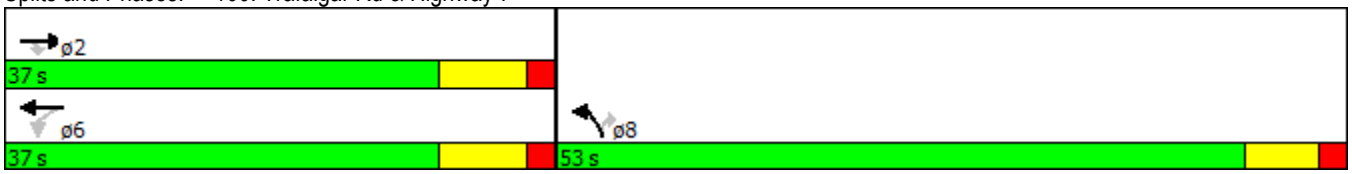


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	534	385	105	945	813	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		140.0	125.0		0.0	78.0
Storage Lanes		1	1		1	0
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3438	1509	1736	3505	1770	1615
Flt Permitted			0.385		0.950	
Satd. Flow (perm)	3438	1509	703	3505	1770	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		405				109
Link Speed (k/h)	60			60	60	
Link Distance (m)	301.0			313.5	233.8	
Travel Time (s)	18.1			18.8	14.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	7%	4%	3%	2%	0%
Adj. Flow (vph)	562	405	111	995	856	156
Shared Lane Traffic (%)						
Lane Group Flow (vph)	562	405	111	995	856	156
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	27.9	27.9	27.9	27.9	17.0	17.0
Total Split (s)	37.0	37.0	37.0	37.0	53.0	53.0
Total Split (%)	41.1%	41.1%	41.1%	41.1%	58.9%	58.9%
Maximum Green (s)	29.1	29.1	29.1	29.1	46.0	46.0
Yellow Time (s)	5.9	5.9	5.9	5.9	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	-1.0	0.0
Total Lost Time (s)	7.9	7.9	7.9	7.9	6.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.5	4.5	4.5	4.5	3.0	3.0
Recall Mode	Min	Min	Min	Min	None	None
Act Effct Green (s)	28.1	28.1	28.1	28.1	44.6	43.6
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.51	0.50
v/c Ratio	0.50	0.53	0.49	0.88	0.94	0.18
Control Delay	26.0	5.3	33.2	38.3	39.9	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	5.3	33.2	38.3	39.9	4.8
LOS	C	A	C	D	D	A
Approach Delay	17.3			37.8	34.5	
Approach LOS	B			D	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 86.7			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 30.3		Intersection LOS: C	
Intersection Capacity Utilization 96.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 100: Trafalgar Rd & Highway 7

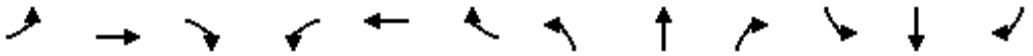


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	146	108	881	201	53	432
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0		70.0	145.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.972			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1736	1524	3304	0	1805	3252
Flt Permitted	0.950				0.223	
Satd. Flow (perm)	1736	1524	3304	0	424	3252
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		114	55			
Link Speed (k/h)	60		60			60
Link Distance (m)	206.8		933.6			536.0
Travel Time (s)	12.4		56.0			32.2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	6%	6%	7%	0%	11%
Adj. Flow (vph)	154	114	927	212	56	455
Shared Lane Traffic (%)						
Lane Group Flow (vph)	154	114	1139	0	56	455
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		3.6			3.6
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	25.0		25.0	25.0
Minimum Split (s)	23.0	23.0	32.0		32.0	32.0
Total Split (s)	29.0	29.0	61.0		61.0	61.0
Total Split (%)	32.2%	32.2%	67.8%		67.8%	67.8%
Maximum Green (s)	23.0	23.0	54.0		54.0	54.0
Yellow Time (s)	4.0	4.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	7.0		7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		Max	Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	10.0	10.0	18.0		18.0	18.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	12.9	12.9	56.9		56.9	56.9
Actuated g/C Ratio	0.16	0.16	0.69		0.69	0.69
v/c Ratio	0.57	0.34	0.50		0.19	0.20
Control Delay	40.1	9.0	7.1		7.5	5.3
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	40.1	9.0	7.1		7.5	5.3
LOS	D	A	A		A	A
Approach Delay	26.9		7.1			5.6
Approach LOS	C		A			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 82.8			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 9.5		Intersection LOS: A	
Intersection Capacity Utilization 63.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 500: Trafalgar Rd & Princess Anne Dr

