East Hants Corridor Area Traffic Study

Nova Scotia Department of Public Works

A Travel Demand Planning Study

Final Report

Prepared by:

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Prepared for:

NS Dept. of Public Works

March 2024

March 28, 2024

Mr. Mark Brace, P.Eng.
Nova Scotia Dept. of Public Works
171 Oakmount Drive
Bedford, NS   B4A 4J3

RE: East Hants Corridor Area Traffic Study

Dear Mr. Brace:

The GRIFFIN transportation group inc. is pleased to present the results of the enclosed travel demand study for the growing communities within the corridor area of the Municipality of East Hants (MEH), along Highway 102. The findings and recommendations flowing from the study analyses provide a long-term strategy to identify when and where roadway capacity will be needed to accommodate the planned population and employment growth.

Our analysis results suggest the existing road network will begin to reach capacity in the vicinity of the 2043 planning horizon- particularly along Trunk 2 and in the vicinity of the Exit 8 and Exit 8A interchanges. To accommodate the expected and continued growth beyond the 2043 planning horizon, the study area roadway network will require significant capacity upgrades. It is recommended that the preferred option to add capacity is to install a new Highway 102 interchange in the northern area of Lantz and planning efforts associated with this new facility should begin in the short to medium-term. This will provide sufficient time for the necessary multidisciplinary studies to be completed and necessary rights-of-way to be preserved.

The successful implementation of the enclosed roadway infrastructure strategy and land use planning directives will require coordinated actions between the Nova Scotia Department of Public Works and the Planning Departments of MEH and HRM. This will ensure that appropriate land use planning policies are established to manage future growth in an efficient manner, particularly from a mobility demand perspective.

It has been a pleasure working with the project steering committee in completing this study. Feel free to contact the undersigned anytime to further discuss the details of this project.

Yours truly,

James J. Copeland, P.Eng., RSP$_1$
Managing Principal – Traffic and Road Safety Engineer
GRIFFIN transportation group inc.

REGISTERED PROFESSIONAL ENGINEER
DATE Mar 28, 2024
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7746
PROVINCE OF NOVA SCOTIA

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EXECUTIVE SUMMARY

A Overview

The Highway 102 / Trunk 2 corridor area of the Municipality of East Hants (MEH) is anticipating significant population and employment growth to occur in the short to medium term time frame. As such, the Nova Scotia Department of Public Works (NSDPW) engaged the GRIFFIN transportation group inc. to carry out a long-term vehicle travel demand study to understand the future roadway network capacity needed to support and service this growth.

Under this context, the overall goal of the travel demand study is to provide technical transportation planning guidance and support to future capital planning decisions, as well as land use planning decisions for the two stakeholder Municipalities.

B Analysis Scenarios

Our study analysis process was developed through discussions with NSDPW as well as information gleaned from the two stakeholder Municipalities. We divided the information into two categories, the transportation network (supply network), and settlement patterns (mobility demand). Our analysis explicitly examined the existing road network (Option 1) at the 2033, and 2043 planning horizons. Based on the findings flowing from this work it was determined that additional road network capacity would be required by the 2043 planning horizon, thus two long-term road layouts were qualitatively examined. A summary of the road network options and settlement scenarios examined in this study is provided in *Table A*.

Table A: Analysis Scenarios Completed for this Study

Road Network Options	Growth Settlement Scenarios		
	2033 Growth	2043 Growth	Unconstrained Growth
Existing – Option 1	✔	✔	⃠
Existing + North I/C Option 2	⃠	⃠	✔
Existing + South I/C Option 3	⃠	⃠	✔

C Development Growth and Future Traffic Volumes

Future population and employment settlement patterns were established for three planning horizons; 2033, 2043 and a long-term unconstrainted growth scenario. A summary of future growth applied to this study is provided in *Table B*.

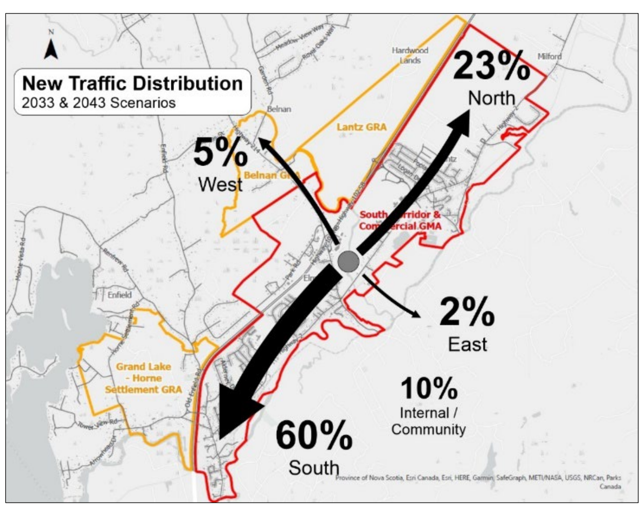
Table B: Assumed Future Settlement Patterns

Location Description	New Growth 2023-2033		New Growth 2023-2043		New Growth Unconstrained	
	Residential (units)	Commercial (ft^2)	Residential (units)	Commercial (ft^2)	Residential (units)	Commercial (ft^2)
MEH SCC GMA	+4,211	+460,693	+5,512	+796,700	+7,070	+1,268,300
MEH GRA's	+187	+25,000	+299	+75,000	+748	+100,000
MEH Rural Areas	+46	0	+74	0	+185	0
HRM	+139	0	+222	0	+555	0
TOTAL	**+4,583**	**+485,693**	**+6,107**	**+871,700**	**+8,558**	**+1,368,300**

In summary, this study assumes an average residential growth rate of about 306 new units/year, over the next 20 years, plus supporting commercial floor space. The forecast settlement patterns contained in *Table B* were then used to quantify the amount of vehicle travel demand added to the road network.

Where possible, GRIFFIN utilized traffic forecasts contained in recent Traffic Impact Study (TIS) reports for the more significant developments in the MEH's serviced Growth Management Area (GMA), including the neighbourhoods in Lantz South, Lantz North, and Elmwood Drive area. For all remaining developments, GRIFFIN calculated the travel demand using published trip generation rates contained in ITE's latest Trip Generation Manual, 11th Edition document. Vehicle trip generation adjustments were made, where appropriate, following ITE best practices and guidelines. It should be noted that no adjustments were made to the new residential trips; however, highway commercial trips were considered to be "pass-by' trips. A more thorough discussion on this topic is provided later in this report. GRIFFIN then utilized recent travel pattern information contained in the MEH's 2021 Socio-Economic report to establish vehicle trip distribution in the corridor area. The distribution of traffic generated by new residential units is illustrated in *Figure A*.

Figure A: Residential Trip Distribution



Once the trip generation calculation process was completed and new vehicle trips were distributed to the future roadway network scenarios the analysis process was carried out.

D Road Network Analysis

GRIFFIN distributed the future traffic, for each planning horizon, using an iterative traffic assignment procedure following industry best practices. The peak hour intersection volumes for all 21 study area intersections were evaluated using a three-step process:

1. Traffic Signal Warrant
2. Auxiliary Turn Lane Warrant
3. Intersection Performance Analysis

Based on the results flowing from this three-step process, GRIFFIN was able to identify the necessary intersection traffic control and lane configuration required to accommodate the future peak hour traffic demand. By the 2043 planning horizon, 14 of the 21 intersections will require some form of infrastructure/capacity upgrades. Concept sketches illustrating the required future lane configurations at the 14 intersections are provided later in this report. In addition, GEMTEC prepared class D cost estimates at each location, and these accompany the concept sketches.

The key conclusions identified from our analysis process included:

- *Lantz Area Road System*: By 2043, the Trunk 2 corridor will be nearing capacity, and beyond 2043, the Trunk 2 corridor will require a four-lane cross-section from the Lantz Connector Road to around the Robert Scott Drive intersection. Alternatively, a new Highway 102 interchange facility would shift travel patterns and off-set / eliminate the need to widen Trunk 2 through Lantz.
- *Elmsdale Area Road System*: By 2043, the Exit 8 interchange intersections (i.e. Park Road to Mason Drive) are expected to reach near-capacity conditions – particularly at the two closely-spaced signalized intersections on the east side of the interchange. If growth continues beyond 2043 then some additional capacity could be added by upgrading these two intersections to modern roundabouts, along with a new wider bridge structure at Exit 8, but this would have a significant impact on existing businesses and the built environment.
- *Enfield Area Road System*: By 2043, the existing road system can accommodate the forecast vehicle demands, assuming the traffic control at the Trunk 2 / Old Enfield Road intersection is adequately upgraded. It is recommended that a modern roundabout be installed as it will better manage the north-south queues on Trunk 2 relative to a traffic signal. Beyond 2043, and with the uncontrolled and full development potential of the Horne Settlement GRA, traffic demand increases along Old Enfield Road will be significant and there are long-term operational concerns with the Trunk 2 corridor through Enfield.

E Comparative Interchange Location Assessment

Based on the conclusions of the 2043 planning horizon analyses, it was determined that a new Highway 102 interchange – and connector road to Trunk 2 – could offer a viable alternative to widening Trunk 2 to four lanes in select locations, assuming growth continues beyond 2043. Therefore, GRIFFIN carried out a planning-level interchange location assessment to identify a preferred location for a new interchange facility.

GRIFFIN identified two candidate locations based on the road capacity constraints expected by the 2043 planning horizon. The first location included a new north interchange in the Lantz area due to the significant increase in serviced residential units planned for this community. The second location was assumed to utilize the Old Enfield Road bridge structure over Highway 102 and help address the potential growth in the unserviced Horne Settlement area. Although the planned number of new units in Lantz is significantly higher than Horne Settlement, the impact on the Trunk 2 corridor is similar.

GRIFFIN carried out a planning level assessment using well-established transportation planning criteria. The results are summarized in *Table C*. It was determined that a new interchange in the Lantz north area would provide a more efficient transportation solution serving the greater good, appears to be consistent with MEH planning policy by encouraging growth and density in a serviced area, and services a greater number of residents.

Table C: Interchange Location Assessment Summary

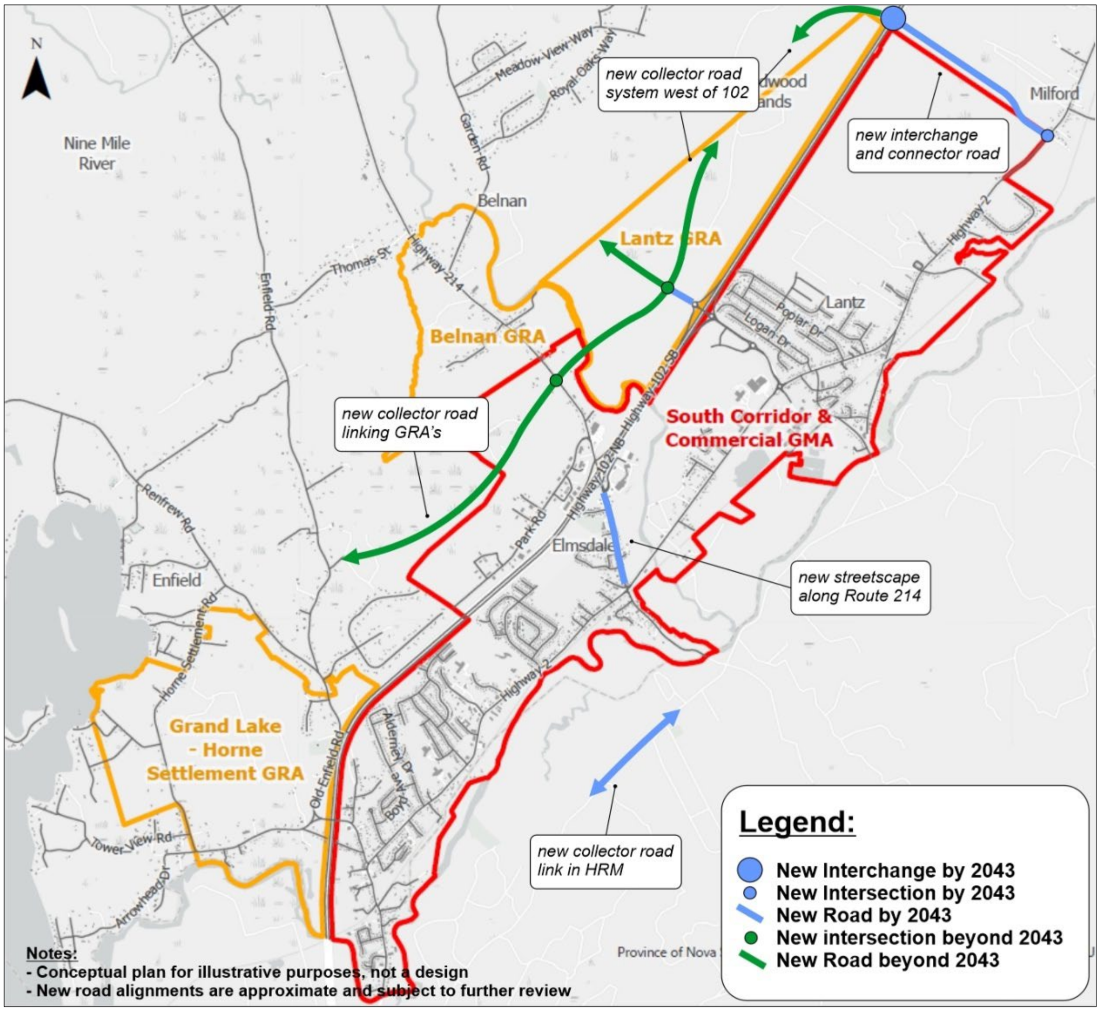
	New I/C - Candidate Locations	
	Enfield South Old Enfield Road	Lantz North Near Lantz-Milford Boundary
A. Transportation Demand		
1 Vehicle travel times / road network delay	B	A
2 Vehicle utilization of new interchange	B	A
3 Ability to manage demand in Trunk 2 corridor	B	A
B. Geometric Design		
4 I/C spacing along Hwy 102	A	A
5 Access-controlled Connector Road	B	A
6 Implementation constraints	B	A
C. Land Use / Settlement Impacts		
7 Promotes efficient settlement pattern	B	A
8 New I/C serves greater population/employment	B	A
D. Environment		
9 Estimate of watercourse/wetland impacts	A	B
10 Estimate of network fuel consumption	B	A
E. Socio-Economic		
11 Existing property/building impacts	B	A
12 Opportunity to create highway commercial businesses	B	A
TOTAL SCORE	**Mostly B's**	**Mostly A's**
RANK ORDER	**2**	**1**

F Study Conclusions

The East Hants travel demand study provides a long-term transportation strategy for both the NSDPW and stakeholder Municipalities. The known, planned, and approved development within the corridor area of the MEH is expected to result in a doubling of the population in the serviced

Growth Management Area (GMA). In addition, the community of Lantz is expected to increase by 4,130 new residential units by 2043. The travel demand generated by the long-term unconstrained full build-out development will require new roadway infrastructure upgrades to function adequately. These upgrades include local intersection widening, a new Highway 102 interchange, and new road links to improve network reliability. A summary of the future strategic road network upgrades is contained in *Figure B*.

Figure B: Strategic Concept Plan of Road Network Upgrades



The long-term viability of the road network will not only require the implementation of the strategic road facilities identified in *Figure B*, but will also need to be supported with sound land use planning policy. Therefore, GRIFFIN recommends that the MEH continue to encourage new development within the serviced GMA to increase development density and offer more efficient services to future residents. At the same time, growth controls are recommended in the unserviced aeras of MEH and HRM. As noted in this report, these unserviced areas have limited road access and if development proliferates, it is expected to create over-capacity conditions at key locations like the Exit 8 (Elmsdale) interchange.

1. INTRODUCTION

1.1 Background

The GRIFFIN transportation group inc. has been retained by the Nova Scotia Department of Public Works (NSDPW) to carry out a long-term travel and mobility study to provide future direction with respect to needed transportation infrastructure in the growing corridor area of the Municipality of East Hants (MEH) and the Halifax Regional Municipality (HRM). In light of recent planning and development information, these two municipalities are anticipating significant growth to occur on lands near the Highway 102 corridor. This study provides valuable technical information that will help plan future road infrastructure upgrades for NSDPW, as well as establish growth management policy at the Municipal level that can support and service the anticipated growth.

1.2 Study Objectives

The overall goal of this mobility and travel demand study is to provide technical transportation planning guidance. This will assist both levels of government in managing future growth by identifying when and where new infrastructure will be required, and preserve rights-of-way in advance of the needed capacity. Based on this goal the study approach executed by the consultant team attempted to fulfill the following project objectives:

- Review the community planning, land use, and development information that was made available and rationalize community settlement patterns. This included the need to understand the changes in both population and employment for the 2033, 2043, and unconstrained full build-out scenarios.
- Develop and execute a vehicle travel demand modeling process based on readily available growth data/information that is appropriate for quantifying travel pattern changes associated with various future development scenarios and roadway network layouts;
- Quantify and assess the road network intersection performance under various development scenarios to understand the capacity constraints, as well as the timing of new infrastructure needed to accommodate the excepted future growth. This included the potential need for a new Highway 102 interchange and a preliminary location assessment;
- Prepare a set of long-term transportation network recommendations for the corridor communities to accommodate the significant growth expected in this area and to ensure adequate mobility services can continue to be provided.

These study objectives were used to develop the study methodology which is discussed in *Section 2*.

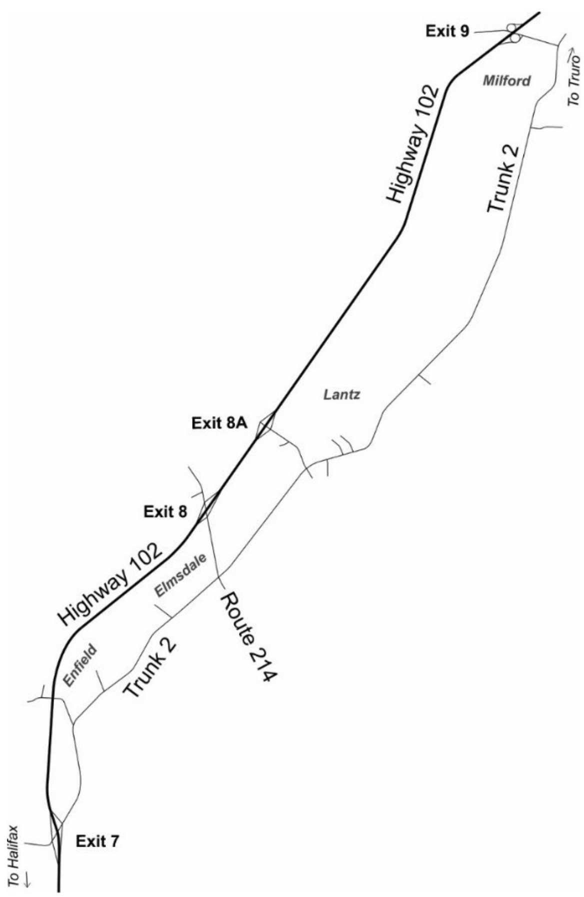
2. STUDY OVERVIEW AND ANALYSIS PROCESS

2.1 The Study Area Road Network

The Municipality of East Hants' (MEH) corridor area is predominantly comprised of the growing communities of Enfield, Elmsdale and Lantz; as well as the Dutch Settlement area located in HRM on the east side of the Shubenacadie River. Given the close proximity of these corridor communities to the large employment and shopping areas within the Halifax Regional Municipality (HRM), they have continuously grown into bedroom communities – predominantly comprised of residential land uses with some supporting neighbourhood commercial businesses.

To understand both current and future transportation impacts, NSDPW has requested that the study area road network encompass the majority of future growth in these corridor communities. Therefore, the study area road network was defined as being located along the Trunk 2 corridor – generally from Exit 7 (Enfield) to Exit 9 (Milford). In addition, it was necessary to include the connector roads linking Trunk 2 with the four-lane divided Highway 102 regional travel corridor, such as Route 214 and the new Lantz Connector Road. Our study area road network is illustrated in *Figure 1*.

Figure 1: Study Area Road Network

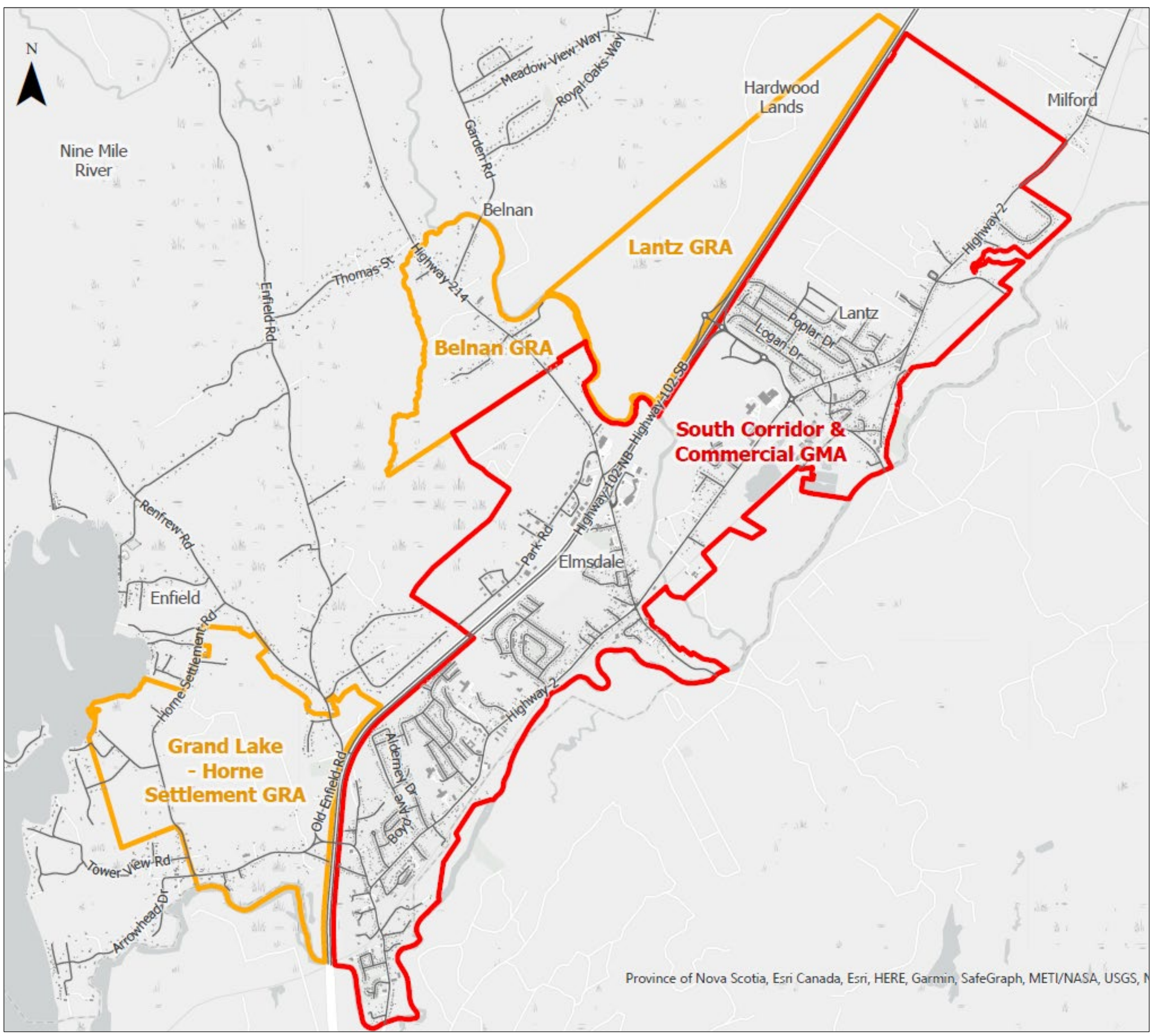


2.2 Land Use Planning Overview

The majority of roads in our study area are under the jurisdiction of the NSDPW; however, the land use planning and development approval process is managed by two separate Municipalities – the Municipality of East Hants (MEH) and the Halifax Regional Municipality (HRM). Generally, these two jurisdictions are separated by the Shubenacadie River, which essentially parallels the NSDPW's Trunk 2 corridor.

We expect most of the future growth to occur within the MEH and this is based on information provided by the two stakeholder Municipalities. This is logical given the close proximity of these new developments to the already established community services in the MEH (i.e. Enfield, Elmsdale, Lantz) as well as the convenient connectivity to the Highway 102 regional travel corridor. The MEH Planning Department has defined future growth areas within their Municipality and these are contained in *Figure 2*.

Figure 2: Study Area and MEH Special Planning Areas



Source: MEH

As shown in *Figure 2*, the MEH has established specific areas to which planning policies apply. The large area, highlighted in red, is a priority growth area for the MEH. It was previously referred to as the Regional Service Boundary (RSB), but is now referred to as the *South Corridor and Commercial Growth Management Area* (SCC GMA). The SCC GMA includes the communities of Lantz, Elmsdale, and Enfield. The MEH has established a planning vision to encourage the majority of future growth within the SCC GMA, rather than in the unserviced rural areas. Their vision is intended to increase the density of development in this serviced area which will assist the Municipality in delivering more efficient services for these communities.

In addition to the serviced land area within the defined GMA, the MEH has also defined three specific unserviced land areas where additional development could also occur to a lesser extent – as opposed to the proliferation of unplanned rural development. These are referred to as Growth Reserve Areas (GRA) which encompass an area in Horne Settlement, Belnan and Lantz on the west side of Highway 102.

Future development within HRM – south and east of the Shubenacadie River – will need to utilize the local road system connecting through MEH lands. This also means that residents in this area of HRM likely rely on community services offered in MEH (recreation centres, grocery stores, pharmacies, etc.) since these services are not readily available within this area of HRM. Our study has considered some growth increases within this area of HRM as well.

2.3 Transportation Mobility Constraints

The regional movement of people and goods within the corridor area of MEH predominantly occurs via the Highway 102. This divided highway facility is generally aligned in a north-south direction and provides an important transportation link between Halifax and Truro.

Although there are several other minor transportation corridors serving this area of MEH – in addition to Highway 102 – there are also numerous constraints to the movement of people and goods. These constraints include:

- **WEST - Highway 102**: There are a limited number of roads crossing over the Highway 102 including Exit 7 (Enfield), Old Enfield Road, Exit 8 (Elmsdale), Exit 8A (Lantz), and Exit 9 (Milford). Otherwise Highway 102 limits mobility and represents a partial barrier to east-west travel.
- **EAST – Shubenacadie River / CN Railway line**: There are a limited number of public river crossings in the study area to move across the Shubenacadie River and the parallel CN rail line. Crossings are limited to Elmsdale Road (Elmsdale), Route 277 (Lantz), and Milford Road (Milford). There are no local road crossings in the southern portion (Enfield) of our study area.
- **SOUTH – Shubenacadie River / Grand Lake**: There are only two southern options to cross the Shubenacadie River, which occur via Highway 102 and Trunk 2. Residents in the Horne Settlement area only have an option to use Old Enfield Road to access Trunk 2 – unless they utilize a very circuitous Route to the north towards Belnan.

The constrained mobility options in the study area are exacerbated by the limited north-south travel options within HRM – on the east side of the Shubenacadie River. For example, there is no road connection from Oldham Road to Elmsdale Road. Therefore, residents and businesses located east of the Shubenacadie River can only access the regional road network and community services via the limited number of river crossings mentioned above.

In conclusion, the limited mobility options concentrates a significant amount of vehicle demand at a limited number of roadway junctions. These junctions have a finite capacity. Therefore, the future travel demand utilizing these limited number of corridors need to be carefully monitored and managed to ensure they remain viable mobility options now and well into the future.

2.4 Overview of Analysis Scenarios

Our Study analysis process was developed through discussions with NSDPW as well as information gleaned from the two stakeholder Municipalities. We divided the information into two categories, the transportation network (supply network), and settlement patterns (mobility demand). Essentially, our analysis explicitly examined the existing road network (Option 1) at the 2033, and 2043 planning horizons. Based on the findings flowing from this work it was determined that additional road network capacity would be required, thus two future road layouts were qualitatively examined. A summary of the road network options and settlement scenarios are provided in *Table 1*.