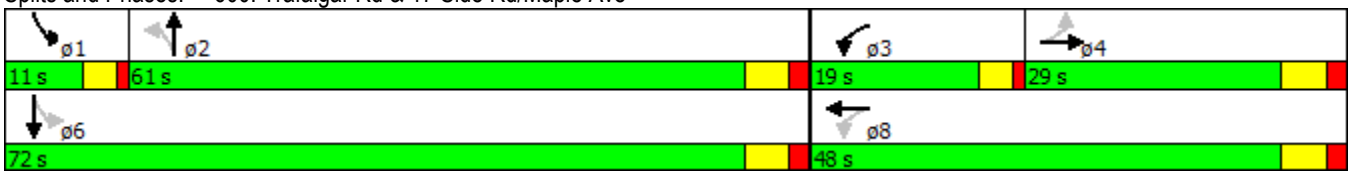


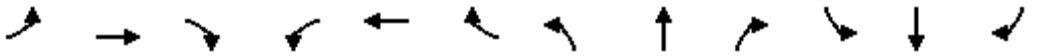
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	44	123	24	283	193	120	84	1032	237	72	476	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	50.0		0.0	60.0		65.0	45.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.983			0.943			0.972			0.991	
Flt Protected		0.989		0.950			0.950			0.950		
Satd. Flow (prot)	0	1811	0	1787	1774	0	1752	3407	0	1719	3407	0
Flt Permitted		0.825		0.393			0.454			0.087		
Satd. Flow (perm)	0	1511	0	739	1774	0	837	3407	0	157	3407	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			29			30			9	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		190.9			211.3			130.2			933.6	
Travel Time (s)		11.5			12.7			7.8			56.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	3%	3%	3%	5%	5%	5%
Adj. Flow (vph)	46	129	25	298	203	126	88	1086	249	76	501	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	200	0	298	329	0	88	1335	0	76	533	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	29.0	29.0		11.0	29.0		21.0	21.0		11.0	21.0	
Total Split (s)	29.0	29.0		19.0	48.0		61.0	61.0		11.0	72.0	
Total Split (%)	24.2%	24.2%		15.8%	40.0%		50.8%	50.8%		9.2%	60.0%	
Maximum Green (s)	23.0	23.0		15.0	42.0		55.0	55.0		7.0	66.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		1.0	2.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0		4.0	6.0		6.0	6.0		4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		0.2	3.0		3.0	3.0		0.2	3.0	
Recall Mode	None	None		None	None		Max	Max		None	Max	
Walk Time (s)	7.0	7.0			7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	16.0	16.0			16.0		8.0	8.0			8.0	
Pedestrian Calls (#/hr)	0	0			0		0	0			0	
Act Effct Green (s)		18.8		38.9	36.9		57.5	57.5		68.2	66.2	
Actuated g/C Ratio		0.16		0.34	0.32		0.50	0.50		0.59	0.58	
v/c Ratio		0.80		0.79	0.56		0.21	0.78		0.40	0.27	
Control Delay		68.5		46.5	33.1		20.4	28.7		17.7	13.2	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		68.5		46.5	33.1		20.4	28.7		17.7	13.2	
LOS		E		D	C		C	C		B	B	
Approach Delay		68.5			39.5			28.2			13.7	
Approach LOS		E			D			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 115.1			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 30.4		Intersection LOS: C	
Intersection Capacity Utilization 88.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 600: Trafalgar Rd & 17 Side Rd/Maple Ave



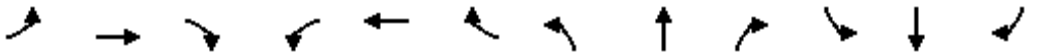


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	61	20	59	61	111	93	1159	99	61	665	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	100.0		0.0	105.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.982				0.850		0.988			0.994	
Flt Protected		0.977			0.976		0.950			0.950		
Satd. Flow (prot)	0	1806	0	0	1854	1615	1736	3435	0	1752	3363	0
Flt Permitted		0.747			0.726		0.369			0.176		
Satd. Flow (perm)	0	1381	0	0	1379	1615	674	3435	0	325	3363	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				90		15			8	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		110.9			149.1			2761.3			364.3	
Travel Time (s)		6.7			8.9			165.7			21.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	4%	4%	2%	3%	7%	0%
Adj. Flow (vph)	74	64	21	62	64	117	98	1220	104	64	700	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	159	0	0	126	117	98	1324	0	64	731	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	20.0	20.0		20.0	20.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	27.0	27.0		27.0	27.0	
Total Split (s)	35.0	35.0		35.0	35.0	35.0	85.0	85.0		85.0	85.0	
Total Split (%)	29.2%	29.2%		29.2%	29.2%	29.2%	70.8%	70.8%		70.8%	70.8%	
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	78.0	78.0		78.0	78.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	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	0.0	
Total Lost Time (s)		6.0			6.0	6.0	7.0	7.0		7.0	7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		16.7			16.7	16.7	78.6	78.6		78.6	78.6	
Actuated g/C Ratio		0.15			0.15	0.15	0.73	0.73		0.73	0.73	
v/c Ratio		0.73			0.59	0.36	0.20	0.53		0.27	0.30	
Control Delay		61.1			54.0	15.8	6.9	8.1		9.9	6.0	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		61.1			54.0	15.8	6.9	8.1		9.9	6.0	
LOS		E			D	B	A	A		A	A	
Approach Delay		61.1			35.6			8.0			6.3	
Approach LOS		E			D			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 108.3			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 13.3		Intersection LOS: B	
Intersection Capacity Utilization 83.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1000: Trafalgar Rd & 15 Side Rd