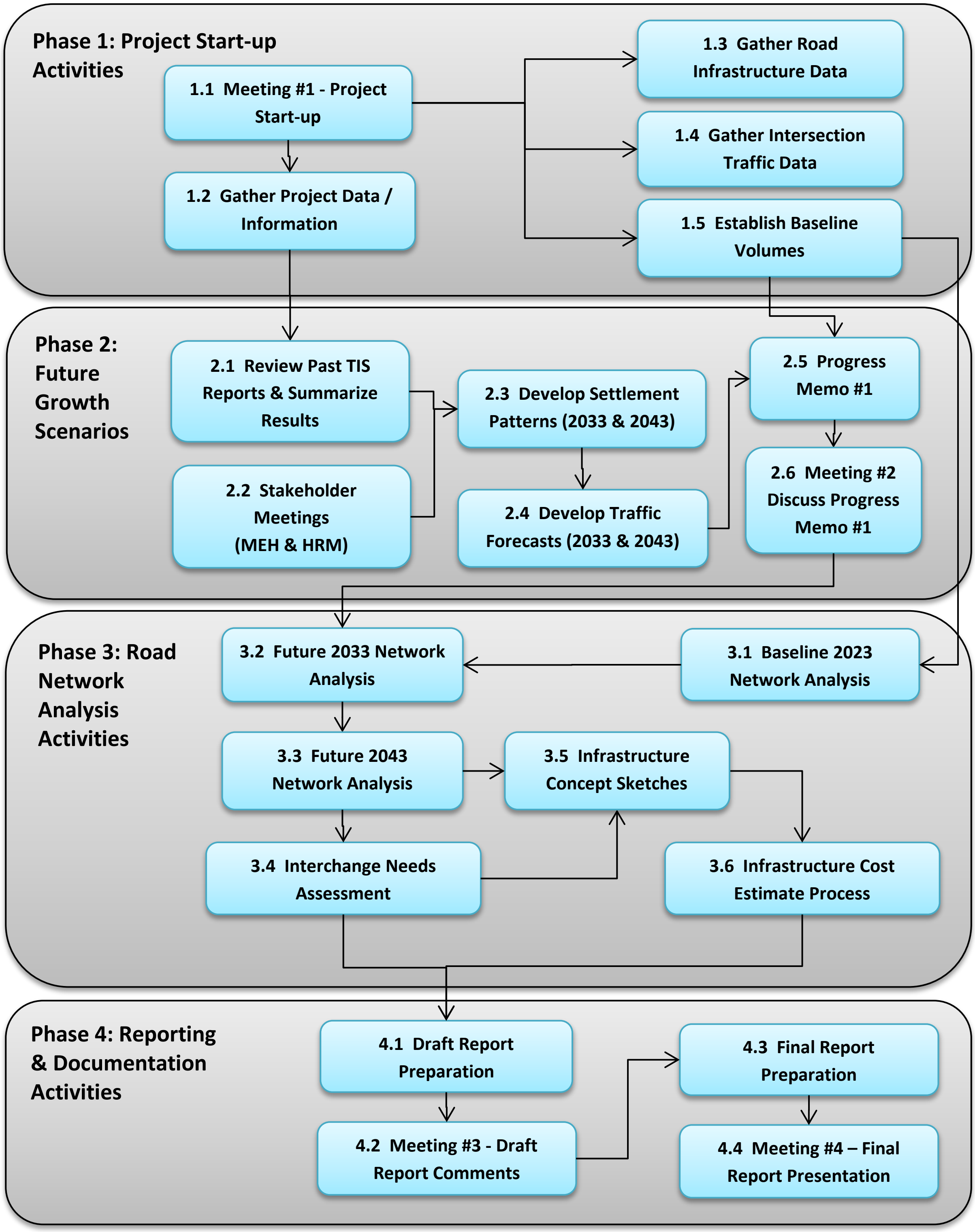
Table 1: Assessment of Growth Scenarios and Road Network Layouts

Road Network Options	Growth Settlement Scenarios		
	2033 Growth	**2043 Growth**	**Unconstrained Growth**
Existing – Option 1	✔	✔	⃠
Existing + North I/C Option 2	⃠	⃠	✔
Existing + South I/C Option 3	⃠	⃠	✔

2.5 Detailed Analysis Process

The analysis effort carried out for this study followed industry best practices consistent with completing a transportation planning / travel demand modeling process. It involved tasks such as the collection of available transportation and traffic data, gathering future development and settlement information (i.e. land use planning), forecasting the travel demand under various road network scenarios, identification of a preferred network concept that most efficiently satisfies the expected travel demand and travel desires, and so forth. A detailed stepwise description of our analysis process is illustrated in *Figure 3* below.

Figure 3: The Detailed Analysis Approach

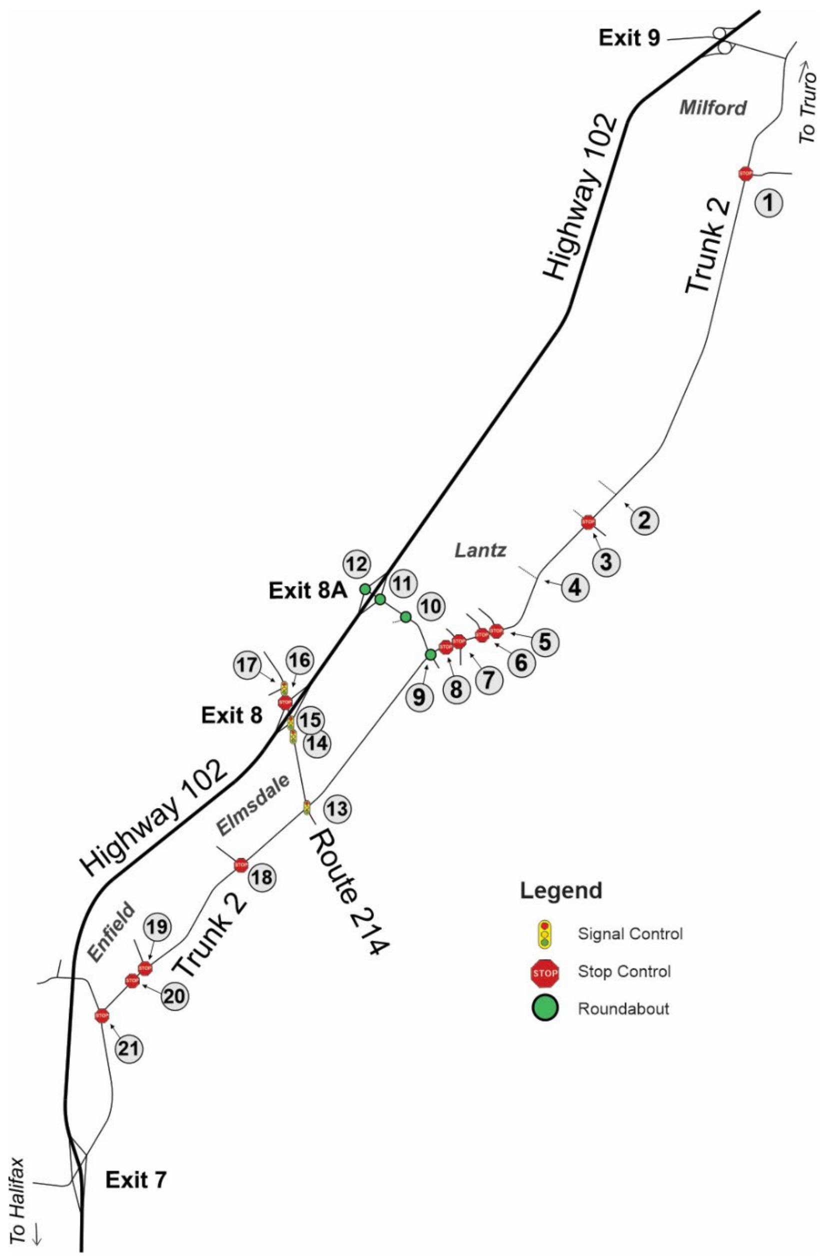


3. BASELINE 2023 CONDITIONS

3.1 The Study Area Intersections

A total of 21 study area intersections were explicitly considered in the detailed evaluations at the 2033 and 2043 planning horizons. Of these, 19 intersections currently exist and accommodate traffic volumes. The other two intersections are planned and will be constructed as part of future residential development in Lantz. The spatial location of the 21 study area intersections are illustrated in *Figure 4*, starting from north to south.

Figure 4: Study Area Intersection Locations



3.2 The 2023 Traffic Data

3.2.1 Design Hourly Volumes

Typically, traffic capacity and operational performance assessments evaluate peak travel times to help understand how well the road network (supply system) can accommodate the peak hour demands. Since the East Hants corridor area is predominantly comprised of residential land uses, along with supporting neighbourhood commercial businesses, it seemed reasonable to assume the weekday AM and PM peak hours would experience the highest overall study area volumes. Therefore, these two peak hours were selected and used in the analysis process.

An additional review was carried out of the historical traffic volumes contained in recently completed traffic impact study reports for the large residential areas in Lantz. These study reports also suggest the highest volumes on the study area roads occur during the weekday morning and afternoon peak periods. Therefore, our data collection effort focused on these time periods and specific weekday peak hours were determined using historical traffic counts that the NSDPW has on file as well as the observed study area traffic volumes gathered by the consultant team.

3.2.2 Gathering Current and Historical Volumes

Before starting the analysis of the future year traffic volumes, there was a need to establish a set of baseline traffic volumes at each of the study area intersections during peak travel times. To facilitate this process GRIFFIN obtained all available historical traffic data throughout the study area – either from the road agencies or gleaned from recently completed traffic study reports. Historical data was also supplemented by GRIFFIN's traffic data collection effort carried out in June 2023. There were no travel restrictions in June 2023 and schools were open and operational at this time. The observed traffic conditions were considered to be reasonable and representative of typical conditions.

A summary of both historical and new intersection traffic data obtained and applied to this study is provided in *Table 1*.

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Table 2: Summary of Intersection Traffic Data Sources

Intersections (north to south)	**Intersection Turning Movement Count**	**Supplementary Historical Data**
1. Trunk 2 / Milford Rd	June 16th, 2023	*n/a*
2. Trunk 2/ FH Street A	*does not exist*	*n/a*
3. Trunk 2 / Robert Scott – Wickwire North	-	2022 TIS report
4. Trunk 2 / Wickwire South	*does not exist*	*n/a*
5. Trunk 2 / Frederick Allen Dr	June 15th, 2023	2020 TIS report
6. Trunk 2 / Poplar Dr	June 14th, 2023	2020 TIS report
7. Trunk 2 / Route 277-Logan	June 13th, 2023	2017 I/C report
8. Trunk 2 / Church St	June 13th, 2023	*n/a*
9. Trunk 2 / Lantz Connector-Clay Brick Way	n/a[A]	2022 TIS report
10. Lantz Connector / Shaw Dr		2022 TIS report
11. Lantz Connector / Hwy 102 NB Ramps		2022 TIS report
12. Lantz Connector / Hwy 102 SB Ramps		2022 TIS report
13. Route 214 / Trunk 2	June 27th, 2023	2021 TIS report
14. Route 214 / Mason Dr (access)	June 22nd, 2023	2021 TIS report
15. Route 214 / Hwy 102 NB Ramps	June 22nd, 2023	2021 TIS report
16. Route 214 / Hwy 102 SB Ramps	June 21st, 2023	2021 TIS report
17. Route 214 / Park Rd-Access	June 20th, 2023	2017 I/C report
18. Trunk 2 / Elmwood Dr	June 9th, 2023	2021 TIS report
19. Trunk 2 / Alderney Dr	June 9th, 2023	*n/a*
20. Trunk 2 / Shamrock Dr	June 6th, 2023	*n/a*
21. Trunk 2 / Old Enfield Rd	June 6th, 2023	*n/a*

A – GRIFFIN gathered volumes on Lantz Connector in June 2023. Volumes were lower than previous November 2022 volumes. Therefore, the higher 2022 volumes were applied to this study and no new intersection counts were conducted.

These data were supplemented by mid-block 24-hour traffic counts gathered using automatic traffic recording (ATR) units installed by GRIFFIN. The units were strategically placed at four locations in the study area to both confirm the June 2023 intersection turning movement counts, as well as verify traffic volume counts from recently completed TIS reports.

Table 3: Summary of Mid-block 24-hour Traffic Data Sources

ATR Installation Location (north to south)	**Date of Data Collection**
1. Trunk 2 (Lantz): Immediately north of Poplar Drive	June 13th-16th 2023
2. Lantz Connector (Lantz): Immediately west of Trunk 2	June 7th-9th 2023
3. Route 214 (Elmsdale): Immediately west of Roulston Drive	June 20th-23rd 2023
4. Trunk 2 (Enfield): Immediately north of Shamrock Drive	June 6th-9th 2023

A summary of the Existing 2023 peak hour traffic volumes used in the study are contained in *Appendix III*.

4. FUTURE COMMUNITY GROWTH

4.1 Overview

The identification of future growth patterns in a community are an integral component to the transportation planning process due to the direct correlation between population and employment growth and increases in traffic volume demand on the road network. As such, the consultant team obtained future population and employment growth information from the Planning Departments at both the Municipality of East Hants (MEH) and the Halifax Regional Municipality. The planning information allowed the consultant team to better understand the anticipated growth – both in magnitude and rate. Several background reports and documents were provided to the consultant team – the bulk of which were associated with growth in the MEH. The information contained in these documents formed the basis of the growth forecasts used to identify the expected future travel demand for the 2033 and 2043 planning horizons, as well as the long-term unconstrained growth scenario.

The first task in the process was to review the relevant background planning information and technical reports to understand the various growth forecasting methods that could be applied to the transportation planning process. A summary of our findings of this literature review process is provided in the following Sections.

4.2 Changes in Population and Residential Units

4.2.1 Overview

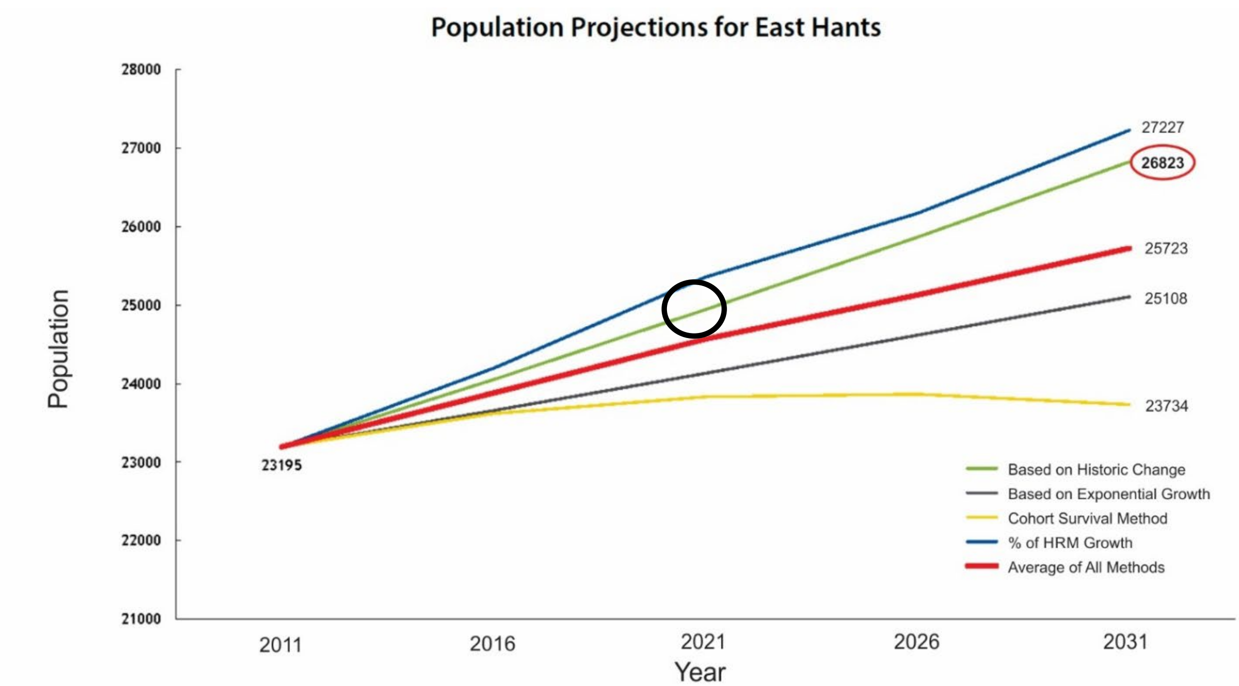
Our initial step of the review process examined the available population information. Understanding changes in population numbers help government agencies plan their infrastructure needs to ensure communities are provided with adequate services. In the case of this study, population is used as one indicator of traffic demand. Research has demonstrated that there is a strong correlation between population increases, increases in the number of residential units, as well as a corresponding increase in the amount of travel throughout a community. Thus, we have used population as a proxy measure for changes in traffic demand. In the next sections we explore some of the available information.

4.2.2 Historical Population Changes

Our population assessment task began with a review of past forecasting results. This step allowed us to gain an understanding of how population in the MEH has changed in recent years, as well as validate the relative accuracy of these past predictions and determine if modifications are required to future forecasting exercises.

One of the more recent population forecasting processes was carried out by the MEH in 2014 and the results of this process were used by GRIFFIN to formulate settlement patterns for their 2017 Lantz interchange location study. These previous MEH forecasts were developed for the then, future years of 2021 and 2031. A graphical summary of MEH's 2014 population forecasting process is contained in *Figure 4*.

Figure 5: Previous East Hants Population Forecasts (2011-2031)



Source: Plan East Hants – Community Inventory Report, September 2014, Page 12.

The MEH has also recently reported their 2021 census population to be 24,853. Therefore, we can compare this known population value with previous MEH forecasts contained in *Figure 5* – denoted by the circle in the graph above. The results suggest the actual growth that occurred between 2011 and 2021 was considered above average, and this corresponds with GRIFFIN's previous growth assumptions applied to their 2017 Lantz interchange study. The 2021 census population value also adds confidence to our travel demand forecasting procedure and our understanding of rates of growth in this area of the Province.

4.2.3 More Recent Population Forecasts

In 2021, the MEH recently published their Socio-Economic Study report which provided a more recent update to their growth forecasts and summarizes key community planning information. This document utilized valuable information and metrics contained in the 2021 census data set. Since this planning study is very recent, and utilizes current 2021 census data, it was prudent to use this information in our transportation study as a key resource. Upon examining the 2021 Socio-Economic Study report, GRIFFIN extracted two key population estimates from this document.

The first forecasting process is what GRIFFIN refers to here as METHOD 1, which is based on MEH historical growth trends. As stated in the previous Section this is a reasonably accurate prediction method that is commonly applied by Municipalities across Canada. The second, and independent approach, is referred to as METHOD 2. The second method was based on the actual development applications that have been submitted to the MEH Planning Department. This information is a more accurate reflection of known development that is likely to occur in the short to medium term. A summary of both population forecasting methods is contained in *Table 4*.

Table 4: MEH Comparison of Population Forecast Techniques

Census Year	METHOD 1 Greater Corridor Area		METHOD 2 SCC GMA Only	
	Population[A]	Percent Change	Population[B]	Percent Change
2021	**15,737**	**-**	**8,190**	**-**
2026	16,635	5.7%	13,446	64%
2031	17,584	5.7%	17,529	30%
2036	18,587	5.7%	19,275	10%
2041	19,647	5.7%	20,699	7%
20 yr growth ratio	**1.25 growth ratio**		**2.53 growth ratio**	

A – MEH forecasts based on historical trends, 2023 Socio-Economic Study.

B – MEH Forecasts based on development applications, 2023 Socio-Economic Study.

It is difficult to carry out a direct comparison of the two population forecast methods contained in *Table 4* as they represent slightly different geographic areas. However, the MEH's stated planning goal of trying to encourage increased settlement density within the serviced area of the SCC Growth Management Area (SCC GMA) is clear in METHOD 2 – as indicated by the higher 2.53 growth ratio. Therefore, we anticipate the lions share of future population settlement – and in turn residential units – to occur within the SCC GMA area.

4.3 A More Detailed Look at Method 2 – MEH Development Applications

4.3.1 Overview

GRIFFIN further examined the MEH population forecasting procedures of METHOD 2 discussed above by obtaining details of the development application data from the MEH Planning Department. Understanding the future population growth – measured in residential units – is valuable as it is a valid forecasting process, and is independent of the METHOD 1 forecasting process.

4.3.2 Planned and Approved Development Applications - MEH

The MEH made available the detailed building information associated with future residential development applications that are either at the active application stage, approved by MEH, or at the pending application (i.e. speculative) stage. This information included a list of the individual developments within the greater corridor area – including both the serviced SCC GMA and unserviced GRA's. This information included the proponent name, types of residential units, magnitude of the development, and location. A summary of the proposed and planned residential units across the corridor area of MEH is summarized in *Table 5*.

Table 5: Future Proposed and Planned MEH Residential Units (Net Increase)

	MEH Sub-Area / Community	Net New Units By Area	Total Units
Growth Management Areas (GMA)	Lantz	+5,456	**+7,070**
	Elmsdale	+948	
	Enfield	+666	
Growth Reserve Areas (GRA)	Lantz	0	**+748**
	Belnan	0	
	Horne Settlement	+748	
Rural Area	-	+185	**+185**
		MEH NET INCREASE IN UNITS	**+8,003**

If we focus exclusively on MEH's serviced GMA there are 7,070 residential units planned to be built. Looking more closely, the majority or 5,456 units are planned to occur in Lantz, 948 units in Elmsdale, and 666 units in Enfield. Currently, there are no planned developments within the Belnan GRA but the planned 185 units in the rural area are all located near-by in the rural area of Belnan.

GRIFFIN used this information to examine how these future planned units translate into population increases. A summary of our population estimates for both the entire MEH corridor area and the MEH GMA areas is provided in *Table 6*. It should be noted that the residential unit and population estimates assume a full build-out, or unconstrained growth scenario.

Table 6: MEH Population Estimates based on All Residential Development Applications

	Greater Corridor Area[A]	Corridor SCC GMA
2021 Population	**15,737**	**8,190**
Net Increase - Residential Units	8,003 units	7,070 units
Persons / Household[B]	2.33	2.33
Expected Population Increase	18,647	16,473
Total Future Population	**34,384**	**24,663**

A – Greater corridor area includes the MEH's unserviced GRA's and rural development.

B – MEH Planning Department uses an average 2.41 persons / household, plus a 3% vacancy rate.

The information in *Table 6* is significant as it represents actual planning applications, and if fully built out, represents more than a doubling of the 2021 census population in the corridor area. It also suggests a three-fold increase in population in the GMA. In conclusion, the planned/approved developments will result in significant increases in the MEH population.

If we compare these major population increases presented above in *Table 6* with the MEH Planning Department's own estimates for their 2041 planning horizon – as documented in their 2021 Socio-economic report – we can see that there will be more than adequate housing stock to meet the MEH's population forecasting numbers. This conclusion also suggests that, for the purposes of this study, it is not reasonable to assume all 8,003 net new units will be occupied by

2043, for example. Thus, GRIFFIN carried out a rationalization process to identify reasonable interim planning horizon estimates for this study, at the 2033 and 2043 horizon years. These numbers are presented later in Section 4.4.

4.3.3 MEH Residential Growth Outside the SCC GMA

The MEH's Planning Department indicated there are only two known notable areas of growth outside the serviced SCC GMA. These include the following:

1. *Horne Settlement GRA*: A low-density residential area could potentially develop in the Horne Settlement GRA west of Old Enfield Road. MEH has indicated that a total of 748 unserviced units could be built in this area. However, this is outside the SCC GMA and development in this area would not meet the MEH's desired goal to increase density in their serviced Growth Management Area. GRIFFIN will account for some development in this area, but it will be limited to align with MEH's land use policy.
2. *Rural Area West of Belnan*: A low density residential development comprised of up to 185 units is being planned in Belnan. This development is referred to as Garden Meadows and is located near Royal Oaks Way. This is another unserviced area; however, is outside the adjacent Belnan GRA. Development in this area would not meet the MEH's desired planning goals as it is outside both the defined GMA and GRA. GRIFFIN will account for some development in this area, but again, it will be assumed that some form of rural growth controls would be enacted.

Generally, our study assumes that residential growth outside of the GMA will occur; however, it will be limited in the near-term to align with MEH's planning policy. In order for this to come to fruition we assume in our growth projections that the stakeholder Municipalities will enact some form of growth management policy to limit further proliferation of unserviced units in the rural areas.

4.4 Residential Growth - HRM

GRIFFIN has obtained information regarding residential growth on lands along the east side of the Shubenacadie River, and within the Halifax Regional Municipality (HRM). This is a rural and unserviced area of HRM that has very limited community services and no through road connections to other areas of HRM. The only vehicle access to these properties is via the Trunk 2 corridor, which means drivers will need to cross the Shubenacadie River via one of two available crossings and then travel through the MEH.

There are two known developments in this area that were explicitly considered in our study:

- *Old Post Road*: The existing Riverdale low-density neighbourhood is being planned to include up to 30 additional low-density units. The only vehicle access for these drivers is via Oldham Road in Enfield. Thus, increases in traffic on study area roads are expected to be focused on the Enfield area and the Exit 7 interchange.
- *Old Truro Road*: A future 525-unit mobile home neighbourhood is being planned in the Elmsdale Road area of HRM. The only vehicle access for these residents is via Elmsdale

Road-Route 214. Thus, impacts to the study area roads are expected to be focused along the Route 214 corridor and Exit 8 (Elmsdale).

This rural area of HRM could see up to 555 new residential units; however, as discussed in the previous Section we have assumed that only limited number of units will be complete by 2043.

4.5 Summary of Residential Growth

Based on our review of past reports provided by MEH and HRM planning representatives, as well as the key development information presented above, GRIFFIN was able to assemble likely and reasonable settlement patterns for the 2033 and 2043 planning horizons. Our proposed residential growth summary is contained in *Table 7*.

Table 7: Proposed Residential Growth Forecasts by 2033 and 2043

Location Description		New Units 2023-2033	New Units 2023-2043	Average Growth (20 years)
MEH SCC GMA	Units - Lantz	+2,829	+4,130	207 units/year
	Units - Elmsdale	+783	+783	39 units/year
	Units - Enfield	+599	+599	30 units/year
MEH GRA's	Units	+187	+299	15 units/year
MEH Rural Areas	Units	+46	+74	4 units/year
HRM	Units	+139	+222	11 units/year
TOTAL		**+4,583 units**	**+6,107 units**	**306 units/year**

In summary, our proposed residential settlement patterns contained in *Table 7* indicates that many of the new units will occur within the serviced SCC GMA – 5,512 new units by 2043. This equates to a yearly increase in the GMA of about 276 units/year and will clearly help to increase the residential density.

GRIFFIN also completed a reasonableness check by reviewing information from an independent forecasting process carried out by MEH Planning Department. They have estimated that approximately 4,930 net new units will be built and occupied in the GMA by the 2041 planning horizon. Although the 2041 horizon year does not exactly align with this study, the year-to-year increase in new units are similar and range between 273 units/year (MEH)[1] to 276 units/year (GRIFFIN)[2]. The findings of our reasonableness check adds confidence to our proposed approach. The rationalized residential growth numbers for this study are spatially allocated by community in *Figures 6, 7 and 8*. It should be noted that the Elmsdale growth numbers include the Belnan GRA and rural areas; and Enfield growth numbers include the Horne Settlement GRA. A more detailed breakdown of residential units, and commercial development by location is provided in the *Appendix II*.

[1] This yearly rate of net new units in the GMA was developed internally by the MEH Planning Department.

[2] This yearly rate of net new units in the GMA was development by GRIFFIN, as documented in Table 7

Figure 6: Study Area Residential Unit Forecast by Community – 2023 to 2033

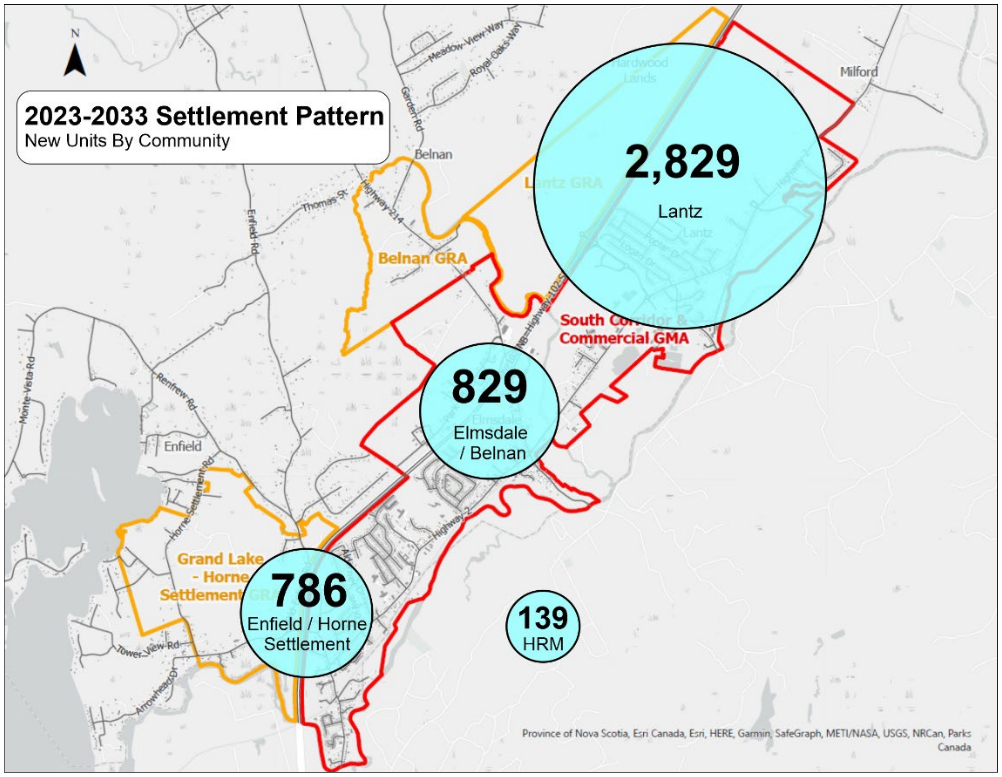


Figure 7: Study Area Residential Unit Forecast by Community – 2023 to 2043

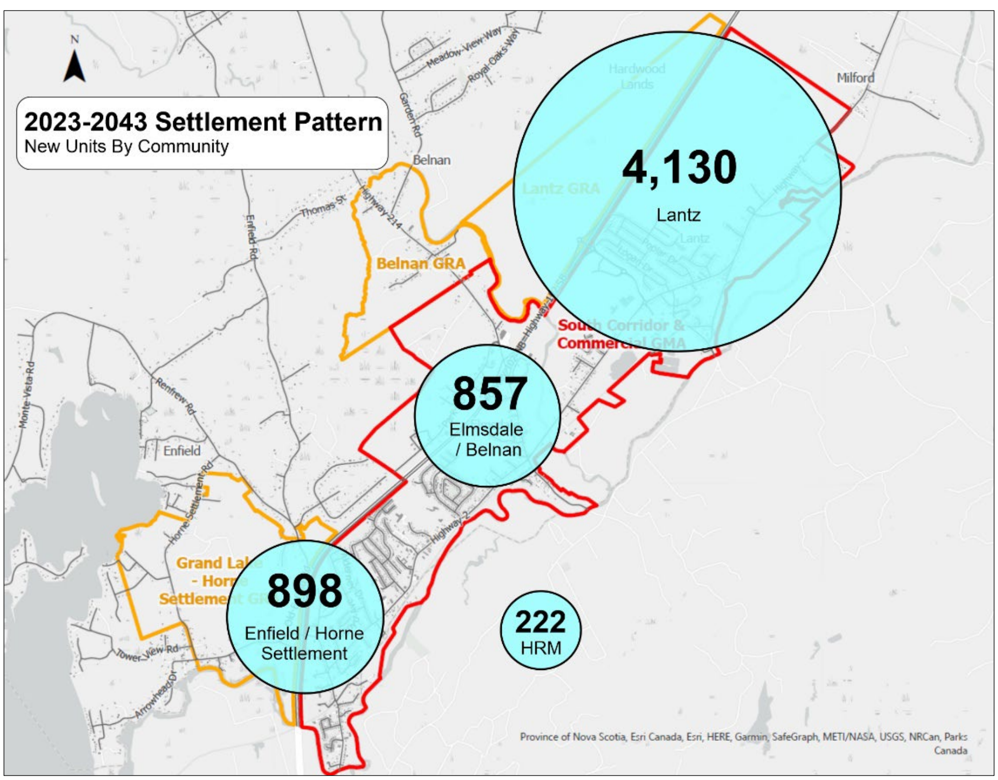
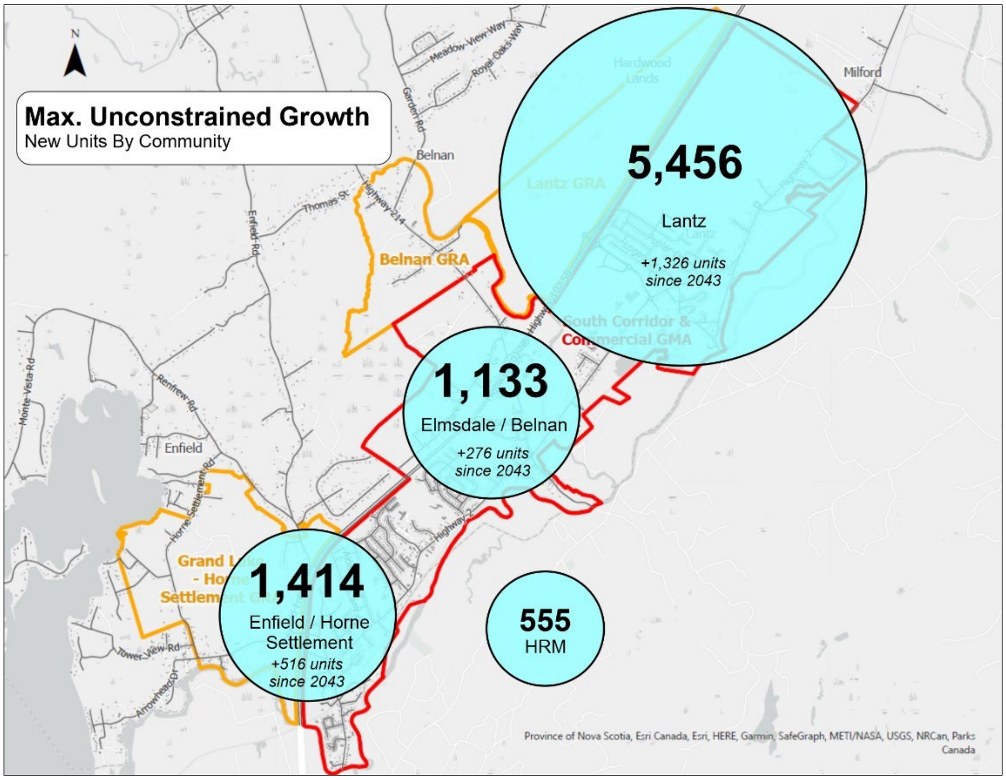


Figure 8: Study Area Residential Unit Forecast by Community – 2023 to Unconstrained



4.6 Business Park and Commercial Growth

4.6.1 Business Park Growth

The main business park located within our study area is situated along Park Road, west of Highway 102, in Elmsdale. The park has experienced steady and gradual growth in recent years, and we expect this trend to continue. However, one of the main concerns for this area is the roadway capacity as there is only one vehicle access via Park Road, and the adjacent Exit 8 interchange. Although the recent opening of the new Exit 8A (Lantz) interchange has shifted traffic away from Exit 8 and alleviated some traffic congestion in Elmsdale, it is an area that again could be approaching near-capacity conditions with only minor increases in peak hour volume. Thus, continued growth in the Business Park is expected to result in limited road capacity in the short to medium term.

GRIFFIN examined the available Business Park lands that remain undeveloped and appear to be within the SCC GMA boundary. It was estimated that upwards of 350 acres could potentially be occupied. Despite there being a significant amount of land available to accommodate future growth, GRIFFIN does not expect these lands to fully develop by the 2043 horizon year based on the historical growth trends for this area., along with competition from other Business Parks around the Province.

Initially, GRIFFIN proposed to utilize a similar approach to rationalizing Business Park growth that was applied in their previous 2017 study for this area. However, upon reviewing the previous analysis results, the Park Road intersection began to reach capacity once the Business Park growth reached 500,000 ft^2 net new growth. With this previous knowledge, GRIFFIN applied the following Business Park growth assumptions to this latest study:

- Assume an average development rate of 2.5 acres/year which approximately equates to about two to three new businesses per year opening in the Business Park. This equates to an approximate growth of:
  - *2033 Horizon*: 25 new acres of development,
  - *2043 Horizon*: 50 new acres of development
- GRIFFIN also conducted iterative sensitivity assessments of the 2.5 acres/year growth to determine the point at which the Park Road corridor and its intersection with Route 214 reached capacity and can no longer accommodate traffic growth.

This analysis approach provides a practical evaluation of the local road network and will help identify an approximate timeframe for a new second road connection to the Business Park – or the need to identify alternative business park lands.

4.6.2 Commercial Growth – Village Core Zones

There are multiple commercial nodes in the study area currently offering neighbourhood commercial services for residents of the MEH corridor area, as well as HRM residents south of the Shubenacadie River. As the population in the study area continues to increase, there is an expectation that the number of commercial businesses will also increase to meet demand. The MEH Planning Department appears to have been monitoring these needs, and as such, have identified commercial nodes to help facilitate growth of this particular land use type and ensure local residents are offered vital community services well into the future. The MEH commercial nodes are referred to as local Village Core Zones within the SCC GMA. The three defined Village Core Zones include:

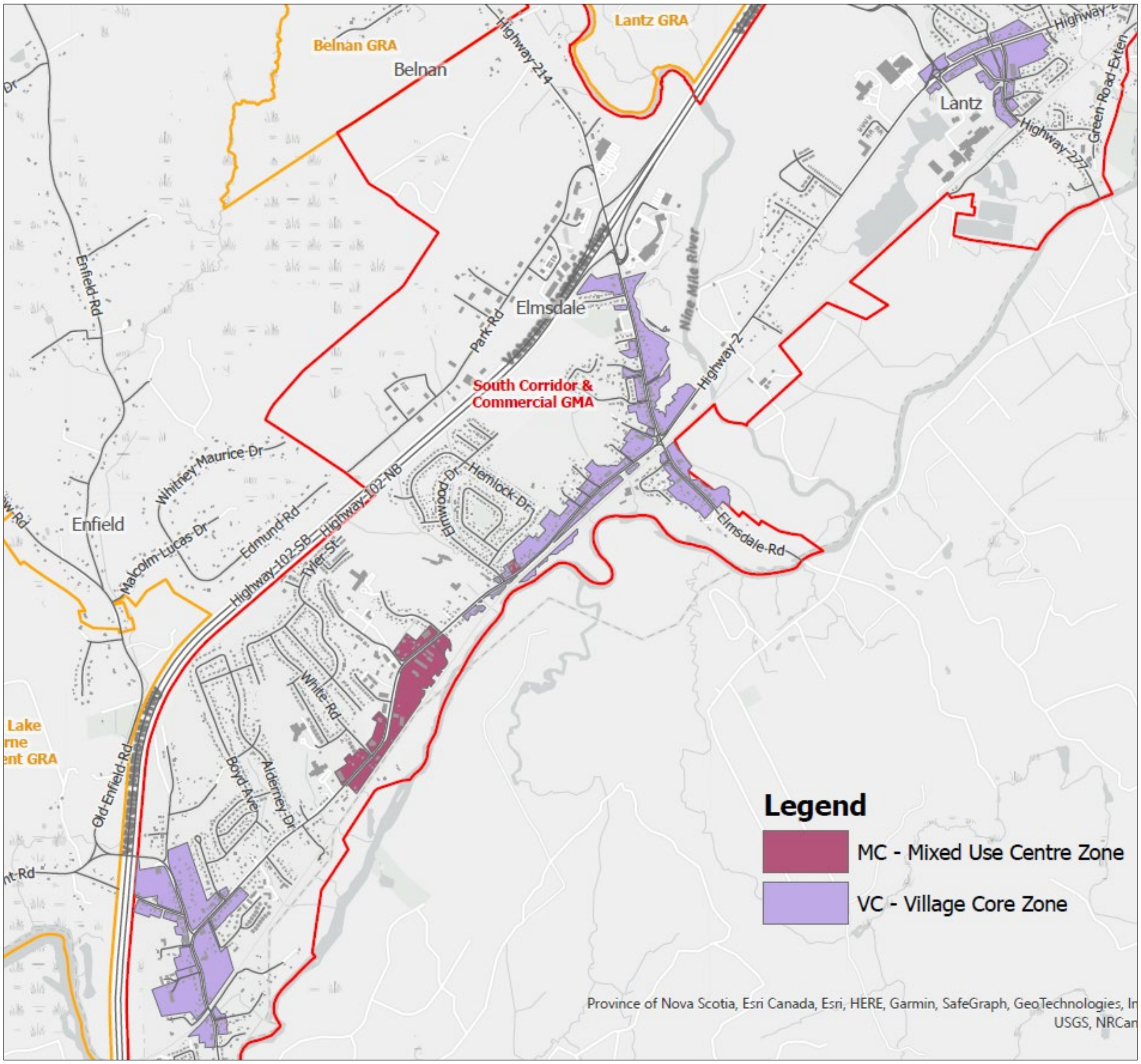
- *Enfield*: concentrated around the Trunk 2 / Old Enfield Road intersection,
- *Elmsdale*: concentrated along Route 214 (between Highway 102 and Trunk 2) and generally around the Trunk 2 / Route 214 intersection, and
- *Lantz*: concentrated along Trunk 2, generally between the Lantz Connector Road and Route 277 intersections.

GRIFFIN views these Village Core Zones as smaller human-scale downtown areas for local residents within each community. These areas are conceptually shown in *Figure 9*.

4.6.3 Commercial Growth – Highway Commercial

Through our discussions with MEH, it was apparent that future commercial growth is likely to predominantly occur within MEH, in the following areas:

Figure 9: MEH Village Core Zones for Future Local Commercial Growth



Source: MEH

1. ***Lantz***:
   a. *New Exit 8A interchange area east of Highway 102*: These lands are within the serviced Lantz South development which has been planned to include up to 220,100 ft^2 of highway commercial space in the southeast quadrant of this interchange. These lands are located within the SCC GMA. An additional 97,000 ft^2 of commercial space is also planned to occur further north – within the Armco and FH Development neighbourhoods.
   b. *New Exit 8A interchange area west of Highway 102*: These lands are located within the unserviced Lantz GRA lands west of Highway 102, with access via the new Exit 8A

interchange. The magnitude and scale of development in the Lantz GRA is unknown at this time; however, MEH is initiating a planning and servicing study for this area in the near future. GRIFFIN has assumed development in this area to be exclusively highway commercial in nature and growth will be limited to some degree given the fact these lands are currently unserviced, combined with the fact that there is a notable amount of serviced commercial development on the east side of Exit 8A.

2. ***Elmsdale*:**
   a. The existing Exit 8 interchange area already accommodates numerous commercial businesses; however, there is some available land in the northwest quadrant with access via the Park road signalized intersection. These lands are owned by Choice Properties and there are no known plans for development to occur; however, GRIFFIN has assumed some additional commercial space on these lands.
   b. Along Route 214, between Highway 102 and Trunk 2, the existing residences have been rezoned for commercial use. As such, we expect this area to gradually convert to a "main street" style streetscape with small-scale low-rise buildings containing shops and services intended to serve local residents. GRIFFIN has assumed some new commercial space in this area.
3. ***Enfield***: A small amount of new highway commercial space was assumed in Enfield. As discussed in the previous Section, the area around the Trunk 2 / Old Enfield Road intersection has been designated as a Village Core Zone and future commercial growth has been considered in that area.

4.6.4 Summary of Commercial Growth Forecasts

A summary of our proposed growth scenarios for the 2033 and 2043 planning horizons are contained in *Table 8*. As shown, GRIFFIN proposes to include up to 50 acres of new development in the serviced area of the Business Park (or until Park Road reaches capacity). In addition, GRIFFIN has accounted for an assumed highway commercial floor space growth of up to 313,550 ft^2 across the entire study area.

Table 8: Proposed Business Park and Commercial Growth by 2033 and 2043

		New 2023-2033	**New 2023-2043**	**Average Growth** (20 years)
Business Park	Elmsdale GMA	+25 acres	+50 acres	2.5 acres / year
Hwy Commercial	Lantz – GMA	79,275 ft^2	158,550 ft^2	7,928 ft^2 / year
	Lantz - GRA	25,000 ft^2	75,000 ft^2	3,750 ft^2 / year
	Elmsdale GMA – Exit 8	20,000 ft^2	40,000 ft^2	2,000 ft^2 / year
	Elmsdale GMA– Rte 214	10,000 ft^2	20,000 ft^2	1,000 ft^2 / year
	Enfield GMA	10,000 ft^2	20,000 ft^2	1,000 ft^2 / year
TOTAL – Hwy Commercial Floor Space		**144,275 ft^2**	**313,550 ft^2**	**15,678 ft^2 / year**

These values applied by GRIFFIN for the 2033 and 2043 planning horizons are below the total commercial space that MEH has already approved within the SCC GMA. This means there is an opportunity for additional commercial space to be added beyond the 2043 planning horizon and this aligns well with our proposed approach associated with the residential growth scenario assumptions presented in the previous section.

4.7 Development Scenario Summary

Based on our review of the available planning and development information, the following growth forecasts were applied to the East Hants Traffic Study:

- Residential Land Use:
  - Reviewing multiple growth forecasting methods, it appears reasonable to use a housing unit increase of about **306 units/year** for the next 20 years – out to the 2043 planning horizon. This includes development occurring within the MEH GMA, MEH GRA's, and on adjacent lands within HRM. It equates to a total increase of **6,107 new residential units**. Of course, the MEH has approved – or soon to be approved – 7,070 net new units within their GMA alone, so we expect growth will continue well beyond 2043.
  - An increase of 6,107 net new residential units by the 2043 planning horizon is estimated to represent a population increase of about 14,230 new people. The majority of this population – about 68% - is expected to settle within the community of Lantz and occupy about 4,130 new units by 2043. The remaining 1,977 units are expected to be spread across the other communities in our study area.
- Commercial Land Uses:
  - Business Park growth along Park Road of up to 50 new acres by the 2043 horizon year. GRIFFIN assumed this equates to 435,600 ft^2 of new business floor space.
  - Highway commercial growth was included in our assessment. As documented in *Table 8*, a total of 313,550 ft^2 of floor space was assumed to occur by the 2043 horizon year.

These forecast development numbers were used to quantify the amount future year traffic volumes using the study area roads, which is discussed in the next Section. A detailed breakdown of the future settlement patterns is provided in *Appendix II*.

5. VEHICLE TRAFFIC FORECASTS

5.1 Overview

The expected population and employment growth discussed in the previous Section was used to quantify the number of new vehicle trips added to the road network. Our proposed approach to quantifying the amount of new vehicle traffic added to the study area roads at the future planning horizon years was based on industry best practices and used multiple sources of information.

GRIFFIN started the traffic forecasting step by reviewing the traffic forecasts contained in recently approved/accepted Traffic Impact Study (TIS) reports for the larger developments within the study area, and where possible, used the published site-generated traffic volumes directly from these reports. For all remaining smaller developments, GRIFFIN used published trip generation rates contained in ITE's Trip Generation Manual, 11th Edition document to develop traffic estimates.

As with any trip generation calculation process, the specific land use type can impact the total volumes of vehicles being generated in an area. Therefore, the study area was subdivided into smaller traffic-generating zones that corresponded with the following three land use types:

- *Residential:* The specific types and numbers of units were gleaned from the development application information, and/or, the available traffic impact study reports. GRIFFIN created a traffic generating site for each known new development location.
- *Business Park:* Includes an expansion of the MEH business park lands along Park Road and was assumed to be comprised of similar business types that currently exist.
- *Highway Commercial:* GRIFFIN assumed growth and expansion of the existing mix of businesses in the vicinity of Exit 8, Exit 8A, and within the MEH's designated Village Core Zones along Route 214 and Trunk 2.

Each of these land use types are discussed in more detail in the next Sections.

5.2 A Word on Background Traffic Growth

A background traffic growth rate is typically included in a traffic volume forecasting process to account for general population and employment increases in the vicinity of the study area. This specific task attempts to account for any unknown developments that may occur within the planning horizon. However, the analysis approach being undertaken for this current study examines, in detail, all known development applications in our study area. These include approved future developments, and those active in the application process. Therefore, there are concerns of "double counting" traffic volumes if all known/planned developments are explicitly considered, plus a general traffic growth rate is applied. As such, GRIFFIN has chosen not to use a general background traffic rate to reduce the likelihood of an erroneous compounding traffic forecasting effect.

5.3 Summary of Vehicle Trip Generation Sources

5.3.1 Trip Generation Overview

Where possible, GRIFFIN utilized traffic forecasts contained in recent Traffic Impact Study (TIS) reports for the more significant developments in the SCC GMA, including Lantz South, Lantz North, and Elmwood area to name a few. For all remaining developments, GRIFFIN used published trip generation rates contained in ITE's latest Trip Generation Manual, 11th Edition document.

A summary of the proposed trip generation calculation assumptions for our study is provided in *Table 9*, broken down by sub-area and land use type.

Table 9: Vehicle Trip Generation Rates by Location and Land Use Type

Location / Area	Land Use Description	Trip Generation Source
MEH – South Corridor & Commercial Growth Management Area (SCC GMA)		
Lantz	Residential	• Mix of recent TIS reports (large developments) & ITE Trip gen rates (small developments)
	Commercial	• Use vehicle forecasts from mix of recent TIS reports
Elmsdale	Residential	• Elmwood TIS report & ITE trip gen rates for R2's (ITE LU 215) and low-rise multi-units (ITE LU 220)
	Commercial	• Exit 8 Area: mix of ITE rates for gas, fast food, etc. • Route 214 Corridor: ITE LU 822
	Business Park	• Business Park (ITE LU 770) using a 20% building coverage
Enfield	Residential	• ITE trip gen rates for R2's (ITE LU 215) and low-rise multi-units (ITE LU 220)
	Commercial	• ITE trip gen rate for LU 822
MEH – Growth Reserve Areas (GRA)		
Lantz	Commercial	• Exit 8A west of Hwy 102: mix of ITE rates for gas, fast food, etc.
Belnan	-	• n/a[A]
Horne Settlement	Residential	• ITE trip gen rates for R1's (ITE LU 210)
MEH – Rural Area outside of GMA & GRA's		
Belnan	Residential	• ITE trip gen rates for R1's (ITE LU 210)
HRM – Area southeast of Shubenacadie River		
HRM	Residential	• ITE trip gen rates for R1's (ITE LU 210) and R2's (ITE LU 215)

A – There are no known developments occurring within the Belnan GRA at this time.

5.3.2 Vehicle Trip Adjustments

GRIFFIN has followed ITE's best practices for quantifying the number of new vehicle trips. This includes an examination of not only the total vehicle trips generated by future development, but also a breakdown of both new vehicle trips and pass-by trips from traffic already on the network.

Of course, the specific land use type is directly related to the trip type, and GRIFFIN applied the following trip type adjustments:

- *Residential*: No trip type adjustments were made for this land use and total vehicle trips were considered to be new trips added to the network.
- *Business Park*: No trip type adjustments were made for this land use type and total vehicle trips were considered to be new trips.
- *Highway Commercial*: All traffic generated by the highway commercial businesses were assumed to be pass-by trips already traveling on the road network. Therefore, “new” traffic was not added to the road network – from outside the study area – suggesting that local residents patronize these businesses. Therefore, GRIFFIN accounted for the specific site-generated trips by adding vehicle turns to/from the major roads in the study area. For example, highway commercial businesses establishing at the Exit 8A (Lantz) interchange will attract traffic from Highway 102 and our analysis accounted for the movement of trips between these roads and the businesses.

Again, ITE best practices and guidelines were followed to quantify the future vehicle trips and distribute them to the road network.

5.3.3 *Business Park Land Use Growth*

Business Park growth is expected to continue into the future and is assumed to expand along the Park Road corridor. However, there is only a finite vehicle capacity offered through its main access point – Park Road and the Exit 8 interchange – and so the amount of actual growth in this area is expected to be constrained to some degree. Given these conditions, a two-step Business Park growth approach was carried out:

- *2023-2033*: An increased development rate of 2.5 acres/year, which equates to a total increase of 217,800 ft^2 of new business park floor space. This was used as the basis for the trip generation calculations.
- *2023-2043*: An increased development rate of 2.5 acres/year, which equates to a total increase of 435,600 ft^2 of new business park floor space. This was used as the basis for the trip generation calculations.

As noted in *Table 9*, GRIFFIN determined it was appropriate to apply the ITE trip rate for land use code 770 (Business Park). GRIFFIN has successfully applied this particular LUC 770 trip rate to several other Business and Industrial Park transportation studies in Nova Scotia. It was assumed that an average 20% of the land area would be covered by single-floor buildings.

5.3.4 *Highway Commercial Land Use Growth*

For the purposes of this study, Highway Commercial development will be focused on the businesses in the vicinity of the Exit 8 (Elmsdale) interchange, the Exit 8A (Lantz) interchange, and the Village Core Zones. Typical highway commercial businesses could include a mix of gas stations, smaller retail shops, grocery stores, etc. *Table 10* provides the assumed amount of highway commercial development used as the basis for the trip generation calculations.

Table 10: Highway Commercial Development by Location

Location	New Floor Area 2033	New Floor Area 2043
Exit 8A (Lantz) – west side	25,000	75,000
Exit 8 (Elmsdale) – west side	20,000	40,000
Route 214 – Hwy 102 to Trunk 2	10,000	20,000
Trunk 2 Enfield	10,000	20,000
TOTAL	**65,000**	**155,000**

This study assumes no new vehicle trips will be generated from outside of the study area that are associated with the highway commercial development; however, GRIFFIN assumed that all vehicle demand generated by the highway commercial businesses will originate from the existing/new residential traffic as well as traffic already traveling on the major corridors – such as Highway 102. Therefore, the commercial trips were considered to be "pass-by" trips and their impact was only accounted for at the appropriate intersections serving the developments, following ITE best practices.

5.4 Distribution of Vehicle Trips

5.4.1 Overview

The second step of the traffic analysis process included a vehicle trip distribution procedure which connects the point of origin with a destination. For example, a vehicle trip originating within a new residential subdivision is linked to a point on the perimeter of the study area, also known as a gateway, such as Highway 102 south or Route 214 west. The completion of the trip distribution process helps to understand the magnitude of travel demand to the north, south, east, west, and in some cases a destination internal to the study area. How these trips move through the road network, between the origin and the destination, will be discussed later in *Section 5.5* – traffic assignment.

The distribution of new vehicle trips is a description of the reason why a trip is being made. This is also referred to as the trip type which is often categorized into trips that occur between home and work (i.e. home-to-work, or work-to-home) or shopping areas and home (i.e. home-to-shopping and vice-versa). In essence, this process demonstrates the trip-making synergies between different land use types and the most common example is that trips move to/from large residential areas to/from large employment areas. For this study, separate analyses were undertaken for each of the three land use types expected to grow in the study area: residential, business park and highway commercial. As such, three different traffic distribution patterns were developed for the new travel demand added to the roadway network in the future. A detailed description of each land use type is provided in the following Sections.

5.4.2 New Residential Trip Distribution

The distribution of residential trips is typically based on the trip purpose which is predominantly home-to-work / work-to-home and then to a lesser degree home-to-shopping or recreational activities. In 2017, GRIFFIN utilized available information cited in MEH's Community Inventory Report as well as the earlier 2014 CBCL traffic study. Since that time, the MEH corridor area has continued to grow, and as documented in the MEH's 2021 Socio-Economic Study report, the travel patterns and place of work of local residences has evolved. The most notable change in recent travel patterns is the fact that fewer commuters are traveling to/from the urban areas of HRM. The 2021 census data suggests that more local residents are working from home, and more commuters are traveling to/from the north for work in places like Truro and New Glasgow, for example. To help illustrate the change in trip distribution between GRIFFIN's 2017 travel demand study and this current study, we provide a comparison in *Figures 10* and *11*. Our final residential trip distribution that was applied to this study and is contained in *Table 11*.