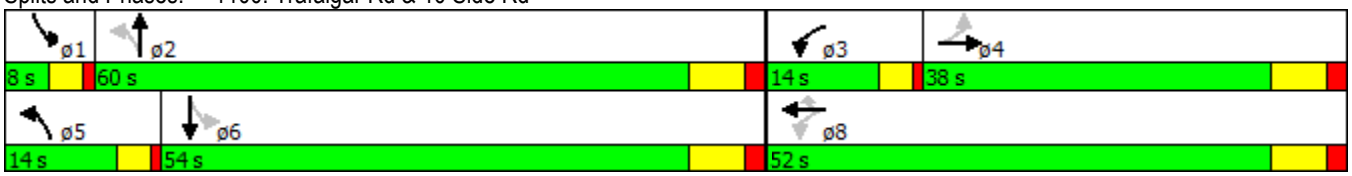
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	327	91	198	502	64	146	1214	219	85	610	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	170.0		20.0	95.0		95.0	150.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.967				0.850		0.977			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1641	1724	0	1703	1845	1442	1671	3332	0	1719	3129	0
Flt Permitted	0.315			0.133			0.271			0.084		
Satd. Flow (perm)	544	1724	0	238	1845	1442	477	3332	0	152	3129	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				109		23			8	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		303.7			255.9			210.3			348.8	
Travel Time (s)		18.2			15.4			12.6			20.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	10%	7%	5%	6%	3%	12%	8%	6%	5%	5%	15%	3%
Adj. Flow (vph)	77	344	96	208	528	67	154	1278	231	89	642	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	440	0	208	528	67	154	1509	0	89	694	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		4.0	7.0	7.0	4.0	20.0		4.0	20.0	
Minimum Split (s)	14.0	14.0		8.0	14.0	14.0	8.0	27.0		8.0	27.0	
Total Split (s)	38.0	38.0		14.0	52.0	52.0	14.0	60.0		8.0	54.0	
Total Split (%)	31.7%	31.7%		11.7%	43.3%	43.3%	11.7%	50.0%		6.7%	45.0%	
Maximum Green (s)	31.0	31.0		10.0	45.0	45.0	10.0	53.0		4.0	47.0	
Yellow Time (s)	5.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
All-Red Time (s)	2.0	2.0		1.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	-2.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		4.0	7.0	7.0	4.0	5.0		4.0	7.0	
Lead/Lag	Lag	Lag		Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Act Effct Green (s)	31.0	31.0		48.0	45.0	45.0	64.0	55.0		54.5	47.5	
Actuated g/C Ratio	0.26	0.26		0.40	0.38	0.38	0.53	0.46		0.45	0.40	
v/c Ratio	0.55	0.97		0.96	0.76	0.11	0.44	0.98		0.74	0.56	
Control Delay	55.3	79.2		80.0	41.5	1.4	18.7	50.6		51.9	30.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	55.3	79.2		80.0	41.5	1.4	18.7	50.6		51.9	30.0	
LOS	E	E		F	D	A	B	D		D	C	
Approach Delay		75.7			48.1			47.7			32.5	
Approach LOS		E			D			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Natural Cycle: 110
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 48.5 — Intersection LOS: D
Intersection Capacity Utilization 96.7% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1100: Trafalgar Rd & 10 Side Rd