Figure 10: Residential Trip Distribution – Previous 2017 Study

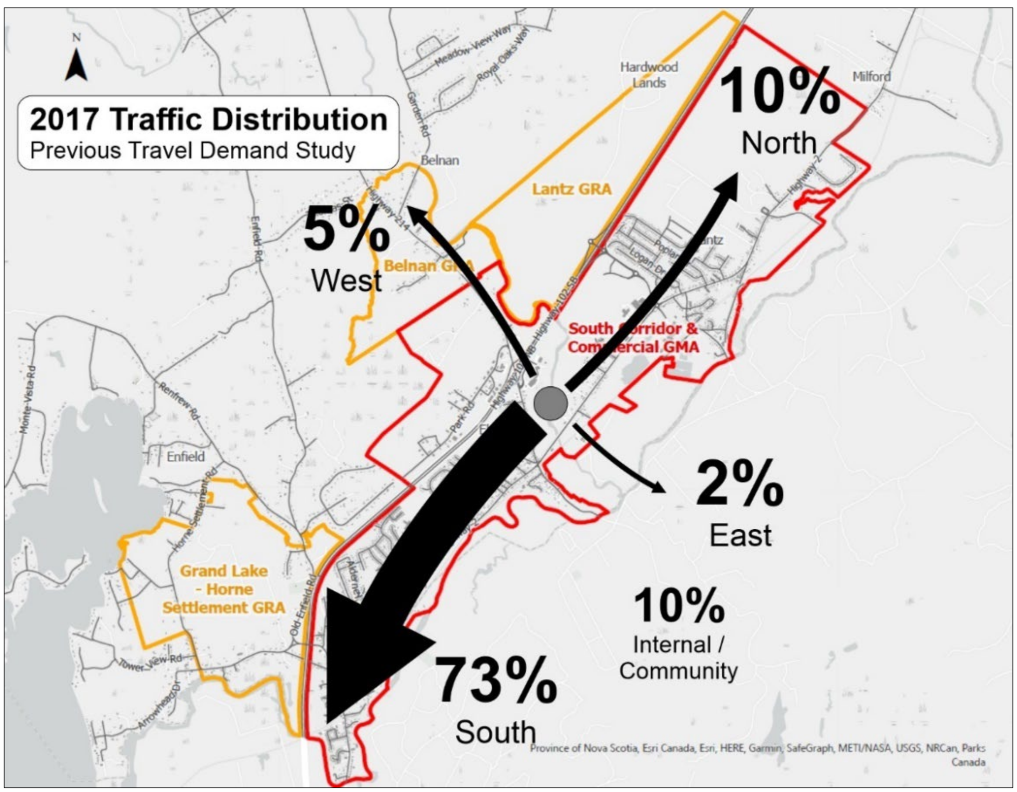


Figure 11: Residential Trip Distribution – Current 2023 Study

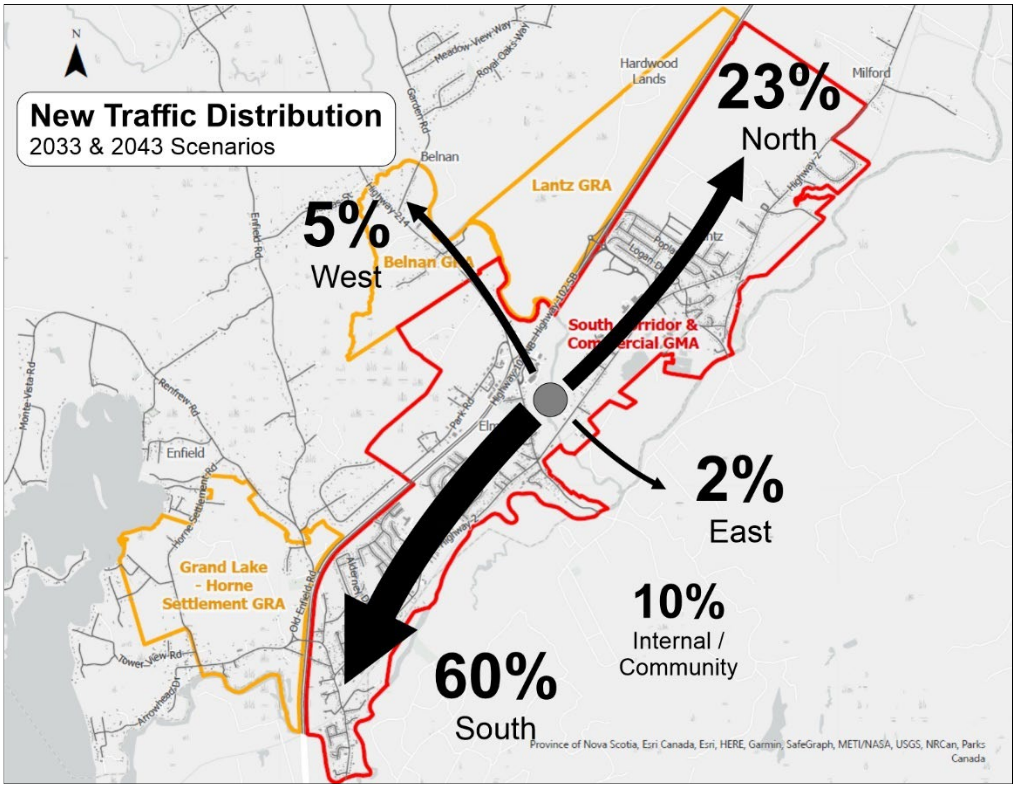


Table 11: Trip Distribution – Residential Land Use

Trip Type	Direction	Gateway	Residential Trip Distribution Percentage	Residential Desire Lines
External	North	Hwy 102	15%	23%
		Trunk 2	8%	
	South	Hwy 102	55%	60%
		Trunk 2	5%	
	East	Elmsdale Rd	1%	2%
		Rte 277	1%	
	West	Rte 214	5%	5%
Internal	-	-	10%	10%
		Total	**100%**	**100%**

The residential trip distribution shown above is somewhat similar to the percentages applied in GRIFFIN's 2017 travel demand study. Since new internal trips moving to/from the business park will be captured as an internal trip type under the business park land use type, discussed in the following Section, new residential trips moving to/from the Business Park area were limited so as not to double count this trip type.

5.4.3 *New Business Park Trip Distribution*

A similar process to that described above was also applied to the new Business Park growth. The main source of information was gleaned from the MEH's 2021 Socio-Economic report and GRIFFIN's 2017 travel demand study. A summary of the distribution percentages applied to this current study for the new trips generated by the expansion of the Business Park lands is provided in *Table 12*.

Table 12: Trip Distribution – Business Park Land Use

Trip Type	Direction	Gateway	Business Park Trip Distribution Percentage	Business Park Desire Lines
External	North	Hwy 102	35%	35%
		Trunk 2	0%	
	South	Hwy 102	35%	35%
		Trunk 2	0%	
	East	Elmsdale Rd	2%	5%
		Rte 277	3%	
	West	Rte 214	10%	10%
Internal	-	-	15%	15%
		Total	**100%**	**100%**

5.4.4 *New Highway Commercial Trip Distribution*

Findings flowing from the research on empirical travel demand surveys has shown that the large majority of trips generated/attracted to highway commercial businesses occur from the background traffic stream already on the adjacent roads and streets – also referred to as "pass-by" trips. It was assumed that this would also be the case for the Enfield, Elmsdale, and Lantz communities and all highway commercial trips would originate from either the background traffic, new residential traffic, or new Business Park traffic. As such, the trip distribution calculation step was skipped for this land use type, and the consultant team focused on the trip assignment stage where these trips were assigned to the road network following ITE pass-by trip analysis procedures.

5.5 Iterative Traffic Assignment Process

5.5.1 *Overview*

The assignment of new vehicle trips to a road network – as they move from the point of origin to the destination gateway – is often carried out using traffic modeling software packages that have been developed to work on a regional scale. These software tools are ultimately based on theoretical traffic assignment calculation methods developed by researchers several decades ago. Since the East Hants traffic study area is considered to be a small geographic area, the roadway network is simplified with a limited amount of travel route options, in addition to the fact that an extensive effort is required to setup and calibrate a travel demand modeling software tool, it was determined that a manual traffic assignment procedure was best suited to this project.

The fundamental basis of the traffic assignment procedure applied to this study has followed methodologies documented in such documents as the National Cooperative Highway Research Program (NCHRP) Reports 187, 365, and 765. This resulted in our following two-step assignment process:

- *Step 1: Capacity-constrained* – the capacity of the intersections (nodes) and roadways (links) connecting the intersections will impact the travel times and thus the travel route options for new trips. This means that our calculation procedure determined the capacity and delay for each link and node that make up a travel route. The route with the shortest travel time attracted more trips relative to a route with a longer travel time. For example, if Exit 8 reached capacity, delay times and queues would then become excessive, and thus drivers entering/exiting the Highway 102 corridor would choose an alternative route that had residual capacity and more attractive travel times (should another route option exist). In summary, once the capacity of links and nodes is reached drivers will find alternative routes to get to their destination.
- *Step 2: Equilibrium* – with each subsequent iteration, and where more than one travel route exists, the vehicle trips were re-assigned to each route option until a relatively balanced travel time on each of the routes is reached. The underlying assumption of this re-assignment step is that vehicles on competing travel routes shift back and forth until some degree of balance is reached – mathematically referred to as an equilibrium assignment.

A step-by-step illustration of the procedure is provided in *Table 12*.

It should be noted that only a maximum of three manual re-assignment iterations were necessary for this study to reach travel time results that appeared reasonable. Of course, using a travel demand modeling software tool would allow for many more iterations to be carried out in a brief period of time and may provide a more precise result. However, the results calculated from the manual process appeared to be sufficiently accurate and reasonable given the project's simplified roadway network.

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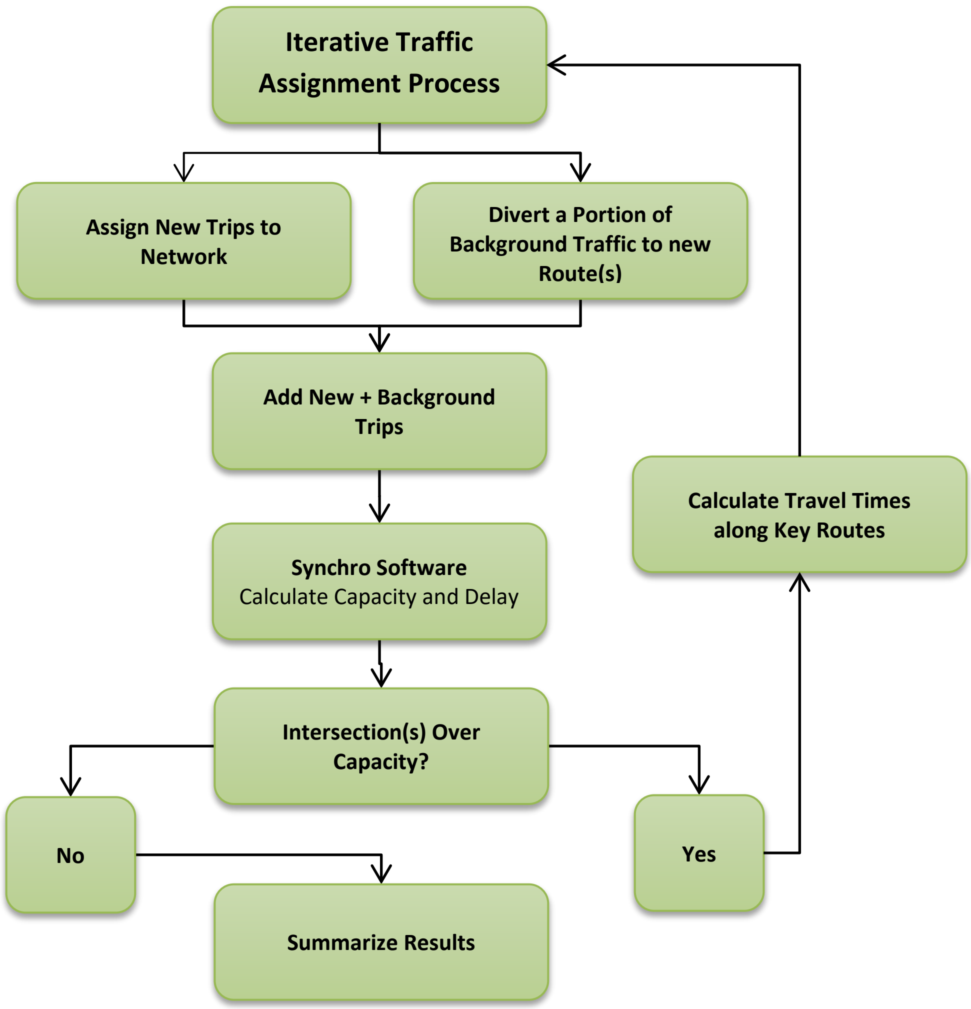
Figure 12: Iterative Traffic Assignment Process Flow Chart



5.5.2 *Traffic Assignment Summary*

The iterative traffic assignment procedure followed industry best practices that are well-founded in travel demand research and generally followed techniques that have been applied in the industry for several decades. As such, the traffic distribution and assignment procedures used in this study will provide the road agency with a technically sound and technically defensible set of results that will form a key part of the findings for this study.

For each iteration of the assignment process shown in the flow chart above, the peak hour traffic volumes were adjusted, summarized, and input into the Synchro software. The results of the intersection capacity, vehicle delay, and queue length information at each of the 21 study area intersections to help understand travel times across the network. A re-assignment process was undertaken if there a combination of near-capacity conditions existed and there were notable differences in the times on two competing routes.

6. NETWORK ANALYSIS AT 2033 AND 2043 – OPTION 1 LAYOUT

6.1 Future Intersection Analysis Results

6.1.1 Overview

Once the final set of future peak hour traffic volumes were established, a traffic operational analysis process was carried out for the existing, Option 1, road network. The purpose of this step was to identify where capacity constraints occur and thus identify the necessary roadway lane configurations and traffic control upgrades at the study area intersections such that they can adequately accommodate the forecast vehicle demands and operate with acceptable performance measures. The specific analysis steps undertaken included:

1. A TAC traffic signal warrant procedure applied to the minor street, unsignalized stop-controlled intersections to identify the need for upgrades to either traffic signals or a modern roundabout;
2. An auxiliary turn lane warrant assessment process at the study area stop-controlled intersections; and
3. Detailed lane-by-lane intersection capacity analyses at the study area intersections to identify the need for lane configuration changes to better accommodate demand;

Each of these steps are discussed in the following Sections.

6.1.2 Traffic Signal Warrant Analysis

The analysis process followed the Transportation Association of Canada's (TAC) signal warrant procedure document and is a methodology widely used by road agencies across Canada, including NSDPW. The TAC procedure uses a set of average intersection volumes measured over the six highest hours of a typical day. The results of this calculation process are a number of priority points to indicate whether a traffic signal is warranted. When the minor street peak hour traffic volume exceeds 75 vehicles/hour and the number of priority points exceeds 100, the traffic signal warrant is met. The results flowing from the signal warrant analysis under each planning horizon are contained in *Table 13*.

The results contained in *Table 13* indicate that five unsignalized intersections will require traffic control upgrades by the 2033 planning horizon. Although the TAC methodology indicates the need for traffic signal control, NSDPW considers this warrant procedure to suggest the need for either traffic signals or a modern roundabout. These five intersections included the proposed Wickwire (Armco) South intersection, the potential realignment of the Route 277-Logan Drive intersection, the Exit 8 southbound interchange ramps intersection, the Elmwood Drive intersection, and the Old Enfield Road intersection.

It should also be noted that the Trunk 2 intersections at Frederick Allen Drive, Poplar Drive and Alderney Drive intersections are nearing the 100-point threshold by the 2043 planning horizon.

Table 13: Signal Warrant Analysis Results – Road Option 1

			Option 1 - Existing Roads	
			Equilibrium Assignment	
No.	**Main Road**	**Secondary Road**	**2033**	**2043**
1	Trunk 2	Milford Rd	24	25
2	Trunk 2	FH Street A	20	43
3	Trunk 2	Wickwire North	38	76
4	Trunk 2	Wickwire South	131	266
5	Trunk 2	Frederick Allen	67	94
6	Trunk 2	Poplar	72	98
7	Trunk 2	Rte 277 / Logan	128	194
8	Trunk 2	Church	27	36
9	Trunk 2	Lantz Connector	*Roundabout*	*Roundabout*
10	Lantz Connector	Shaw Dr	*Roundabout*	*Roundabout*
11	Lantz Connector	Hwy 102 NB Ramps	*Roundabout*	*Roundabout*
12	Lantz Connector	Hwy 102 SB Ramps	*Roundabout*	*Roundabout*
13	Route 214	Trunk 2	*Signals*	*Signals*
14	Route 214	Mason Dr	*Signals*	*Signals*
15	Route 214	Hwy 102 NB Ramps	*Signals*	*Signals*
16	Route 214	Hwy 102 SB Ramps	244	266
17	Route 214	Park Rd	*Signals*	*Signals*
18	Trunk 2	Elmwood	124	135
19	Trunk 2	Alderney	83	89
20	Trunk 2	Shamrock	33	37
21	Trunk 2	Old Enfield Rd	272	323

Detailed summaries of the traffic signal warrant analysis results are provided in *Appendix IV*.

6.1.3 *Auxiliary Turn Lane Warrants*

The second step in the intersection analysis process included a review of the auxiliary turn lane needs at the unsignalized, stop-controlled intersections. Our analysis assumed the Option 1 road network was in place and assessments were carried out for the 2033 and 2043 planning horizons.

Our analysis did not examine intersections that are currently under traffic signal or roundabout control which included intersections #9, #10, #11, #12, #13, #14, #15, and #17. Further, the signal warrant results presented in Section 6.1.2 were also considered and the intersections that met the warrant criteria were also excluded – including intersections #4, #7, #16, #18, and #21. The remaining eight unsignalized intersections were subjected to the auxiliary turn lane warrant assessment process.

Our methodology examined left turn and right turn lanes separately. The left turn lane warrant review followed Ministry of Transportation of Ontario (MTO) procedures. The right turn lane warrant review followed the Ohio Department of Transportation (ODOT) methodology. A summary of the auxiliary turn lane assessment results are provided in *Table 14*. Detailed auxiliary turn lane warrant assessments are contained in *Appendix V*.

Table 14: Summary of Auxiliary Turn Lane Warrants – Unsignalized Intersections Only

Unsignalized Intersections	Auxiliary Lane	Option 1 Road Network	
		2033	2043
#1 – Trunk 2 / Milford Rd	SB Left Turn Lane	Warrant not met	Warrant not met
	NB Right Turn Lane	Warrant not met	Warrant not met
#2 – Trunk 2 / FH Street A	NB Left Turn Lane	Warrant not met	**Warrant met**
	SB Right Turn Lane	Warrant not met	Warrant not met
#3 – Trunk 2 / Robert Scott	NB Left Turn Lane	**Warrant met**	**Warrant met**
	SB Right Turn Lane	Warrant not met	Warrant not met
#5 – Trunk 2 / Frederick Allen	NB Left Turn Lane	**Warrant met**	**Warrant met**
	SB Right Turn Lane	Warrant not met	Warrant not met
#6 – Trunk 2 / Poplar Dr	NB Left Turn Lane	**Warrant met**	**Warrant met**
	SB Right Turn Lane	Warrant not met	Warrant not met
#8 – Trunk 2 / Church St	SB Left Turn Lane	Warrant not met[A]	Warrant not met[A]
	NB Right Turn Lane	Warrant not met	Warrant not met
#19 – Trunk 2 / Alderney Dr	NB Left Turn Lane	**Warrant met**	**Warrant met**
	SB Right Turn Lane	Warrant not met	Warrant not met
#20 – Trunk 2 / Shamrock	NB Left Turn Lane	Warrant not met[A]	Warrant not met[A]
	SB Right Turn Lane	Warrant not met	Warrant not met

A – Although warrant threshold exceeded, left turn volumes are less than 2% of approaching volume.

The results summarized in *Table 14* suggest the following:

- *Left Turn Lanes*: auxiliary turn lane warrants are met at the majority of unsignalized intersections by the 2033 planning horizon, with the exception of Milford Road (#1), Church Street (#8), and Shamrock (#20)
- *Right Turn Lanes*: no auxiliary turn lane warrants were met at any of the unsignalized intersections at under the 2033 or 2043 travel demand.

These results were carried forward to the intersection operational analysis step.

6.1.4 *Intersection Operational Analysis*

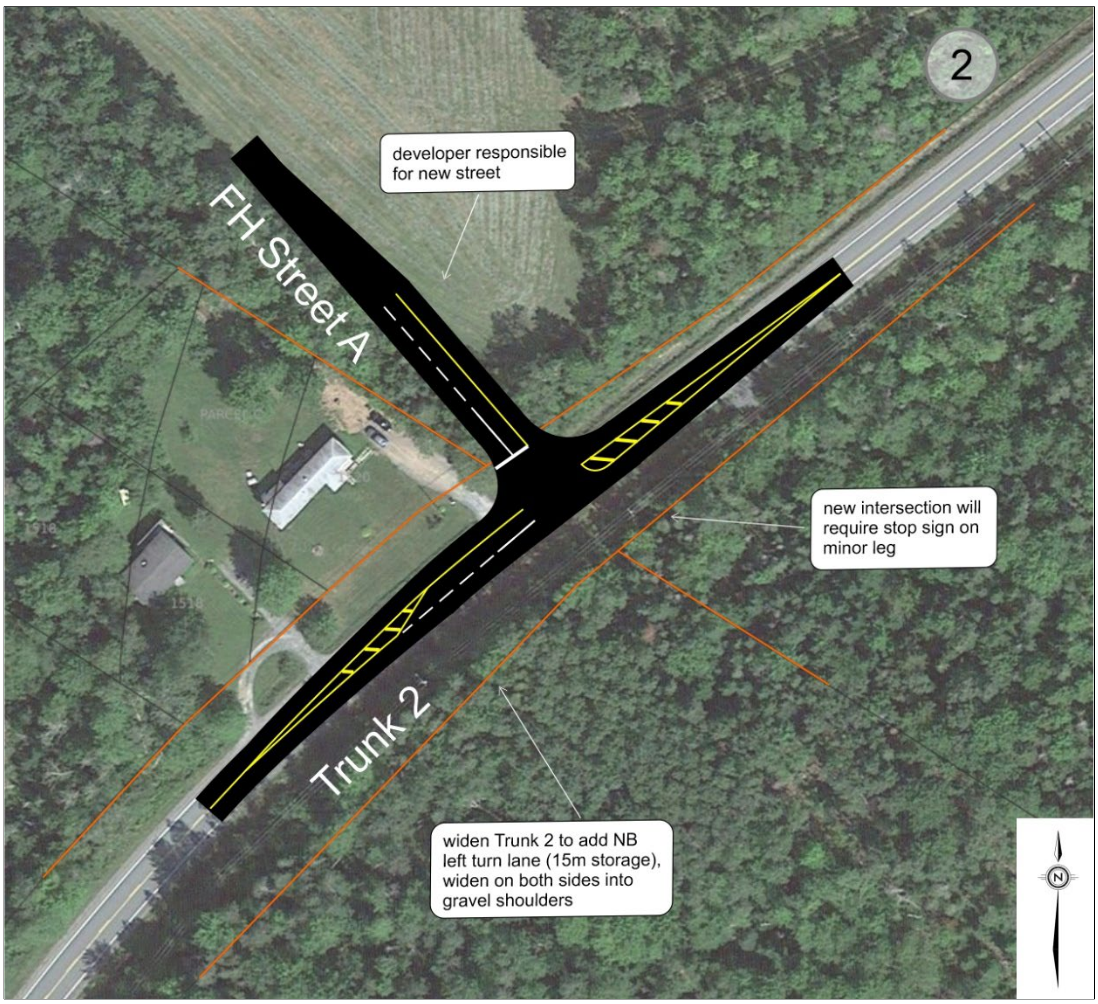
GRIFFIN conducted an intersection capacity analysis at each of the study area intersections at the 2033 and 2043 planning horizon. The analysis process used the latest version of Trafficware's *Synchro* software tool as well as the *Arcady* roundabout software tool. The need for lane configuration upgrades followed the NSDPW traffic impact study guideline requirements. Summary tables of the intersection results as well as detailed capacity reports are provided in *Appendix VI*. These results helped to identify the necessary lane configurations and confirm traffic control at the study area intersections. Conceptual diagrams of only those intersections requiring infrastructure upgrades are provided in Section 6.2.

6.2 Summary of Infrastructure Needs – Option 1 Road Layout

6.2.1 2043 Intersection Upgrades

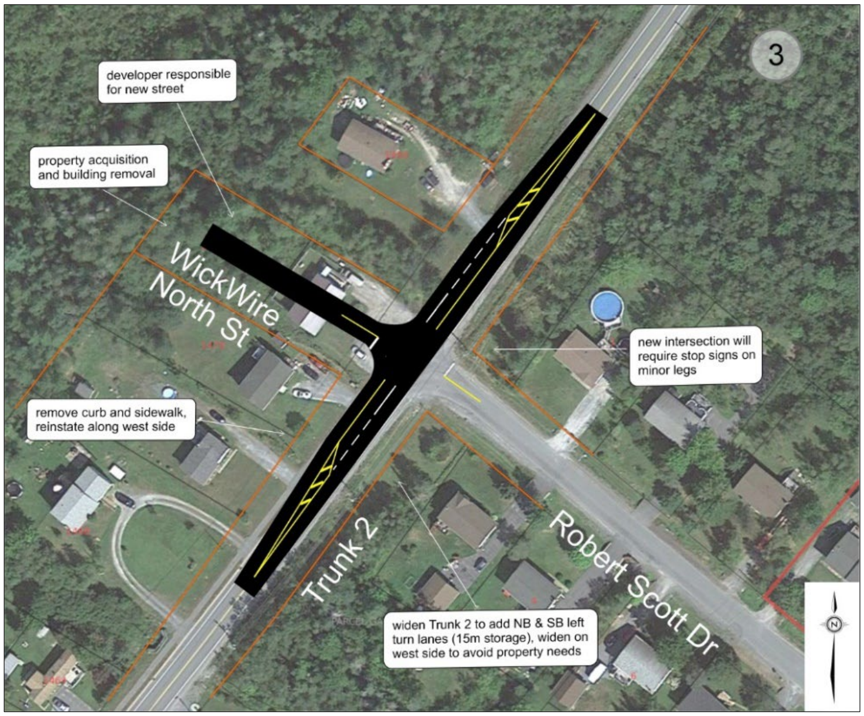
The results flowing from the traffic signal warrant, auxiliary turn lane warrant, and intersection performance assessments, provided a sound basis to identify the intersections that will require infrastructure upgrades. A total of 14 study area intersections were determined to need some form of upgrade to accommodate the 2043 traffic demand – assuming the Option 1 road network is available. GRIFFIN has prepared conceptual plans to illustrate the upgrades required at each location and this information is provided in *Figures 13* to *24*. These illustrations are conceptual and are not design drawings; however, they have been used as a basis for the development of preliminary class D cost estimates. The class D cost estimates have been provided with each Figure.