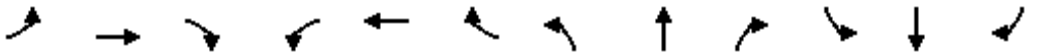


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	116	277	32	87	341	79	73	1385	49	5	814	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	72.0		0.0	95.0		95.0	205.0		205.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	60.0			75.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.972			0.995			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1792	1524	1752	1793	0	1752	3487	0	1719	3390	0
Flt Permitted	0.257			0.456			0.193			0.083		
Satd. Flow (perm)	461	1792	1524	841	1793	0	356	3487	0	150	3390	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65		11			4			12	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		592.1			514.5			208.6			347.7	
Travel Time (s)		35.5			30.9			12.5			20.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	3%	3%	3%	5%	5%	5%
Adj. Flow (vph)	122	292	34	92	359	83	77	1458	52	5	857	86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	292	34	92	442	0	77	1510	0	5	943	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0		7.0	25.0		7.0	25.0	
Minimum Split (s)	38.4	38.4	38.4	38.4	38.4		11.0	33.0		11.0	33.0	
Total Split (s)	45.0	45.0	45.0	45.0	45.0		11.0	61.4		11.0	61.4	
Total Split (%)	38.3%	38.3%	38.3%	38.3%	38.3%		9.4%	52.3%		9.4%	52.3%	
Maximum Green (s)	38.6	38.6	38.6	38.6	38.6		7.0	55.4		7.0	55.4	
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6		3.0	4.6		3.0	4.6	
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8		1.0	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	25.0	25.0	25.0	25.0	25.0			20.0			20.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effct Green (s)	33.0	33.0	33.0	33.0	33.0		55.4	52.1		53.1	45.8	
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33		0.56	0.52		0.53	0.46	
v/c Ratio	0.80	0.49	0.06	0.33	0.74		0.26	0.83		0.03	0.60	
Control Delay	69.2	30.9	1.7	30.7	38.0		13.4	26.4		11.2	23.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	69.2	30.9	1.7	30.7	38.0		13.4	26.4		11.2	23.5	
LOS	E	C	A	C	D		B	C		B	C	
Approach Delay		39.1			36.7			25.8			23.4	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 117.4			
Actuated Cycle Length: 99.8			
Natural Cycle: 95			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 28.5		Intersection LOS: C	
Intersection Capacity Utilization 99.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1200: Trafalgar Rd & 5 Side Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	58	432	227	685	609	72	377	1198	533	64	587	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		50.0	140.0		100.0	100.0		0.0	190.0		190.0
Storage Lanes	1		1	2		1	2		1	1		0
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	4510	1205	3467	4759	1553	3127	3471	1568	1641	3193	0
Flt Permitted	0.397			0.950			0.950			0.103		
Satd. Flow (perm)	668	4510	1205	3467	4759	1553	3127	3471	1568	178	3193	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			239			107			341		8	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		303.8			305.5			398.9			380.0	
Travel Time (s)		18.2			18.3			23.9			22.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	13%	15%	34%	1%	9%	4%	12%	4%	3%	10%	10%	20%
Adj. Flow (vph)	61	455	239	721	641	76	397	1261	561	67	618	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	455	239	721	641	76	397	1261	561	67	697	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	15.0	7.0	25.0	25.0	7.0	25.0	
Minimum Split (s)	11.0	30.0	30.0	11.0	30.0	30.0	11.0	33.0	33.0	11.0	33.0	
Total Split (s)	11.0	32.0	32.0	46.0	67.0	67.0	35.0	83.0	83.0	12.0	60.0	
Total Split (%)	6.4%	18.5%	18.5%	26.6%	38.7%	38.7%	20.2%	48.0%	48.0%	6.9%	34.7%	
Maximum Green (s)	7.0	25.0	25.0	42.0	60.0	60.0	31.0	75.0	75.0	8.0	52.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	3.0	1.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	7.0	7.0	3.0	7.0	7.0	4.0	8.0	8.0	4.0	8.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		16.0	16.0		16.0	16.0		16.0	16.0		16.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	33.5	23.4	23.4	38.8	56.9	56.9	25.7	71.4	71.4	65.2	53.4	
Actuated g/C Ratio	0.20	0.14	0.14	0.24	0.35	0.35	0.16	0.44	0.44	0.40	0.33	
v/c Ratio	0.35	0.71	0.63	0.88	0.39	0.12	0.81	0.83	0.64	0.48	0.67	
Control Delay	40.0	74.4	15.3	73.4	42.0	2.4	80.9	47.3	17.0	34.9	51.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	40.0	74.4	15.3	73.4	42.0	2.4	80.9	47.3	17.0	34.9	51.9	
LOS	D	E	B	E	D	A	F	D	B	C	D	
Approach Delay		52.9			55.7			45.7			50.4	
Approach LOS		D			E			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 173			
Actuated Cycle Length: 163.6			
Natural Cycle: 115			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 50.2		Intersection LOS: D	
Intersection Capacity Utilization 90.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1400: Trafalgar Rd & Steeles Ave