Figure 13: 2043 Upgrades – Intersection #2 FH Street A



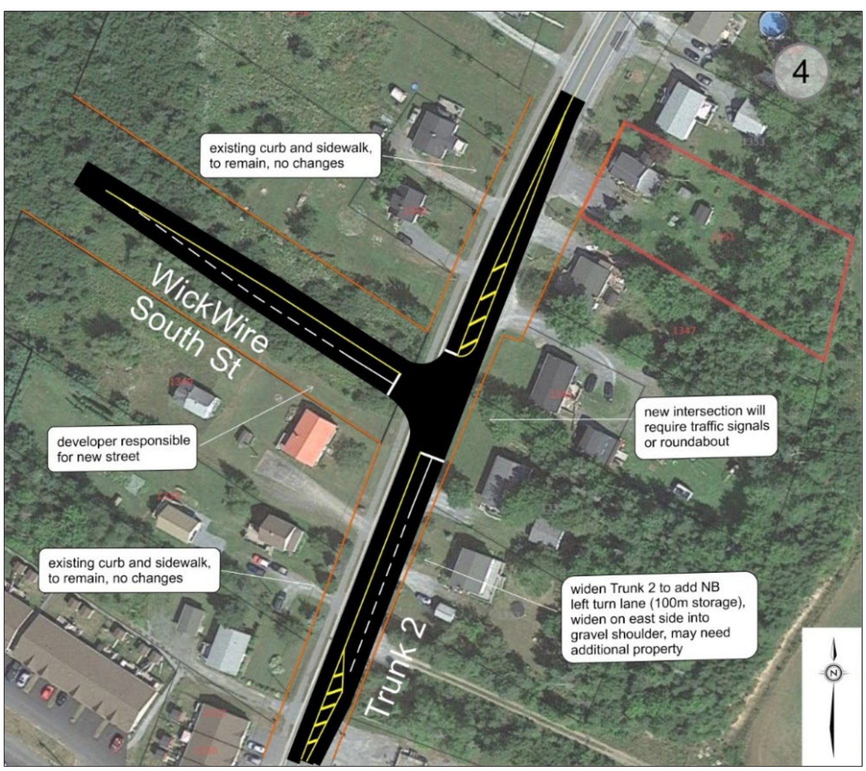
$654,800 implementation cost estimate *(Class D, 2023 dollars)*

Figure 14: 2043 Upgrades – Intersection #3 Robert Scott Drive



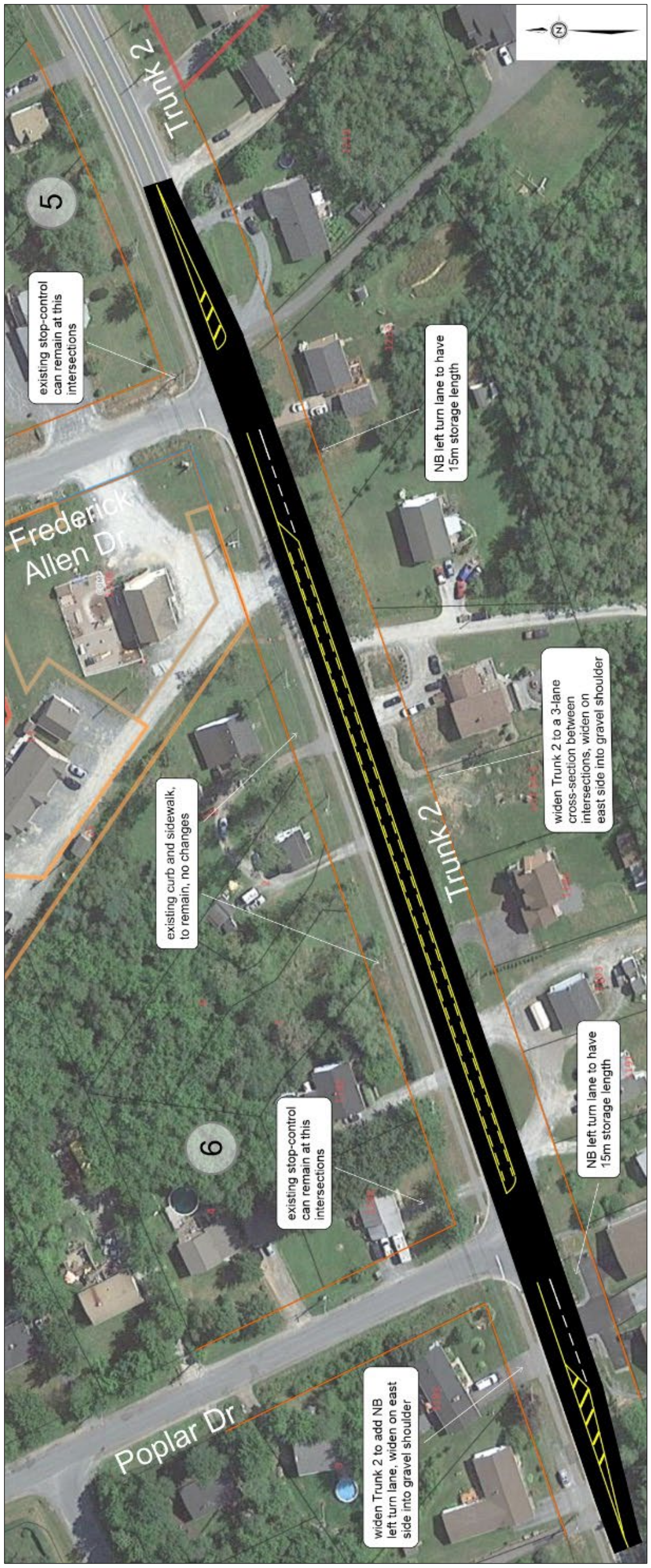
$811,600 **implementation cost estimate** *(Class D, 2023 dollars)*

Figure 15: 2043 Upgrades – Intersection #4 Wickwire South



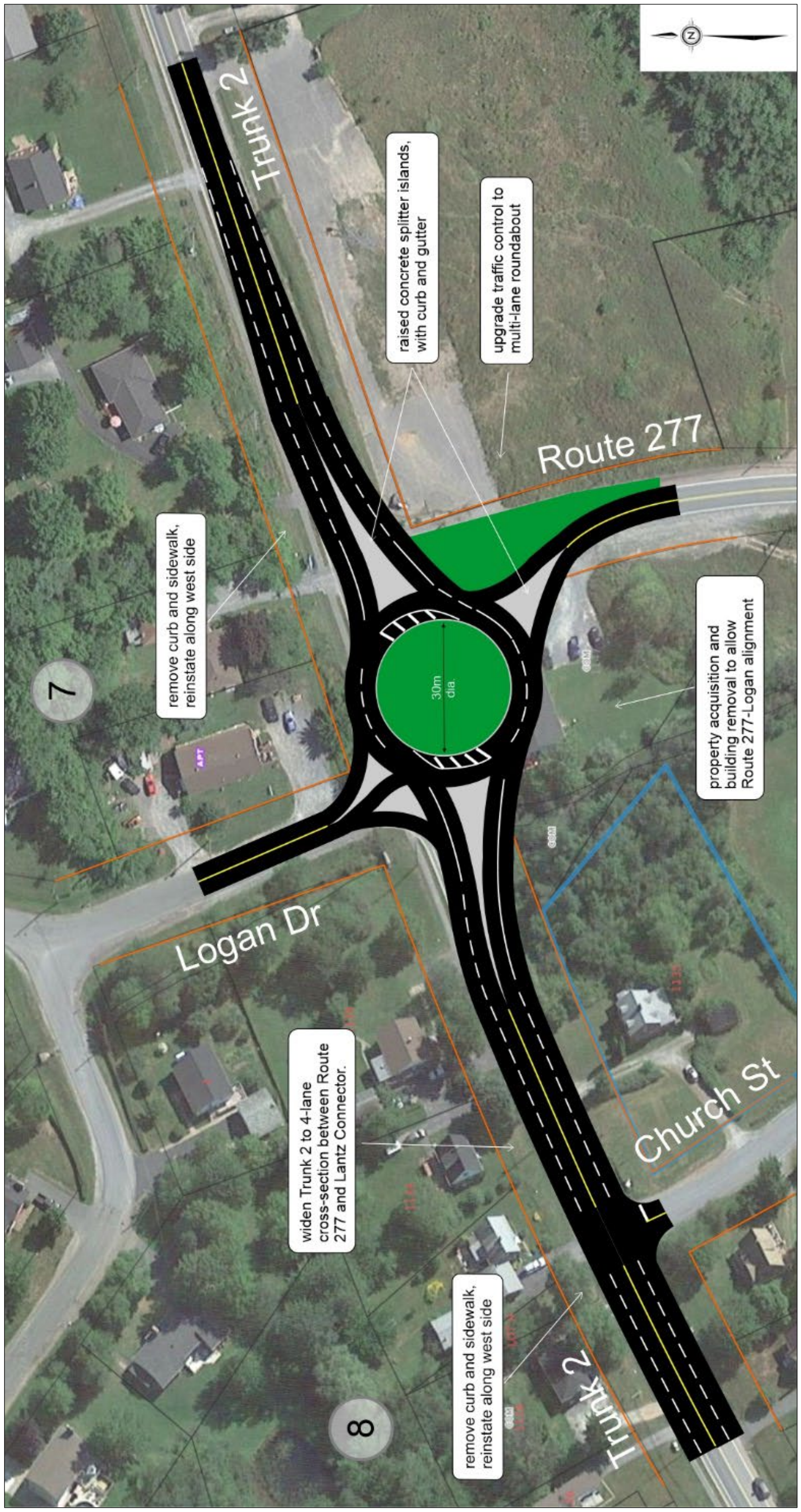
$1,223,200 **implementation cost estimate** *(Class D, 2023 dollars)*

Figure 16: 2043 Upgrades – Intersections #5 and #6 Frederick Allen and Poplar Drives



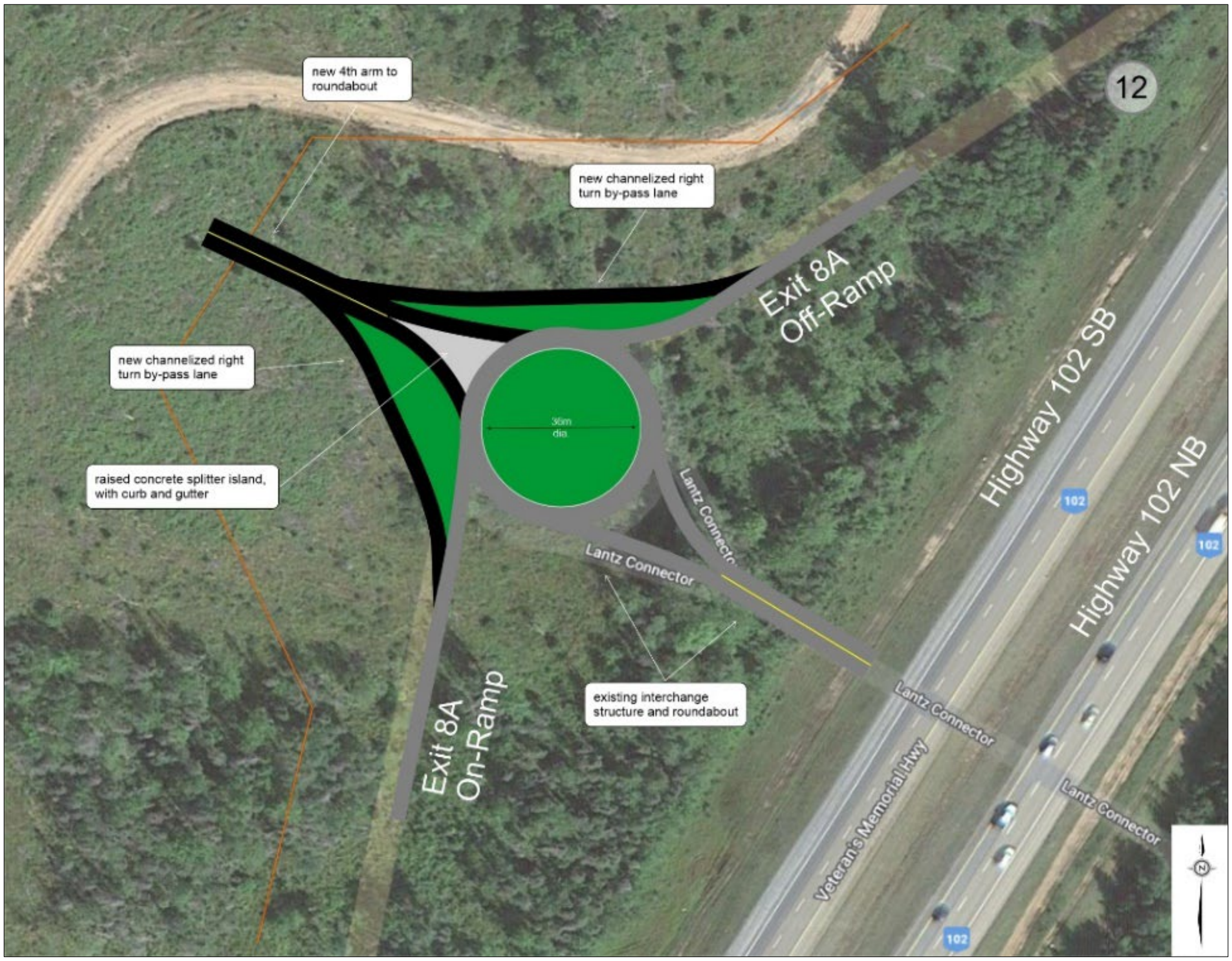
$1,632,400 **implementation cost estimate** *(Class D, 2023 dollars)*

Figure 17: 2043 Upgrades – Intersections #7 and #8 Route 277-Logan and Church



$2,558,600 **implementation cost estimate** *(Class D, 2023 dollars)*

Figure 18: 2043 Upgrades – Intersection #12 Exit 8A



$795,200 implementation cost estimate *(Class D, 2023 dollars)*

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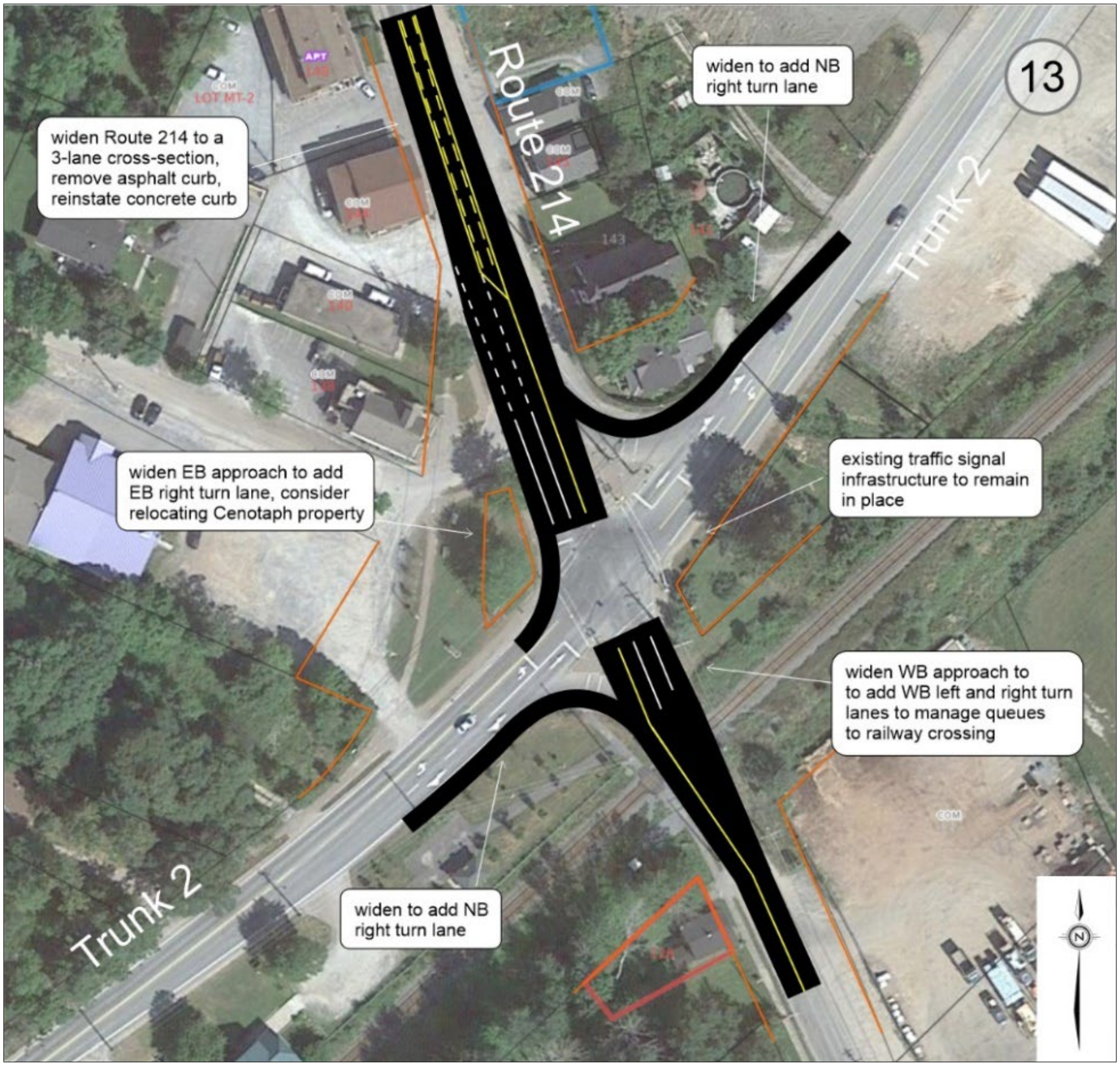
Figure 19: 2043 Upgrades – Intersection #13 Trunk 2 and Route 214



$1,167,000 **implementation cost estimate** ***(Class D, 2023 dollars)***

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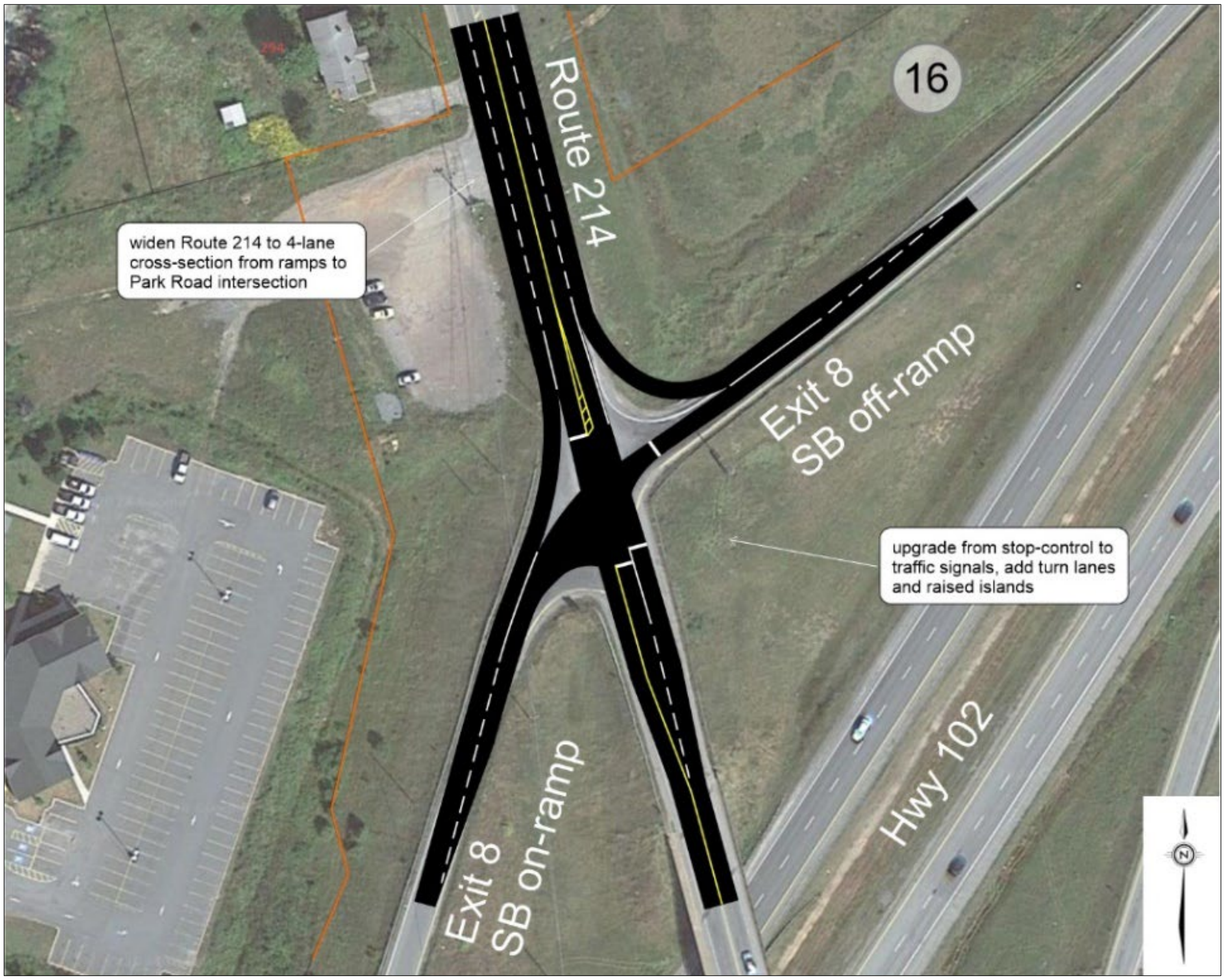
Figure 20: 2043 Upgrades – Intersection #16 Exit 8 Southbound Ramps



$1,341,400 implementation cost estimate *(Class D, 2023 dollars)*

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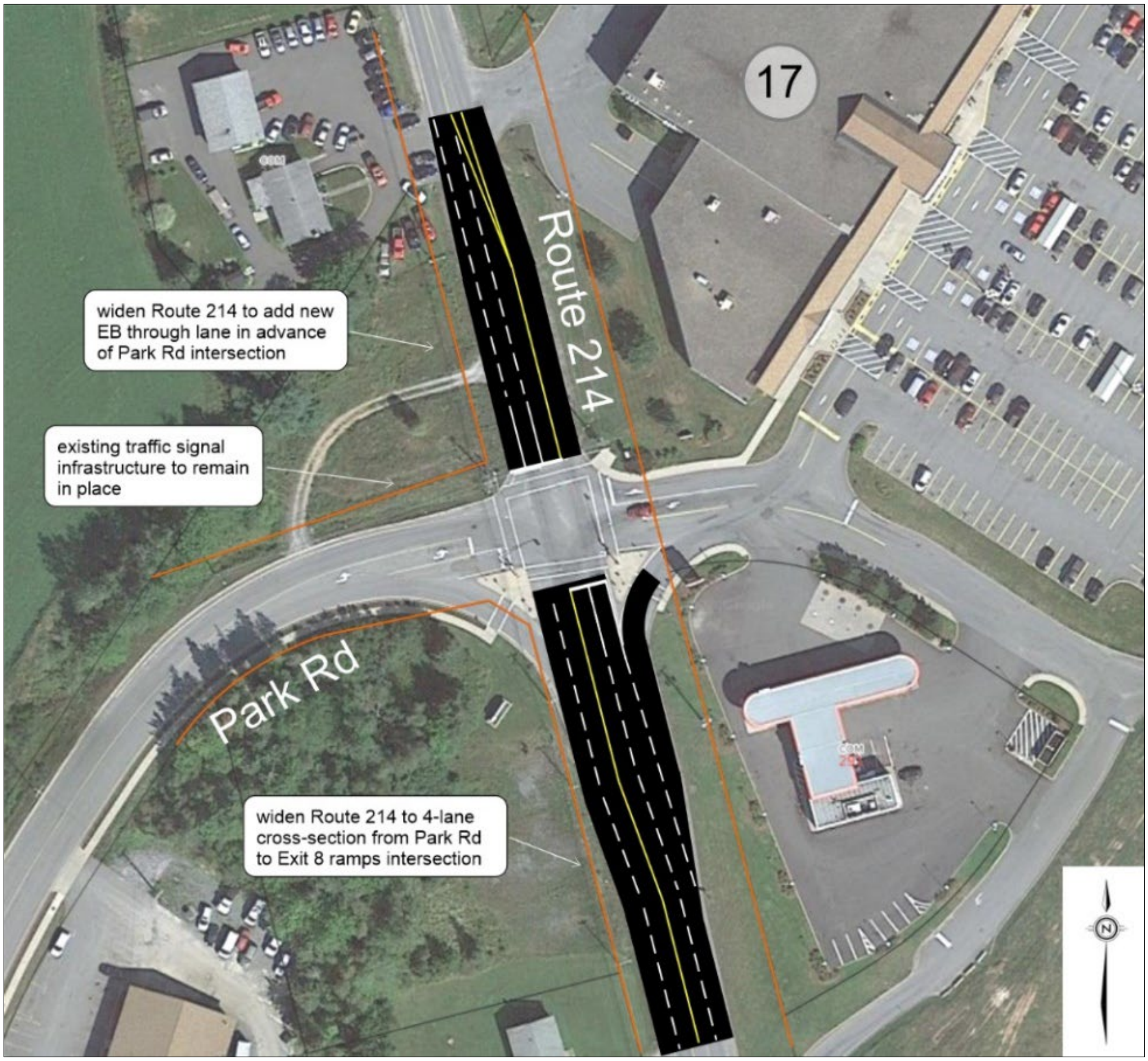
Figure 21: 2043 Upgrades – Intersection #17 Park Road



$808,000 implementation cost estimate *(Class D, 2023 dollars)*

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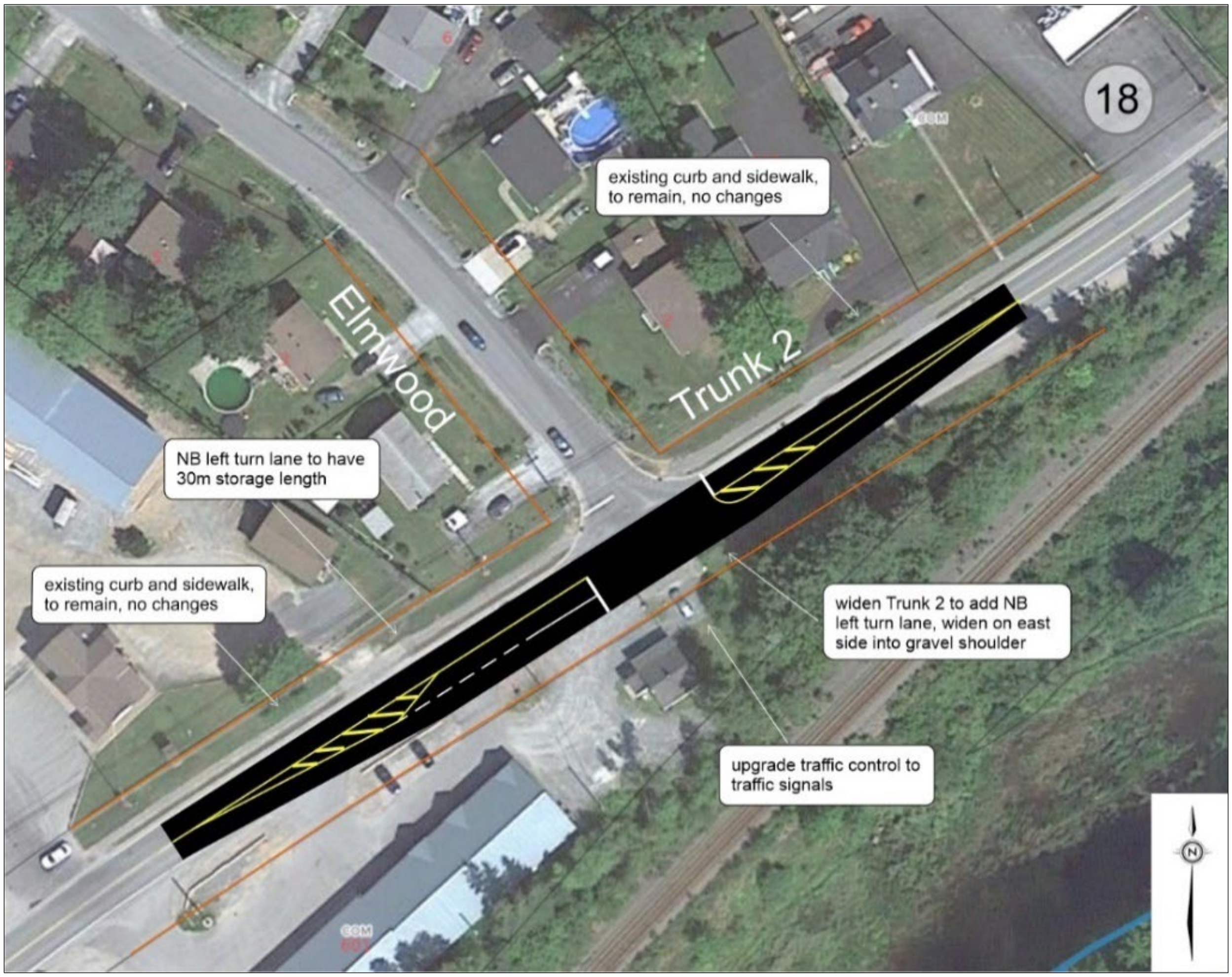
Figure 22: 2043 Upgrades – Intersection #18 Elmwood Drive



$861,800 implementation cost estimate *(Class D, 2023 dollars)*

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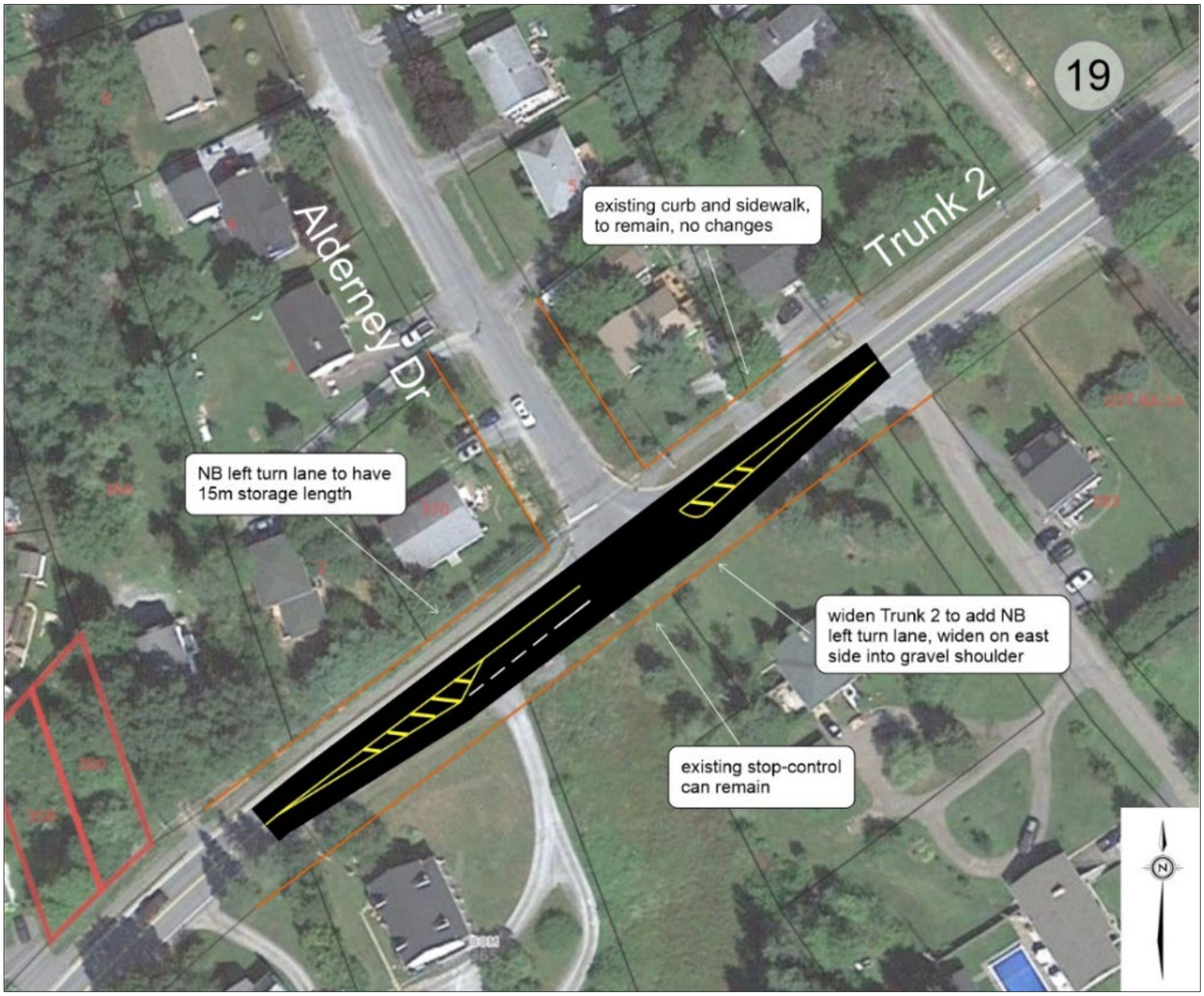
Figure 23: 2043 Upgrades – Intersection #19 Alderney Drive



$571,800 implementation cost estimate *(Class D, 2023 dollars)*

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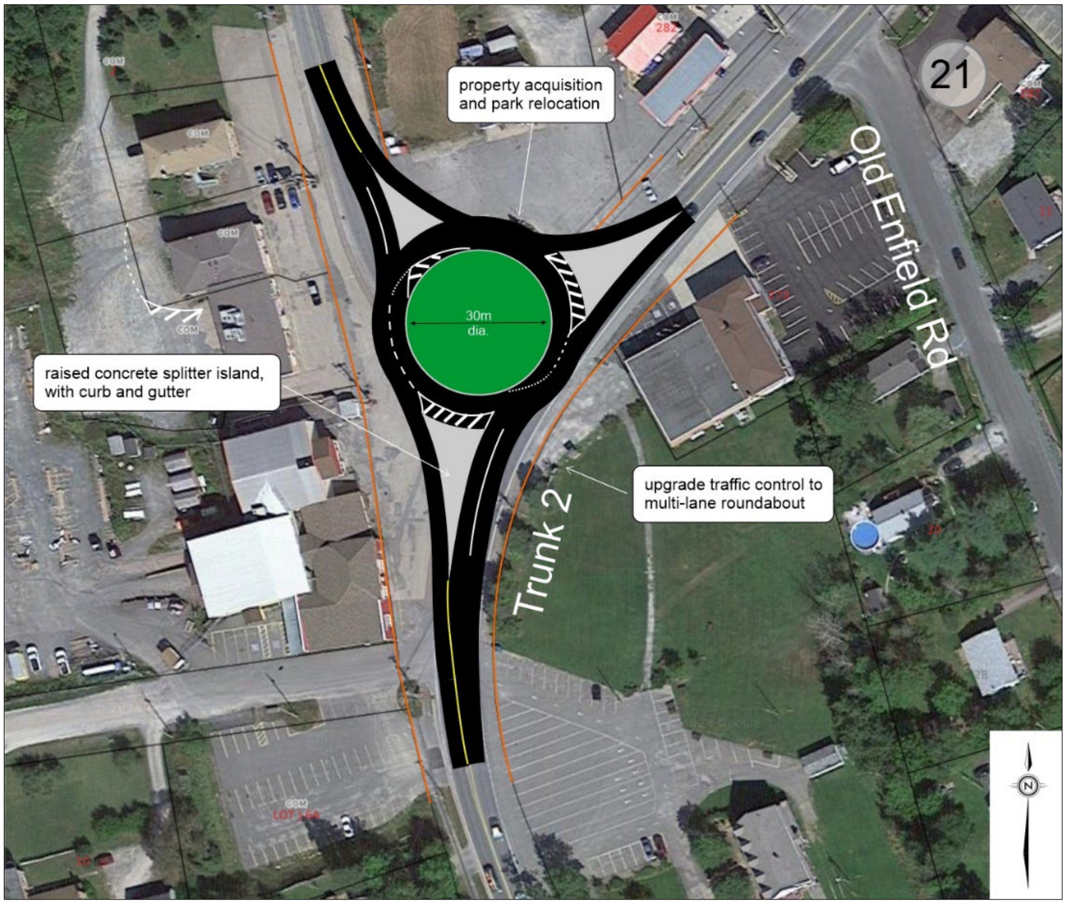
Figure 24: 2043 Upgrades – Intersection #21 Old Enfield Road



$1,437,200 implementation cost estimate *(Class D, 2023 dollars)*

6.2.2 *Additional 2043 Road Link Considerations*

It was identified through the detailed analysis process that the following short road links are expected to require widening by 2043. The need for widening these short sections of road has less to do with providing throughput capacity and more to do with accommodating lane changing and weaving movements between closely-spaced intersections.

- **Trunk 2 Lantz**:
    - *New 3-Lane cross-section (550m)*: Install a three-lane cross-section (one through lane in each direction, plus a centre two-way left turn lane) from Route 277 to Frederick Allen Drive. This will help facilitate the transition between the two lanes to the north and the four lanes to the south. Further, multiple left turn lanes are warranted in this area and providing a continuous three-lane section is preferred to help reduce driver workload associated with shifting lane alignments.
    - *New 4-Lane cross-section (275m)*: Install a four-lane cross-section between the Lantz Connector Road roundabout and Logan Drive. This will offer improved weaving and lane changing distances in this area of increased volume.

- **Route 214 Elmsdale**:
    - *New 3-Lane cross-section (725m)*: Install a three-lane cross-section (one through lane in each direction, plus a centre two-way left turn lane) from the existing three-lane section at Brook Court through to Trunk 2. This will offer similar throughput capacity as exists today, provide refuge for left turning vehicles, be more compatible with a future “main street streetscape”, and offer opportunities for walkable facilities on both sides of this corridor.
    - *New 4-lane cross-section (200m)*: Install a four-lane cross-section between the Park Road and Exit 8 southbound ramps intersections to better accommodate adequate weaving and lane changing distances between these two closely-spaced intersections.

6.3 A Word on the Cost Estimates

Using the intersection operational analysis results as discussed in Section 6.1.4, GRIFFIN was able to identify the specific intersections that would require infrastructure upgrades by the 2043 planning horizon. These conceptual upgrades were provided to GEMTEC who applied their design and construction administrative experience to develop preliminary planning level (class D) infrastructure cost estimates for each location.

The infrastructure cost estimates are considered to be preliminary and have been provided in 2023 dollars. They are reflective of current industry conditions as they incorporate provisions for the recent increase in material costs over that last few years. A summary of GEMTEC’s basic cost estimating assumptions is provided in *Table 15*.

Table 15: Basic Cost Estimate Assumptions

Item	Assumed Value		Item	Assumed Value
Intersection Radius	12 m		*Turn lane storage length*	15 m
Asphalt Lane Width	3.3 m		*Turn lane taper*	Single-side widen: 15:1 Dual-side widen: 36:1
Gravel Shoulder	1.2 m		*Asphalt thickness*	0.15m
Culvert diameter	600 mm		*Granular thickness*	0.45 m
Roundabout - Landscaped mound height	1.2m		*Granular surrounding curb*	0.135 sq.m/m

A more detailed cost breakdown of unit costs and assumptions that were applied to each location are provided in *Appendix IX*.

It should be noted that the cost estimates do not include land acquisition costs or building removal costs; however, the type of land use and/or building has been provided to help understand the potential order of magnitude cost of these items. Conversely, the GEMTEC’s cost estimates include such items as the engineering design fees, a construction contingency, traffic control during construction, signage, and so forth.

7. NEW INTERCHANGE LOCATION ASSESSMENT

7.1 Overview

Based on the results of the 2043 planning horizon road network evaluation presented in the previous section, there are a number of road network locations that are nearing capacity. This is not unexpected given the fact that by the 2043 planning horizon we expect the entire study area to grow by 6,107 new residential units – with 4,130 or 68% of these units occurring in Lantz alone – plus an increase of 333,550 ft^2 of new commercial space.

We also know from our analysis results discussed in the previous Section that beyond the 2043 planning horizon, the long-term travel demand is expected to require road upgrades that fall into two categories:

1. *Widen long stretches of Trunk 2 to a four-lane cross-section*. This will have negative impacts for numerous property owners and businesses and will be a resource intensive implementation process, or
2. *Install a new Highway 102 interchange and connector road*. This will improve access to the Highway 102 regional travel corridor and reduce congestion and demand on Trunk 2. However, given the very linear nature of our study area the benefits of a new interchange are expected to only occur in the general vicinity of this new facility.

If we look at the first network upgrade option – widen Trunk 2 – although it would be invasive and resource-intensive, it is not expected to impact travel behaviour or travel patterns in the study area (i.e. drivers will be provided with the capacity to continue traveling how and where they currently already do). If we then consider the second network upgrade option – a new interchange – there are more variables and additional assessment is required to understand how and where this new facility could offer travel benefits, such that it most efficiently serves the transportation needs of the community. Therefore, we focus on the latter and present a preliminary planning-level assessment for a new Highway 102 interchange facility in the next Sections.

7.2 Location Considerations

Through our independent discussions with the NSDPW and the MEH, we identified two candidate interchange locations that appeared to have merit and thus were subjected to further examination. The two locations included the following:

- ***South Location***: Through discussions with MEH there is a notable amount of new residential development that could occur in Enfield and the adjacent unserviced Horne Settlement GRA. As noted earlier, this particular GRA is very confined by Grand Lake, the Shubenacadie River to the South and Highway 102 to the east. Given these mobility constraints, GRIFFIN identified the Old Enfield Road bridge structure location as a potential candidate future interchange location to help alleviate congestion along trunk 2.

- ***North Location***: There is significant amount of new residential units expected in the community of Lantz, particularly beyond 2043. Therefore, to help off-set the need to widen Trunk 2 to four lanes for several kilometers, GRIFFIN examined a new interchange location immediately north of the regional service area and the boundary between Lantz and Milford.

GRIFFIN then conducted a high-level screening assessment to identify transportation constraints or limitations that could be expected if either of these two locations were to accommodate a new interchange. The goal of such an assessment attempts to provide a relative comparison of the suitability and potential benefits associated with the two interchange locations.

7.3 Evaluation Criteria Descriptions

7.3.1 Overview

The following list of proposed evaluation criteria were assembled to facilitate the high-level assessment of the two potential interchange locations. The proposed evaluation criteria have been grouped into four categories; Transportation and Design, Socio-economic, Environment and Land-use/Settlement.

Numerous candidate criteria were considered by the consultant team. Through internal discussions these were reduced to the following list of 10 criteria which appeared to represent the most relevant transportation-related parameters that could reasonably be assessed in this study.

7.3.2 Transportation Demand

1. *Vehicle Travel Times and Road Network Delay:* An assessment of the difference in vehicle travel times (moving along Trunk 2 and the available Highway 102 interchanges) was used as a proxy measure. The results flowing from our 2043 planning horizon analysis were used for this criterion.
2. *Amount of Vehicle Utilization at New Interchange:* An assessment of the forecast vehicle demand expected to use the new interchange was applied to this criterion. Our review included a combination of both AM and PM peak hour vehicle demand.
3. *Ability to Manage Demand along Trunk 2 Corridor:* An assessment of the available capacity between intersections and the forecast vehicle demand in the corridor. GRIFFIN used the 2043 vehicle demand and intersection performance results for this comparative review since this planning horizon is nearing the point at which sections of road are reaching capacity.

7.3.3 Geometric Design

4. *Interchange Spacing and Access to Highway 102:* An assessment of the distance between the proposed interchange and the next nearest existing interchange – measured along Highway 102 – relative to TAC guidelines was used. Our assessment of this criteria also considered benefits offered by the new interchange and its access/coverage to the Highway 102 corridor for emergency services and emergency detour routes.

5. *Ability to Implement Access-Controlled Connector Road between Trunk 2 and new Interchange:* Providing an access-controlled roadway linking the new interchange with the Trunk 2 corridor is a priority for the NSDPW and will preserve the traffic operations and functionality for the new interchange well beyond the planning horizons examined in this study. This criterion examines the ability to implement an access-controlled connector road.
6. *Implementation Constraints of New Interchange:* This criterion examines the ease of implementation of a new interchange. Our assessment considered the need to remove buildings/structures, if a bridge structure already exists, the need to purchase land for ramp facilities, and so forth.

7.3.4 Land Use / Settlement

7. *Promotion of an Efficient Settlement Pattern:* New development can be managed using land use planning policy, or allowed to develop somewhat organically by building road capacity in certain areas to encourage growth. The former is a preferred growth management method. This criterion examines the compatibility of the candidate interchange location with the MEH's planned growth areas presented earlier in this report.
8. *Efficiently Serving New Growth Areas:* Given MEH's policy directives and planned residential growth within the serviced boundary area, our assessment of this criteria examined how well the new interchange location most efficiently serves the planned growth.

7.3.5 Environment

9. *Potential for Watercourse/Wetland Impact:* An assessment of the potential impacts the new interchange location, and its connector road, may have on existing watercourses (eg. Barney's Brook).
10. *Amount of Study Area Fuel Consumption:* An assessment of the expected fuel consumption for vehicles traveling on the study area road network. This criterion examines the relative amount of vehicle-miles traveled, a proxy measure of the amount of fuel consumption.

7.3.6 Socio-Economic

11. *Impacts on Existing Property / Buildings:* Implementing new transportation infrastructure can have a notable impact on the socio-economic fabric of a neighbourhood. The impacts to existing adjacent businesses and residences in the vicinity of the two candidate locations was used to assess this criterion.
12. *Opportunity to Create New Development Opportunities:* This criterion qualitatively examines the opportunities created through the implementation of a new interchange facility. This could include opportunities for new development of greenfield areas - particularly along the Highway 102 corridor where there good visibility and access for commercial and industrial businesses exists.

7.4 Scoring Methodology

There are various scoring methods that could be applied to a qualitative interchange location evaluation process and these could range from simple ranking systems to more complex systems with five or six pre-defined scores. It was determined that the following simple two-score ranking system would be sufficient for this study and provide for a relative ranking between the two candidate interchange locations:

Rank Description	Corresponding Score
Most Preferred	Letter Grade of 'A'
Least Preferred	Letter Grade of 'B'

The scoring procedure involved a two-step process that was carried out by the consultant team members. In the initial step, each of the proposed evaluation criteria were assessed and a technical, fact-based rationale was prepared – a summary of which is contained in *Appendix VIII*. In the second step, the consultant team members summarized the fact-based rationale by assigning it a letter grade – either "A" or "B" – with "A" representing the more preferred option. The results of this process are presented below.

7.5 Summary of Assessment Results

Once all of the technical fact-based comments were assembled, they were summarized using the scoring system described above. This process allowed the evaluators to efficiently identify the relative rank of each proposed interchange location. This visual summary is contained in *Table 16*.

Table 16: Interchange Location Assessment Summary

	New I/C - Candidate Locations	
	Enfield South Old Enfield Road	Lantz North Near Lantz-Milford Boundary
A. Transportation Demand		
1 Vehicle travel times / road network delay	B	A
2 Vehicle utilization of new interchange	B	A
3 Ability to manage demand in Trunk 2 corridor	B	A
B. Geometric Design		
4 I/C spacing along Hwy 102	A	A
5 Access-controlled Connector Road	B	A
6 Implementation constraints	B	A
C. Land Use / Settlement Impacts		
7 Promotes efficient settlement pattern	B	A
8 New I/C serves greater population/employment	B	A
D. Environment		
9 Estimate of watercourse/wetland impacts	A	B
10 Estimate of network fuel consumption	B	A
E. Socio-Economic		
11 Existing property/building impacts	B	A
12 Opportunity to create highway commercial businesses	B	A
TOTAL SCORE	**Mostly B's**	**Mostly A's**
RANK ORDER	**2**	**1**

The results indicate the Lantz north location has the most "A" scores relative to the Enfield south location. Therefore, The Lantz north interchange is the most preferred location using the 10 evaluation criteria applied in this study.

Of course, a more in-depth multidisciplinary assessment is expected to be needed to comprehensively evaluate the Lantz north location. This could include such assessments as an Environmental Assessment (EA), a detailed cost-effectiveness assessment, on-going discussions with key stakeholders, and so forth. The findings contained in this report are simply focused on identifying the most efficient transportation solution.

7.6 Conceptual Layout Considerations

Once the preferred interchange location was identified, GRIFFIN then examined a more refined location for the interchange facility along the Highway 102 (i.e. interchange spacing requirements, driver visibility, connection of ramp terminals to the mainline lanes, etc.), as well as a suitable location for the connector road to intersect with Trunk 2 (i.e. visibility, intersection spacing, grades/slopes, etc.). In addition, the alignment of the new connector road needed to be in close proximity to the future urban development such that it allowed for an attractive and convenient travel time to/from Highway 102, but also minimized impacts to the new neighbourhood plans within the serviced area.

Considering all known high-level constraints, limitations, and opportunities, GRIFFIN then identified a preferred location immediately north of the Lantz-Milford boundary, which generally coincides with the north limit of MEH's growth management area. This location is illustrated in *Figure 25*.

7.7 Description of the Preferred Interchange Location

7.7.1 Highway 102 Interchange Spacing

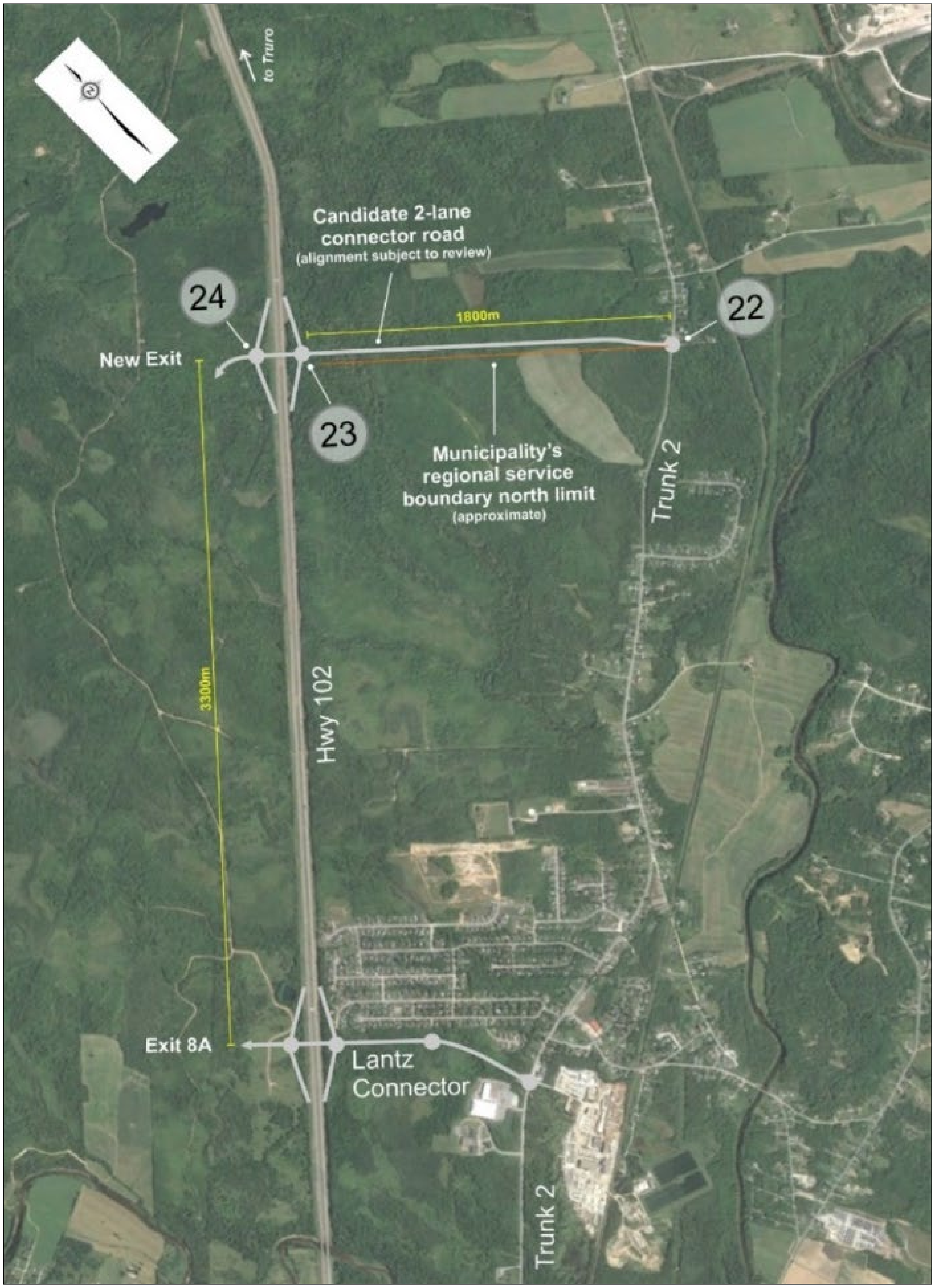
The new interchange location shown in *Figure 25* would provide approximately 3.3 km of interchange spacing distance along Highway 102. This is the centre line distance to Exit 8A (Lantz) and exceeds TAC's minimum 2 km spacing guidelines. This particular location is situated on a tangent section of Highway 102 which has good driver visibility in both directions.

7.7.2 Interchange Configuration

Following NSDPW best practices, a diamond interchange configuration was assumed in this study and formed the basis of both the traffic operational analysis as well as the cost estimating process. Our operational analysis confirmed that a two-lane, two-way bridge structure with an active transportation facility would suffice, along with single-lane roundabouts at each ramp terminal.

It was determined that single-lane roundabouts could accommodate traffic volumes associated with the future unconstrainted growth scenario. Therefore, the cost estimating process assumed the same bridge structure, roundabout layouts, and other characteristics as was recently installed at the new Exit 8A (Lantz) interchange.

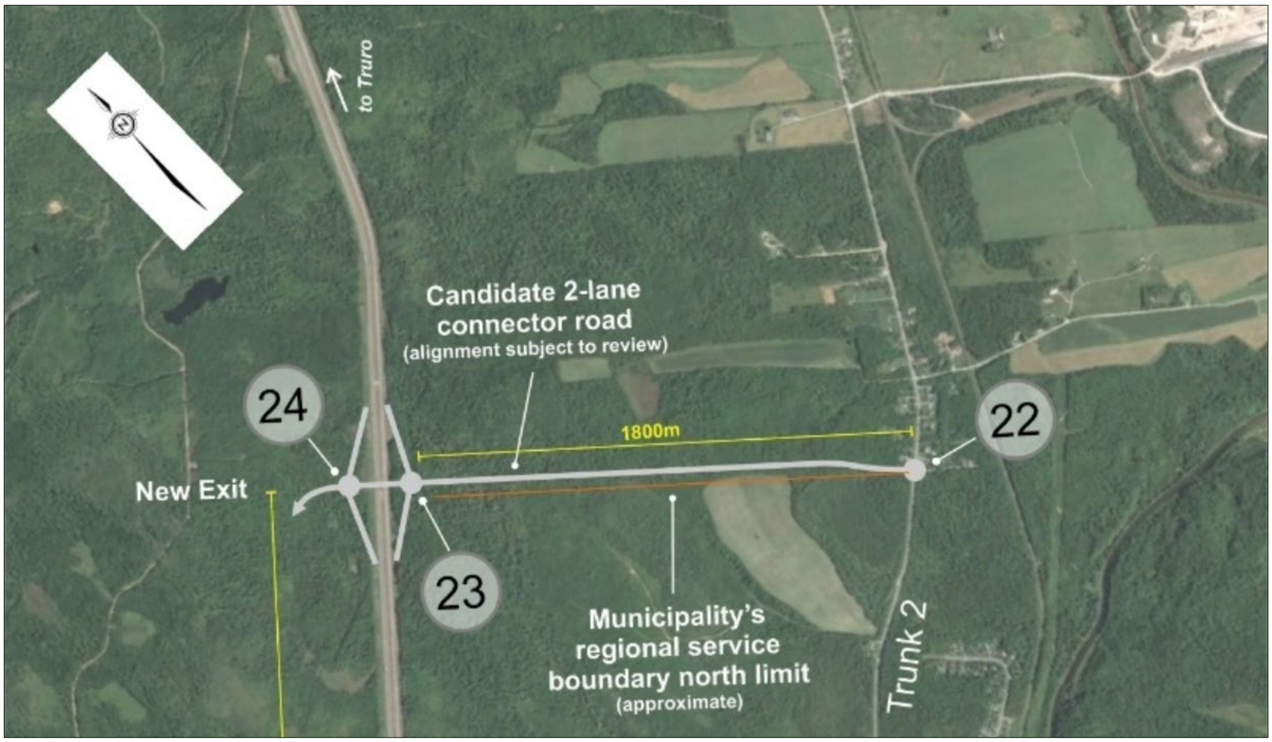
Figure 25: Preferred New Interchange Location



7.7.3 *Connector Road Description*

The approximate location of the connector Road was identified by GRIFFIN and is shown in more detail *Figure 26*. The alignment of the connector road is adjacent to the MEH's GMA north boundary and avoids utilizing valuable land within the serviced area; however, is close to the planned neighbourhoods in the Lantz north area which will help ensure the new facility will be attractive from a travel time and convenience perspective.

Figure 26: A New North Interchange and Connector Road



The new connector road linking the new interchange to Trunk 2 is estimated to be about 1.8 km in length. The detailed lane configuration and operational performance of the new intersections (#22, #23 and #24) are presented later in Section 8. The new intersection connection at Trunk 2 (intersection #22) offers good driver visibility as it is situated along a tangent section with minimal vertical deflection. Our analysis has identified that a three-arm modern roundabout at intersection #22 is preferred. This configuration does allow for a future potential fourth arm, offering access to vacant lands east of Trunk 2.

7.7.2 *Additional Development Opportunities*

Long-term, a new Highway 102 interchange in this location would offer a high-quality second access to the properties immediately west of Highway 102 – lands that are well-suited for new Business Park development opportunities. Potentially, MEH could expand their commercial and Business Park land use types extending from the Nine Mile River north to this new interchange location. These lands would be afforded with multiple quality access points for employees and truck traffic via two interchanges. It also offers MEH with a viable long-term solution to increase their Business Park land inventory – well into the future.

7.8 Caveats

It should be noted; however, that the new interchange and connector road location presented in this report is preferred only from a travel demand and transportation efficiency perspective. A more comprehensive, multidisciplinary assessment will be required to better solidify the exact alignment of the connector road and confirm the suitability and constructability of the connections at either end (i.e. at Trunk 2 and Highway 102).

8. NETWORK ANALYSIS – OPTION 2 LAYOUT

8.1 Overview

As concluded in the previous Section, the 2043 growth scenario is expected to generate travel demand that begins to approach the capacity of the existing, or Option 1 road network. We also know there is a considerable amount of future growth that is expected to take place beyond the 2043 horizon year. In this Section, we qualitatively examine the road network impacts assuming the unconstrainted, or full build-out growth scenario comes to fruition, and is combined with availability of added road capacity via a new Lantz north interchange facility.

8.2 Qualitative Assessment of the Unconstrained Growth Scenario

GRIFFIN used the TAC signal warrant analysis process to help qualitatively assess the Option 2 Road layout under a long-term unconstrained growth scenario. This provided a set of results to help understand how travel patterns are expected to shift with a new north interchange in place. Our analysis methodology was consistent with the signal warrant procedure presented earlier in this report. Results exceeding the 100-point threshold indicate the need for upgrades to either a traffic signal or modern roundabout. To assist in understanding the changes, GRIFFIN has provided results for both the Option 1 and Option 2 road layouts in *Table 13*.

Table 17: Signal Warrant Analysis Results – Road Option 2 Network

			Option 1 - Existing Roads		Option 2 - North I/C	
			Equilibrium Assignment		Equilibrium Assignment	
No.	Main Road	Secondary Road	2033	2043	2043	Unconstrained
1	Trunk 2	Milford Rd	24	25	48	62
2	Trunk 2	FH Street A	20	43	73	180
3	Trunk 2	Wickwire North	38	76	107	212
4	Trunk 2	Wickwire South	131	266	210	380
5	Trunk 2	Frederick Allen	67	94	57	76
6	Trunk 2	Poplar	72	98	75	99
7	Trunk 2	Rte 277 / Logan	128	194	153	210
8	Trunk 2	Church	27	36	27	33
9	Trunk 2	Lantz Connector	*Roundabout*	*Roundabout*	*Roundabout*	*Roundabout*
10	Lantz Connector	Shaw Dr	*Roundabout*	*Roundabout*	*Roundabout*	*Roundabout*
11	Lantz Connector	Hwy 102 NB Ramps	*Roundabout*	*Roundabout*	*Roundabout*	*Roundabout*
12	Lantz Connector	Hwy 102 SB Ramps	*Roundabout*	*Roundabout*	*Roundabout*	*Roundabout*
13	Route 214	Trunk 2	*Signals*	*Signals*	*Signals*	*Signals*
14	Route 214	Mason Dr	*Signals*	*Signals*	*Signals*	*Signals*
15	Route 214	Hwy 102 NB Ramps	*Signals*	*Signals*	*Signals*	*Signals*
16	Route 214	Hwy 102 SB Ramps	244	266	266	338
17	Route 214	Park Rd	*Signals*	*Signals*	*Signals*	*Signals*
18	Trunk 2	Elmwood	124	135	135	147
19	Trunk 2	Alderney	83	89	89	97
20	Trunk 2	Shamrock	33	37	37	41
21	Trunk 2	Old Enfield Rd	272	323	323	491

It should be noted that GRIFFIN did not complete signal warrant analyses for the Option 2 road layout under the 2033 planning horizon due to the fact that our previous set of results presented in Section 6 indicates the existing road network can accommodate the travel demand at that planning horizon. Therefore, our analysis focused only on the 2043 and the long-term unconstrained / full build-out growth scenarios.

If we compare the results at the 2043 planning horizon, for both the Option 1 and 2 road layouts, we can conclude that the opening of the new Lantz north interchange only influences traffic patterns in the Lantz area, and thus changes to the signal warrant results only occurred at the intersections in the community of Lantz. The signal warrant results for the unsignalized intersections in Elmsdale and Enfield are not expected to change. If we focus on the Lantz intersections we can draw the following additional conclusions about the impacts of the new interchange:

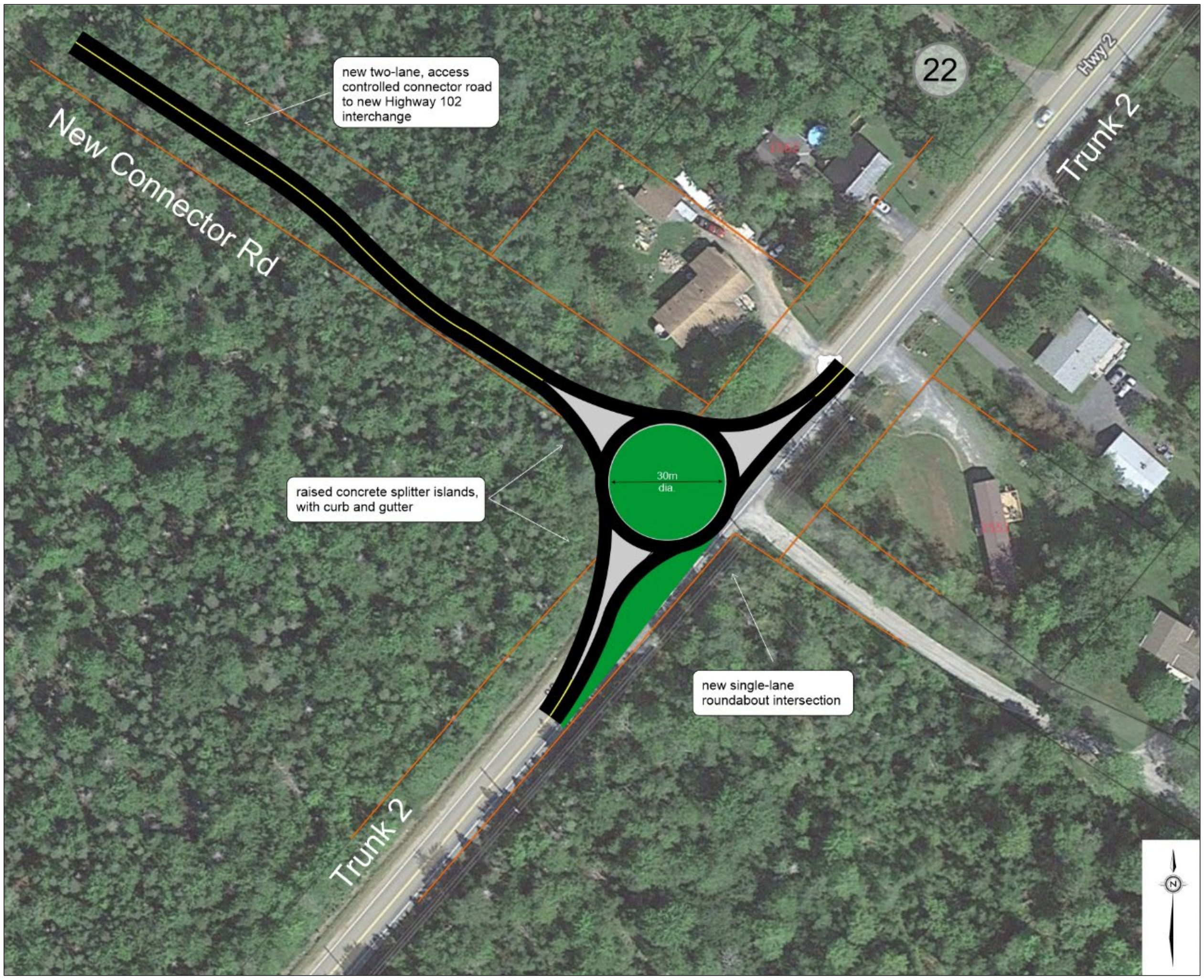
- At 2043, the intersections from Milford Road (#1) to Wickwire North (#3) are expected to all have an increase in priority points with the new interchange open. Conversely, the intersections from Wickwire South (#4) south to Church Street (#8) will all experience a reduction in priority points. This trend is expected as travel patterns shift away from Exit 8A as some drivers will utilize the new interchange to access Highway 102.
- At 2043, the Wickwire North Access is expected to require an upgrade to either traffic signals or a roundabout with the new interchange open
- All other conclusions associated with traffic control upgrades remain unchanged from the conclusions presented in Section 6.

If we look further into the future under a full build, or unconstrained growth scenario, then we can conclude that the three new intersections along Trunk 2, including FH Street A (#2 = 180 points), Wickwire North (#3 = 212 points), and Wickwire South (#4 = 380 points) will all require either traffic signals or a roundabout due to the shift in travel patterns to/from the new interchange. Again, these are long-term improvements, beyond 2043, that will be required under full build-out growth scenario with a new interchange facility in place.

8.3 New Interchange Connection Lane Configurations

Once the iterative assignment of the long-term unconstrained growth scenario was complete, GRIFFIN then carried out an intersection analysis of the new intersections associated with the new interchange in Lantz north. This included the Trunk 2 / New connector road (intersection #22), the new interchange northbound ramps (intersection #23), and the new interchange southbound ramps (intersection #23). The lane configuration concept sketch and intersection location for the new intersection #22 at Trunk 2 is contained in *Figure 27*.

Figure 27: Intersection #22 Concept Sketch



$907,400 implementation cost estimate *(Class D, 2023 dollars)*

The additional infrastructure cost estimates associated with the new north interchange were prepared by GEMTEC and include the following:

- Two-lane Connector Road (1.6km length): **$3,906,000**
- Roundabout intersection #23 and ramps: **$4,465,000**
- Roundabout intersection #24 and ramps: **$4,958,000**
- Interchange bridge structure: **$4,095,410**

It should also be kept in mind that in the absence of the new interchange, we expect Trunk 2 would require widening to four lanes, along with other upgrades that likely would include traffic signals at Frederick Allen Drive and Poplar Drive, plus widening of the Lantz Connector Road to four lanes. These trade-offs should be considered in any future cost-effectiveness assessment.

9. CONCLUSIONS AND RECOMMENDATIONS

9.1 Concluding Thoughts

9.1.1 Overview

The East Hants Traffic Study provides a long-term strategy to establish a transportation system upgrade plan that can accommodate the expected travel demand increases along the Trunk 2 and Highway 102 corridors. The successful implementation of this strategy can only be accomplished through the coordinated actions between the NSDPW, the MEH and HRM. This coordinated effort will help define the necessary land use planning, road infrastructure planning, design efforts, and funding requirements for the necessary infrastructure needed to support community growth.

A summary of our salient findings flowing from this study are presented in the Sections below.

9.1.2 New Growth Estimates

As presented earlier in this report, GRIFFIN developed population and employment growth settlement scenarios for the 2033, 2043 and unconstrained full building-out planning horizons. These settlement patterns formed the basis of the travel demand calculation process. The summary of expected growth at each planning horizon is provided in *Table 18*.

Table 18: Summary of Future Growth Scenarios

Location Description	New Growth 2023-2033		New Growth 2023-2043		New Growth Unconstrained	
	Residential (units)	Commercial (ft^2)	Residential (units)	Commercial (ft^2)	Residential (units)	Commercial (ft^2)
MEH SCC GMA	+4,211	+460,693	+5,512	+796,700	+7,070	+1,268,300
MEH GRA's	+187	+25,000	+299	+75,000	+748	+100,000
MEH Rural Areas	+46	0	+74	0	+185	0
HRM	+139	0	+222	0	+555	0
TOTAL	**+4,583**	**+485,693**	**+6,107**	**+871,700**	**+8,558**	**+1,368,300**

In summary, this study assumes a residential growth rate from 2023 to 2043 of about 306 new units/year, plus supporting commercial floor space.

9.1.3 Road Capacity Conclusions

The following is a summary of the key findings identified through our road network analysis, assuming the rate of growth applied in this study is realized:

- *Lantz Area Road System*: By 2043, the existing road system will be nearing capacity, as long as the site-specific intersection upgrades noted earlier in this report occur over time between now and 2043 (i.e. new auxiliary turn lanes, new traffic signals, etc.). Beyond 2043 new capacity will need to be added in the form of either widening the Trunk 2 corridor to a four-lane cross-section from the Lantz Connector Road to around the Robert Scott Drive intersection, or instead, build a new Highway 102 interchange facility near the Lantz-Milford community boundary. A new interchange will shift travel patterns and off-set / eliminate the need to widen Trunk 2 through Lantz.

- *Elmsdale Area Road System*: By 2043, the Exit 8 interchange intersections (i.e. Park Road to Mason Drive) are expected to reach near-capacity conditions – particularly at the two closely-spaced signalized intersections on the east side of the interchange. It appears that some additional capacity could be added by upgrading these two signalized intersections to modern roundabouts along with a new widened Exit 8 bridge structure, but this would have a significant impact on existing businesses and the built environment.

  Therefore, land use growth controls appear to be a preferred approach to managing the rate of future development growth in this area, to in-turn manage the traffic demand moving to/from the Exit 8 area. For example, our analysis of the Business Park access via Park Road confirms previous conclusions which suggest the Park Road signalized intersection will reach capacity once an additional 435,600 ft^2 of building space is built and occupied. As such, the MEH should begin identifying additional long-term Business Park lands in an alternate location. A candidate location could be in the vicinity of Exit 8A (Lantz) on the west side of Highway 102.

- *Enfield Area Road System*: By 2043, the existing road system can accommodate the forecast vehicle demands, assuming the traffic control at the Trunk 2 / Old Enfield Road intersection is adequately upgraded. It is recommended that a modern roundabout be installed as it will better manage the north-south queues on Trunk 2 relative to a traffic signal. Beyond 2043, and with the full development potential of the Horne Settlement GRA, traffic demand increases along Old Enfield Road will be significant and there are long-term operational concerns with the Trunk 2 / Old Enfield intersection and Trunk 2 towards Exit 7. A new collector road linking the Horne Settlement GRA with Route 214 will offer a convenient alternative to the only viable access through the Old Enfield Road corridor.

9.1.4 New Interchange and Connector Road

Our analysis results suggest that the amount of new residential and commercial development in the community of Lantz that is already approved – or is in the MEH approval process – will generate traffic demand that will exceed the capacity of the existing road network – particularly Trunk 2. Of course, this conclusion incorporates and accounts for the implementation of minor intersection upgrades, as needed, between now and 2043. As documented earlier in this report, there are two general network upgrades that could be considered to address this issue in the Lantz area beyond 2043; either invest in a widening of Trunk 2 to four lanes, or invest in a new Highway 102 interchange and connector road.

Our preliminary planning-level assessment has concluded that investing in a new interchange facility is the prudent course of action and the most efficient location for this new facility is in close proximity to the planned neighbourhoods of Lantz north. Our assessment has identified suitable candidate connection locations on both Highway 102 – for a new diamond interchange – and on Trunk 2 for new roundabout intersection. Both connections are located near the Lantz-Milford community boundary.

9.2 Recommendations

The following recommendations flowed from the study findings presented in the previous Section:

1. **New Strategic Road Upgrades / Improvements:**

By 2043

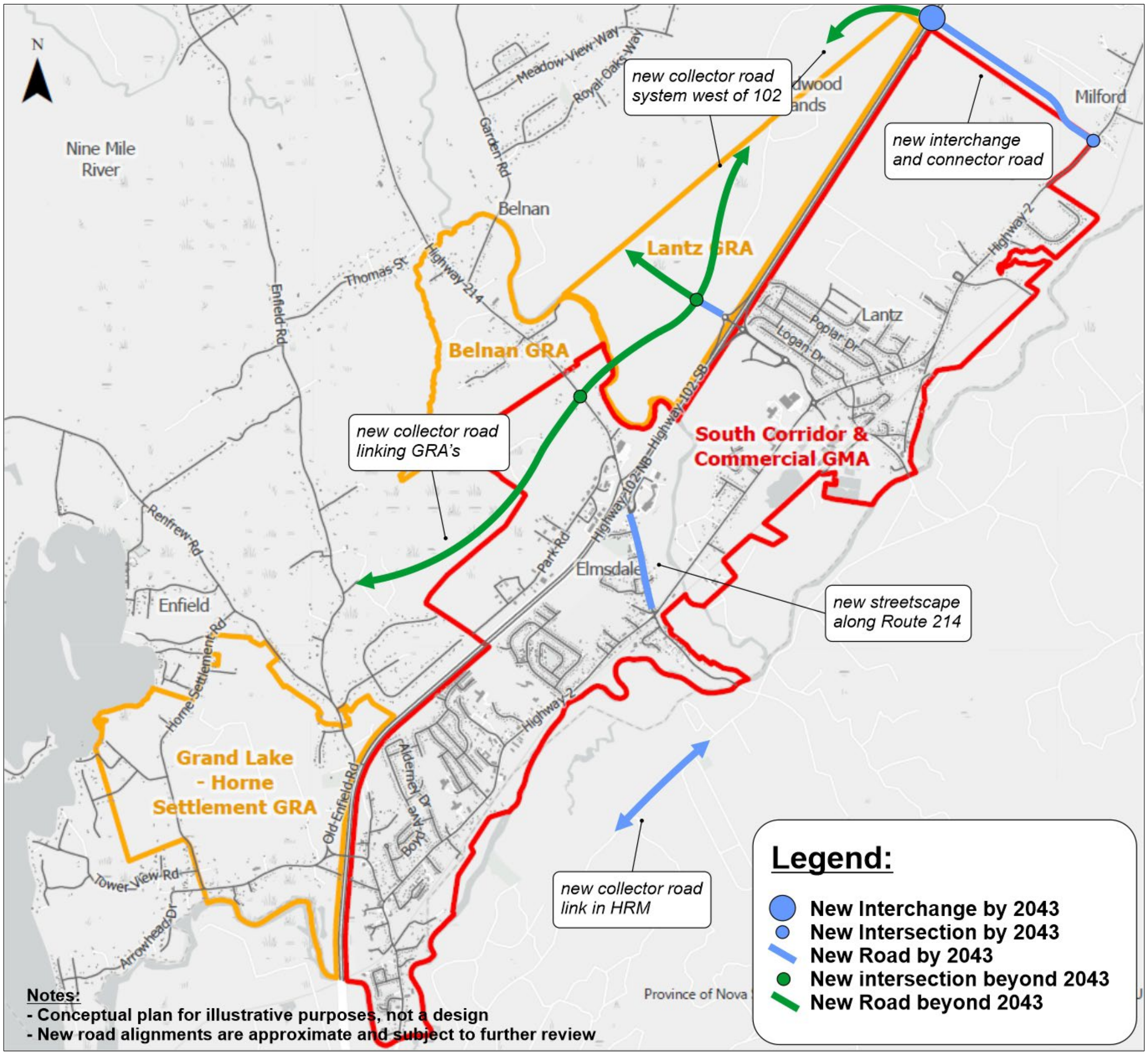
a) *Design New Interchange*: complete planning and design of new Highway 102 interchange and connector road in Lantz north area. Expected to be required to accommodate growth by 2043.
b) *New HRM road connection*: HRM to open a new road connection linking Old Truro Road with Old Post Road. This will improve mobility / connectivity within HRM and help reduce travel demand in MEH – particularly along Route 214 and Exit 8.
c) *Route 214 Corridor*: implement planned streetscape improvements that are consistent with a small town main street environment. This corridor is expected to transition from a vehicle corridor to a local destination. Upgrade features could include such characteristics as a three-lane cross-section, low vehicle operating speeds, no through trucking, a walkable environment that accommodates all road users, and so forth.
d) *Implement 2043 Intersection improvements*: add intersection capacity in select locations by the 2043 planning horizon, as documented in this report.

Beyond 2043

e) *Install New Interchange*: construction of a new Highway 102 interchange and connector road in Lantz north area.
f) *New Collector in Lantz GRA*: provide a new collector road to serve new Commercial / Business Park lands on west side of Highway 102. This new road will link the Exit 8A and new interchange in Lantz North, offering two good quality connections.
g) *New Collector across Nine Mile River*: provide a new collector road that links Exit 8A to Route 214 in the vicinity of Belnan to improve mobility / connectivity. This connection would also provide a quality secondary access to the Park Road Business Park.
h) *New Collector between Horne Settlement and Belnan GRA's*: provide a collector road linking these two GRA's that currently have limited access. Also improves mobility / connectivity for residents.

These road network upgrades are conceptually shown in *Figure 28*. It should be noted the roadway alignments are approximate and subject to further evaluation. Intersection and interchange locations are illustrative concepts and exact locations may need to change to meet engineering design requirements.

Figure 28: Strategic Concept Plan of Road Network Upgrades



2. **New Interchange Facility:**
   a) ***New Diamond Interchange***: That a new diamond interchange be installed at about 3.3 km north of Exit 8A (centre-to-centre). This location is on a tangent section of Highway 102 with good driver visibility in both directions. The design of this interchange, including the ramps, roundabouts, and bridge structure, can be similar to the recently built Exit 8A interchange which will offer sufficient capacity beyond the 2043 planning horizon. It should be noted; however, that the location is important to attracting travel demand away from the Trunk 2 corridor. Thus, the further north it is located, the less demand it will attract. Ideally it will be located in the Lantz north area, near the Lantz-Milford boundary.

b) ***New Connector Road***: That a new 1.8 km connector road be installed at the same time the new interchange is constructed. A two-lane, two-way cross-section will offer sufficient capacity to accommodate the full build-out travel demand scenario. Although GRIFFIN has identified a preferred roadway alignment near the Lantz-Milford boundary, it will need to be subjected to further evaluation.

3. Future Land Use Planning Policy:

a) ***Establish Growth Controls in GRA's***: MEH has established growth reserve areas to allow unserviced development to occur; however, it is recommended that planning policy continue to encourage the large majority of residential growth to occur in the GMA. Increasing density in the GMA will allow MEH to service and maintain resources in a much more efficient manner. Further, if residential growth in the GRA's exceeds the values used in this study, we can expect it to direct more vehicle demand in and around Exit 8. This is undesirable due to the physical constraints in this area and the very limited ability to expand the roadway capacity.

b) ***Establish Growth Controls in vicinity of Exit 8***: The planned population and employment growth in the vicinity of Elmsdale and Belnan is expected to fully utilize the road system capacity in and around Exit 8 by the 2043 planning horizon. Therefore, growth controls are recommended – particularly for commercial and Business Park growth. Development growth controls are not intended to prevent growth, but to manage future growth in such a manner that it is measured and monitored over time.

c) ***Establish Growth Controls in HRM***: All future growth within the adjacent lands of HRM is expected to travel across the limited number of Shubenacadie River crossings due to the very limited road network connectivity in this area. This is expected to notably increase traffic along Route 214 and Exit 8 in Elmsdale. Therefore, growth controls will be necessary to preserve the future functionality of the road system in Elmsdale.

d) ***Encourage Business Park Growth at Exit 8A***: The undeveloped lands along the west side of Highway 102 offer a good development opportunity for MEH to expand their Business Park land inventory. This area has the opportunity to have good vehicle / truck access via the existing Exit 8A and the proposed new Lantz north interchange. There is also potential to have a connection across the Nine Mile River to offer improved connectivity to Route 214 in the Belnan area.

Lastly, it is recommended that the NSDPW continue working with the MEH and HRM Planning Departments to ensure land use planning policy is aligned with the preservation of the local road functionality. The transportation mobility findings flowing from this study can be used to nourish these discussions and help the stakeholder Municipalities incorporate the study conclusions into their important guiding documents such as GFLUM plans, future streets maps, transportation plans, etc.

Appendix I

Request for Proposal Document

Public Works

Request for Proposals (RFP)

for

Trunk 2 and Route 214 Traffic Study

Highway Engineering Services Standing Offer # WS74819983

May 5, 2023

1.0 BACKGROUND

The Municipality of East Hants has been one of the fastest growing municipalities in Nova Scotia in recent years. This growth has been led by residential development along the Trunk 2 corridor from Enfield to Lantz and commercial/industrial development near the Highway 102 (Exit 8) interchange in Elmsdale. A high growth rate is expected to continue with several large residential developments planned in this area, continued expansion of commercial and industrial areas, and new developments near the newly constructed Exit 8a Lantz interchange.

Increased development has resulted in a corresponding increase in traffic volumes along arterial and collector roads, in particular Route 214 between Trunk 2 and Park Road. In 2014 a joint traffic study with East Hants was completed to assess traffic operations for both Route 214 and Trunk 2. The study recommended a variety of upgrades including a new interchange, intersection upgrading, etc. Since this time the Lantz interchange has been constructed.

Recent development plans, including large residential developments in Lantz, Elmsdale, and Milford have accelerated the traffic demands on Route 214 and Trunk 2 sooner than anticipated. The last study covering this area and assessing upgrades occurred almost 10 years ago, and traffic patterns and projections may have changed in the interim.

To assess the timing and suitability of roadway improvements DPW has decided to hire a qualified consulting firm to conduct a traffic study. The scope of work contained in this request for proposals (RFP) outlines the general requirements for the preparation of the Trunk 2/Route 214 Corridor Study. Innovation and suggestions for alternate study methodologies that achieve the desired study objectives are encouraged.

2.0 OBJECTIVES

The primary objectives of this study are to:

1. Review the outcomes, projections, and recommendations from the previous traffic studies in this area.

2. Assess future traffic patterns on Trunk 2 and Route 214 based on planned development within the study area and assess the appropriateness and timing of the previous recommendations.

3. Identify roadway deficiencies for each study horizon including recommended mitigation measures and costs.

4. Develop corridor improvement plans using recommended mitigation measures.

5. Determine the need for an additional Highway 102 interchange in the study area.

3.0 STUDY SCOPE

The study area shall include:

1. Trunk 2 starting at the intersection with Milford Road heading southerly to the intersection with Oldham Road, and Route 214 from Trunk 2 to Park Road.

2. The study shall also consider future traffic from the Halifax Regional Municipality side of the Shubenacadie River along Routes 214 and 277.

3. Study analysis shall be completed for the following time horizons.
   - Horizon 1 – 10 years – 2033 (Entire Study Area)
   - Horizon 2 – 20 years – 2043 (Entire Study Area)

4.0 DUTIES OF THE CONSULTANT

1. Familiarization with the study area including, but not necessarily limited to, existing and proposed highway infrastructure, existing development, zoning, land ownership, approved and proposed developments.

2. Attend meetings based on the schedule in Section 7.0.

3. Review all relevant past transportation, traffic impact and land use studies within the study area, specifically the Trunk 2/214 study from CBCL.

4. Collect all traffic and other data in order to perform required analysis.

5. Meet with local municipal planning officials and representatives of the Municipality of East Hants to determine all existing and future development, zoning, and other land use characteristics that may impact future travel demand in the study area.

6. For each study horizon/interchange scenario forecast traffic volumes on study area roadways and intersections. Forecasts are to include AM and PM peak hour volumes, including turning movements, at the following intersections:

   - Rte. 214/Park Rd.
   - Rte. 214/102 SB Ramp
   - Rte 214/102 NB Ramp/Mason Lane
   - Rte. 214/Trunk 2
   - Trunk 2/ Rte. 277
   - Trunk 2/ Lantz Interchange Connector
   - Trunk 2/Old Enfield Road

- Trunk 2/Shamrock Lane
- Trunk 2/Alderney Drive
- Trunk 2/Elmwood Drive
- Trunk 2/Logan Drive
- Trunk 2/Church Street
- Trunk 2/Poplar Drive
- Trunk 2/Frederick Allen Drive
- Trunk 2/Milford Road
- All new development intersections on Trunk 2
- Lantz Interchange Ramp intersections

Estimations of midday peak volumes (11am to 1pm) are also required at all existing un-signalized intersections and any proposed future intersections within the study area.

7. Based on projected traffic volumes identify capacity and operational deficiencies along study area roadways and intersections for each horizon. This analysis shall include, but not necessarily be limited to, capacity and level of service assessment, signal warrant analysis, turning lane analysis, and evaluation of the need for a two way left turn lane (TWLTL) on Route 214.

8. If signalization is required, the intersection is to be analyzed as both signalized and as a roundabout. Signalized intersection analysis shall be completed using Synchro SimTraffic v11 or newer and roundabout analysis shall be undertaken using Arcady software.

9. Appropriate cost-effective roadway upgrading measures, required to mitigate future capacity and/or operational deficiencies, shall be identified for each horizon year. Existing concepts should be evaluated first, and if insufficient additional measures are to be proposed. All recommended upgrading measures shall include conceptual plans and preliminary cost estimates.

10. Prepare a final report summarizing all work completed.

5.0 DUTIES OF DPW

1. Meet with the Consultant on an arranged schedule.
2. Provide the Consultant with any available documentation (reports, studies, plans, traffic data, etc.).
3. Answer any questions and provide guidance and clarification in a timely manner as required.

6.0 GUIDANCE

A project steering committee composed of representatives from DPW will be responsible for overall administration of the study. Acceptance and approval of the work will take place after the project steering committee has been satisfied that the study requirements have been met.

7.0 MEETINGS AND REPORTS

The Consultant shall meet with the Project Steering Committee for the project initiation and as required throughout the duration of the project (budget for the initial meeting, one progress meeting and a final report presentation), provide progress reports bi-weekly, and present the study findings to the Project Steering Committee within one week of submission of the draft final report and prior to submission of the Final Report. All meetings will be held in Halifax, Nova Scotia or virtually. The initial meeting with the Consultant will be to review the study requirements, data requirements and the methodologies to be used.

The overall final report shall include, in addition to traffic study findings, the input data use, sensitivity analysis and evaluation. All assumptions shall be fully documented. All reports, in addition to the narrative material, will include sufficient figures and graphic material to provide a clear and concise document. A map showing the location of the highway infrastructure project will be included.

The following reports shall be required:

- One (1) electronic version of the report in PDF format must be submitted for comment and possible amendments before the final version is submitted. The Consultant must be prepared to submit a second draft if requested.

- Two (2) bound copies of the final report. The Consultant shall also have a copy on hand should additional copies be required at short notice. The Consultant shall also provide one (1) electronic copy of the final report in PDF format including all plans, tables, diagrams, figures and pictures.

- All copies of the draft and final reports shall be on letter size paper or 11 x 17 paper folded to letter size and appropriately titled. The final report shall include an executive summary and a list of references. All reports shall contain copies of supporting plans and figures. The Terms of Reference shall be attached as an appendix to the final report.

8.0 STUDY SCHEDULE

The Consultant shall meet with the Project Steering Committee within two weeks of notification of award of contract. The study shall be completed and the required copies of the final report presented within **6 months** of award of contract.

9.0 PROPOSAL REQUIREMENTS

Failure to provide information outlined in this section may result in disqualification.

A PDF copy of your proposal (fax copies are not acceptable) is to be delivered **by 2:00 pm** local time, **Friday May 19th** to Mark Brace (Mark.Brace@novascotia.ca)

One copy of the cost proposal shall be provided **as a separate PDF document and attached to the email containing the proposal,** including labour costs, related expenses, printing costs and professional services obtained outside of the firm. Prices quoted are to be in Canadian dollars **and exclusive of federal and provincial taxes.**

Proposals should be clearly marked with the name and address of the proponent and the project or program title. Late proposals will not be accepted and will be returned to the proponent. Proponents are solely responsible for their own expenses in preparing, delivering or presenting a proposal.

To facilitate efficient review of the proposals, proponents are requested to use the following format. The proposal shall be organized into four chapters and such chapters limited where indicated.

1. **Introduction**

   This chapter shall include, but not necessarily be limited to, background information, a description of the study area, and understanding of the project and its objectives, including potential key issues.

2. **Qualifications**

   A summary of project team member experience in areas related to this request for proposals. Including, but not limited to, an outline of each team member's experience, an outline of each team member's technical knowledge and skill relative to this RFP, any relevant background training, and an outline of at least three similar reference projects including the team member's role on the project. The role of each team member in the study shall be clearly explained.

3. **Methodology**

   This chapter shall include, but not necessarily be limited to:

   1) A list of all information and data sources available to the Consultant and expected to be used in the Study.

2) A detailed work plan, identifying planned field work, and including intended approach, methodology and schedule for the study.

4. **Project Management**

The proponent is to produce a detailed schedule in Gantt Chart format showing every anticipated element of the project and how they will fit together with other elements of the project to achieve the required completion dates for all deliverables. The plausibility, accuracy and detail of this schedule will be evaluated.

Number of person-days for each team member by task assigned to the project. For consistency, the basis of remuneration will be per **8 hour day** for all team members.

By submitting a proposal, the proponent warrants that all components required to deliver the services requested have been identified in the proposal or will be provided by the Consultant at no additional charge. The technical proposal must be signed by the person(s) authorized to sign on behalf of the proponent and to bind the proponent to statements made in response to this Request for Proposal.

10.0 LIABILITY FOR ERRORS

While considerable effort to ensure the accuracy of the information in this Request for Proposal has been made, the information contained in this Request for Proposal is supplied solely as a guideline to Proponents. The information is not guaranteed or warranted, nor is it necessarily comprehensive or exhaustive.

11.0 REQUEST FOR PROPOSAL AMENDMENTS

All proponents will be notified regarding any changes made to the Request for Proposal or any appendices or any change in the closing date or time. It is the responsibility of the proponent to ensure they have received all amendments. When these changes occur within five government business days of the close of the proposal, the proposal closing date will be extended to allow for a suitable number of bid preparation days between the issuance of the change and the closing date. All amendments must accompany each proposal. Proposals that do not contain all the amendments may be immediately returned and the proponent eliminated from further consideration.

12.0 PAYMENT SCHEDULE

A lump sum payment for professional services rendered will be made upon completion of work as outlined in the RFP to the satisfaction of the Project Manager and receipt of an invoice detailing work completed.

13.0 EVALUATION OF PROPOSALS

Proposals shall be evaluated based on the "Procurement Process: Architects and Professional Engineering Services" (September 27, 2010).

All proposals will be initially assessed based on the experience and expertise of the project team. Any proposals not meeting minimum qualifications will not be evaluated further.

The criteria for evaluating proposals, based on technical and managerial merit will be the following:

1.	Qualification and experience of team members on similar projects.	35 points
2.	Understanding of project and Proposed methodology	35 points
3.	Quality of the proposal and project management	15 points

After meeting initial qualifications, proposals will be evaluated on the basis of their technical and managerial merit and then on the basis of price. The technical submission shall be rated as shown above, out of 85 points, and the remaining 15 points shall be allotted based on price. Only those proposals achieving an aggregate score of 59.5/85 (70%) or greater will have their sealed cost envelopes opened. The lowest price shall be awarded 15 points (all prices within 5% will receive the same price points). The next lowest price (beyond 5%) will receive 12 points. Points for other submissions will be assigned with 3 fewer points for each successively higher priced price proposal. But again, each time the same score will be awarded if successive prices are within 5% of the last highest price. The proposal with the highest total points will be awarded the contract. Proposals not meeting the required 59.5/85 will have their unopened cost envelopes returned.

Notwithstanding the price evaluations, DPW reserves the right to reject any proposal where prices are deemed unreasonable relative to other prices bid, typically a 25% variance from the average qualified bid (excluding the bid in question).

The Department reserves the right to negotiate any or all conditions of the Consultant's proposed work plan and reject all submitted proposals. Unsuccessful proponents may request a debriefing meeting following execution of a contract with the successful proponent.

14.0 CONTRACT PROCEDURES

Notice in writing to a proponent of the acceptance of its proposal by the Province will constitute a contract for the goods or services.

15.0 INQUIRIES

All enquiries related to this Request for Proposal are to be directed to the following person. Information obtained from any other source is not official and may be inaccurate. Enquiries and responses may be recorded and may be distributed to all proponents at the Province's option.

Department Contact:

Mark Brace (Mark.Brace@novascotia.ca (902) 424-3278)

Appendix II

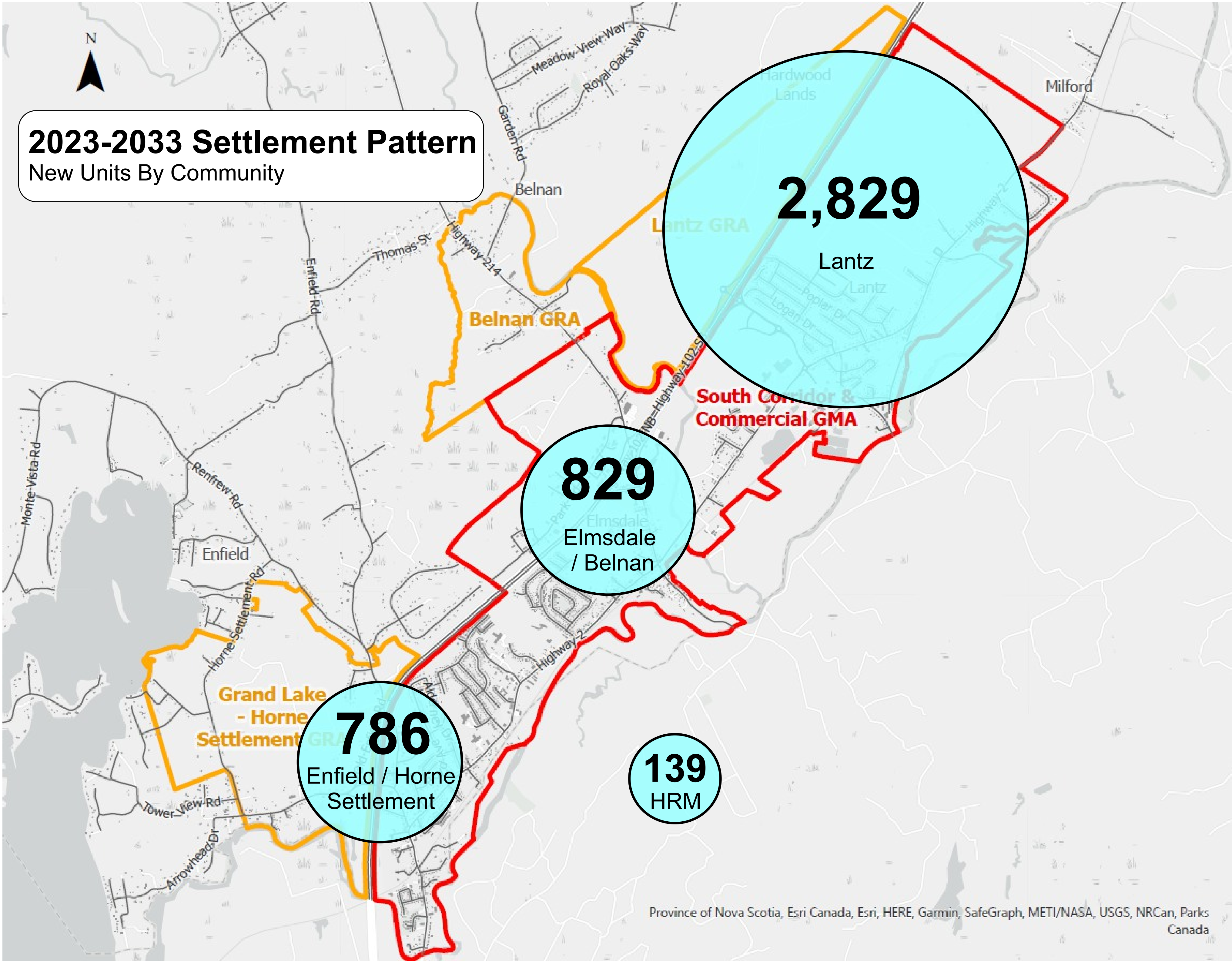
Future Settlement Pattern Summary

Proposed 2033 and 2043 Growth Scenarios (Source: MEH & HRM Planning Departments)

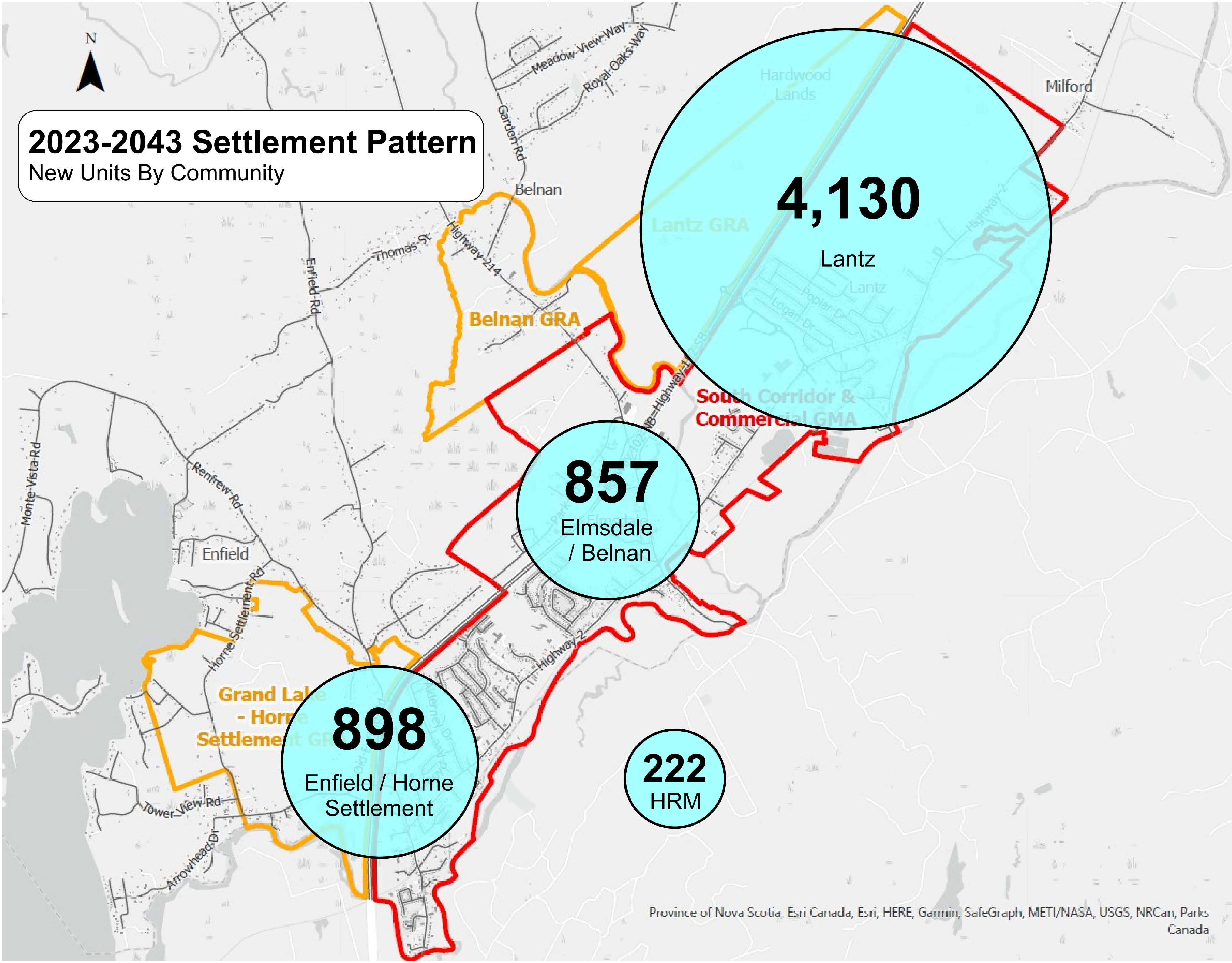
Jurisdiction	Sub-Area	Community	in GMA?	Location	Land Use	Type	Total Res Units	Commercial Space	Percent Complete By Horizon 2033	Units	2043	Units	
MEH	SCC GMA	Lantz	Yes	Tk 2 North	Mixed	Res mix	1550	*47,000*	25%	394	50%	775	
		Lantz	Yes	Robert Scott	Mixed	Res mix	2205	*50,000*	50%	1103	75%	1654	
		Lantz	Yes	Lantz Connector	Mixed	Res mix	1500	*220,100*	75%	1131	100%	1500	
		Lantz	Yes	Mariah Dr	Res	R1's/R2's	104		100%	104	100%	104	
		Lantz	Yes	#161 Rte 277	Res	Multis	16		100%	16	100%	16	
		Lantz	Yes	Acorn Ave	Res	R1's/R2's	81		100%	81	100%	81	
						Sub-Total =	**5456**	317,100		**2829**		**4130**	
		Elmsdale	Yes	#861 Tk 2	Res	R2's	6		100%	6	100%	6	
		Elmsdale	Yes	Rte 214 West	Res	Multis	94		100%	94	100%	94	
		Elmsdale	Yes	Elmwood Dr	Res	R2's & Multis	660		75%	495	75%	495	
		Elmsdale	Yes	Pine Hill Dr	Res	R2's	12		100%	12	100%	12	
		Elmsdale	Yes	#166 Rte 214	Res	Multis	8		100%	8	100%	8	
		Elmsdale	Yes	Rte 214 East	Res	Multis	36		100%	36	100%	36	
		Elmsdale	Yes	Tk 2	Res	Multis	16		100%	16	100%	16	
		Elmsdale	Yes	#553 Tk 2	Res	Multis	58		100%	58	100%	58	
		Elmsdale	Yes	#532 Tk 2	Res	Multis	42		100%	42	100%	42	
		Elmsdale	Yes	Kali Ln	Res	Multis	16		100%	16	100%	16	
						Sub-Total =	**948**			**783**		**783**	
		Enfield	Yes	#450 Tk 2	Res	Multis	126		75%	95	75%	95	
		Enfield	Yes	#432 Tk 2	Res	Multis	40		100%	40	100%	40	
		Enfield	Yes	#429 Tk 2	Res	Multis	84		75%	63	75%	63	
		Enfield	Yes	#428 Tk 2	Res	Multis	62		75%	47	75%	47	
		Enfield	Yes	#410 Tk 2	Res	Multis	70		100%	70	100%	70	
		Enfield	Yes	Dorey Ln	Res	R2's	74		100%	74	100%	74	
		Enfield	Yes	J. Murray Dr	Res	Multis	10		100%	10	100%	10	
		Enfield	Yes	Bakery Ln	Res	Multis	72		100%	72	100%	72	
		Enfield	Yes	Sherwood Park	Res	Multis	56		100%	56	100%	56	
		Enfield	Yes	#159 Tk 2	Res	Multis	72		100%	72	100%	72	
						Sub-Total =	**666**			**599**		**599**	
						GMA Total =	**7070**			**4211**		**5512**	**Total forecast units**

COMERCIAL & BUSINESS PARK:				Commercial Space		2033	ft2	2043	ft2		
Lantz	No	Exit 8A - West	Comm	0	ft2	25%	0	50%	0	ft2	
Elmsdale	Yes	Park Rd	Bus. Park	100	acres	25%	217,800	50%	435,600	ft2	*- 20% building coverag*
Elmsdale	Yes	Park Rd	Comm	40,000	ft2	50%	20,000	100%	40,000	ft2	
Elmsdale	Yes	Rte 214 E	Comm	20,000	ft2	50%	10,000	100%	20,000	ft2	
Enfield	Yes	Tk 2 near Old Enfi	Comm	20,000	ft2	50%	10,000	100%	20,000	ft2	

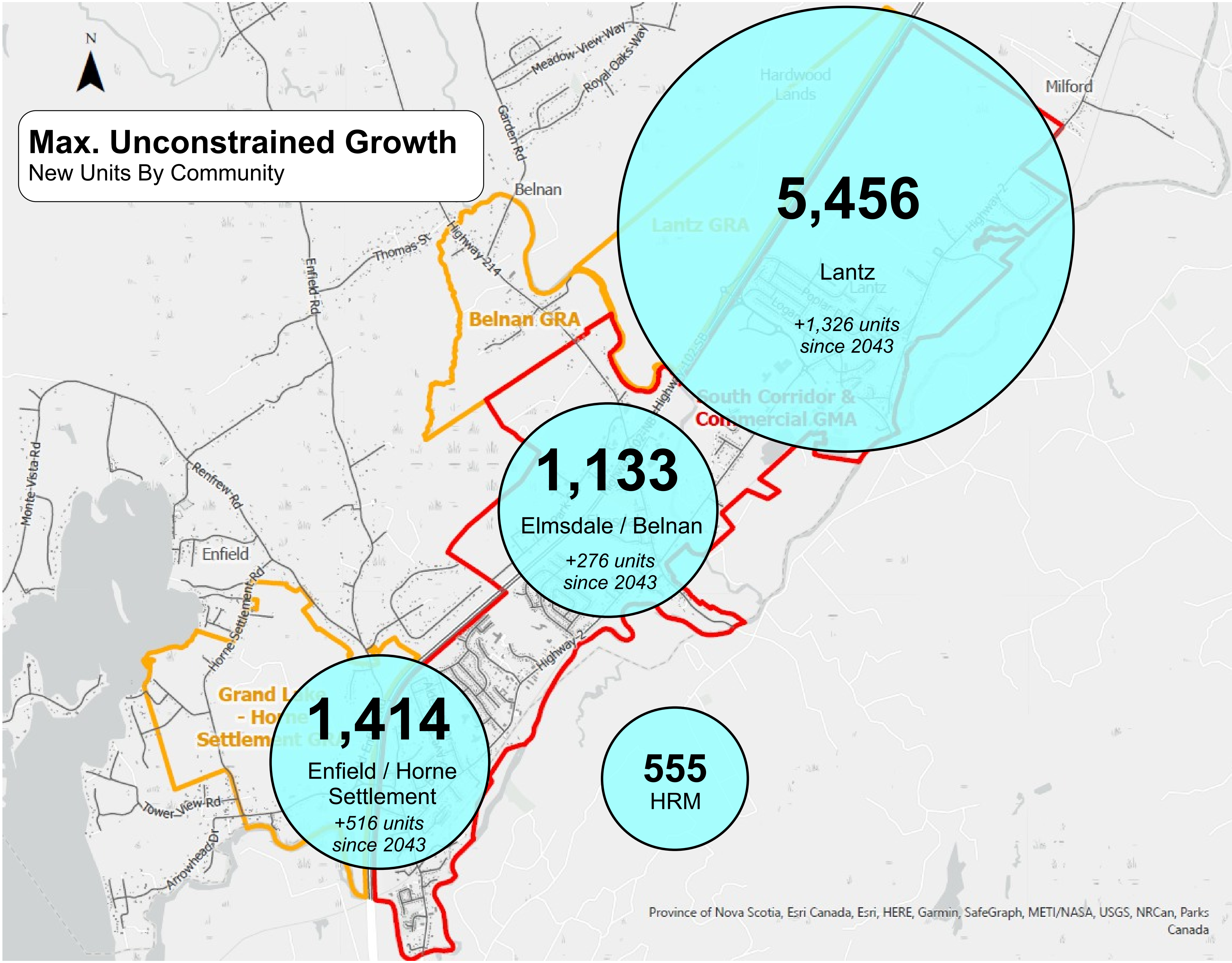
Jurisdiction	Sub-Area	Community	in GMA?	Location	Land Use	Type	Total		2033	Units	2043	Units	
MEH	**GRA - Horne Settlement**	Enfield	NO	Old Enfield Rd	Res	R1's	748	units	25%	187	40%	299	**units**
	GRA - Belnan	*- not expected to develop until beyond 2043 planning horizon*											
	GRA - Lantz	Lantz	NO	Exit 8A - West	Comm		100,000	ft2	25%	25,000	75%	75,000	**ft2**
	Rural Lands	Belnan	NO	Royal Oaks Way	Res	R1's	185	units	25%	46	40%	74	**units**
HRM	**Dutch Settlement Area**			Old Post Rd	Res	R1's	30		25%	8	40%	12	
				Old Truro Rd	Res	R2's	525		25%	131	40%	210	
							555			**139**	**units**	**222**	**units**



2023-2033 Settlement Pattern
New Units By Community
N
2,829
Lantz
829
Elmsdale
/ Belnan
786
Enfield / Horne
Settlement
139
HRM
Lantz GRA
Belnan GRA
Grand Lake
- Horne
Settlement GRA
South Corridor &
Commercial GMA
Hardwood
Lands
Milford
Belnan
Enfield
Lantz
Elmsdale
Meadow-View-Way
Royal-Oaks-Way
Garden-Rd
Thomas-St
Highway-214
Enfield-Rd
Renfrew-Rd
Monte-Vista-Rd
Horne-Settlement-Rd
Tower-View-Rd
Arrowhead-Dr
Highway-2
Poplar-Dr
Logan-Dr
NB-Highway-102-S
Province of Nova Scotia, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, NRCan, Parks
Canada



N
2023-2043 Settlement Pattern
New Units By Community
4,130
Lantz
857
Elmsdale
/ Belnan
898
Enfield / Horne
Settlement
222
HRM
Belnan GRA
Lantz GRA
South Corridor &
Commercial GMA
Grand Lake
- Horne
Settlement GRA
Hardwood
Lands
Milford
Belnan
Enfield
Lantz
Meadow-View-Way
Royal-Oaks-Way
Garden Rd
Thomas St
Highway 214
Enfield Rd
Renfrew Rd
Monte-Vista-Rd
Horne Settlement Rd
Tower View Rd
Arrowhead Dr
Highway 2
Poplar Dr
Logan Dr
Province of Nova Scotia, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, NRCan, Parks Canada



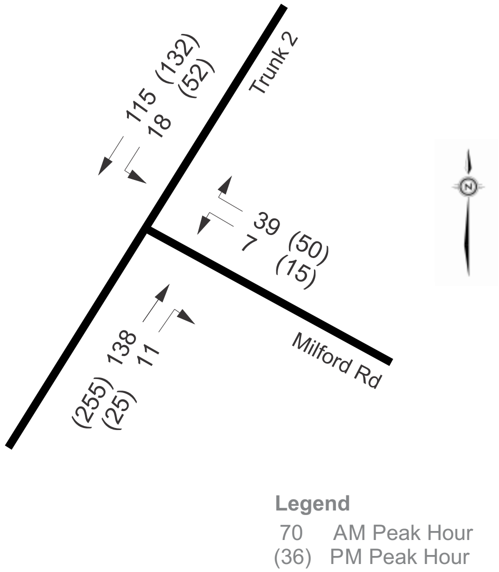
N
Max. Unconstrained Growth
New Units By Community
5,456
Lantz
+1,326 units
since 2043
1,133
Elmsdale / Belnan
+276 units
since 2043
1,414
Enfield / Horne
Settlement
+516 units
since 2043
555
HRM
Belnan GRA
Lantz GRA
Grand Lake - Horne Settlement GRA
South Corridor & Commercial GMA
Hardwood Lands
Milford
Belnan
Enfield
Lantz
Meadow-View-Way
Royal-Oaks-Way
Garden-Rd
Thomas-St
Highway-214
Enfield-Rd
Renfrew-Rd
Monte-Vista-Rd
Horne-Settlement-Rd
Tower-View-Rd
Arrowhead-Dr
Highway-2
Highway-102-NB
Highway-102-SB
Poplar-Dr
Logan
Province of Nova Scotia, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, NRCan, Parks Canada

Appendix III

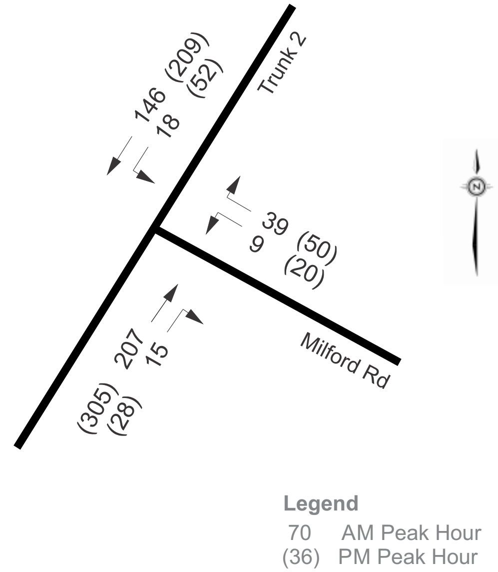
Peak Hour Traffic Volume Diagrams

#1 - Trunk 2 / Milford Rd

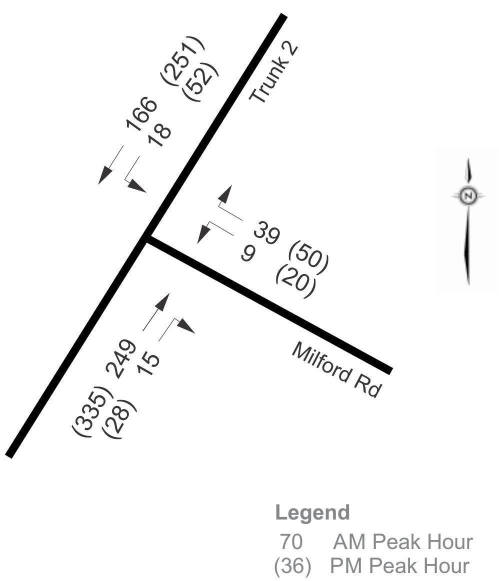
June 2023 Peak Hour Volumes



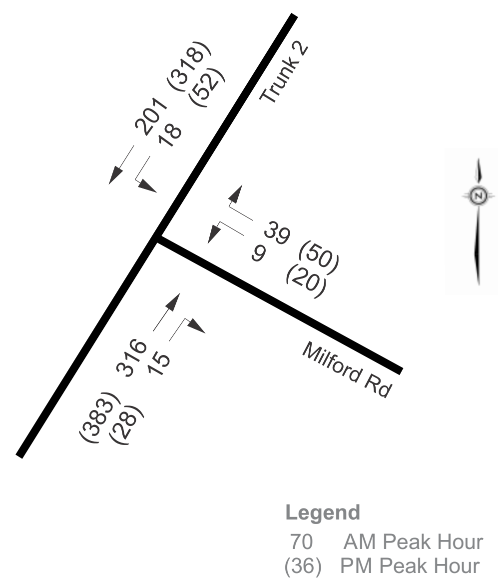
2033 Growth - Peak Hour Volumes



2043 Growth - Peak Hour Volumes

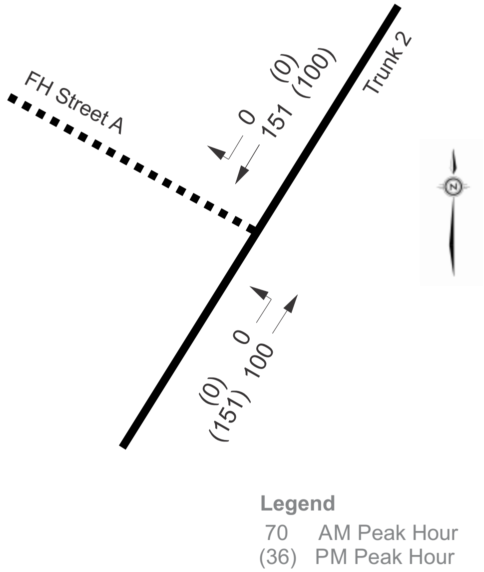


Unconstrained Growth - Peak Hour Volumes

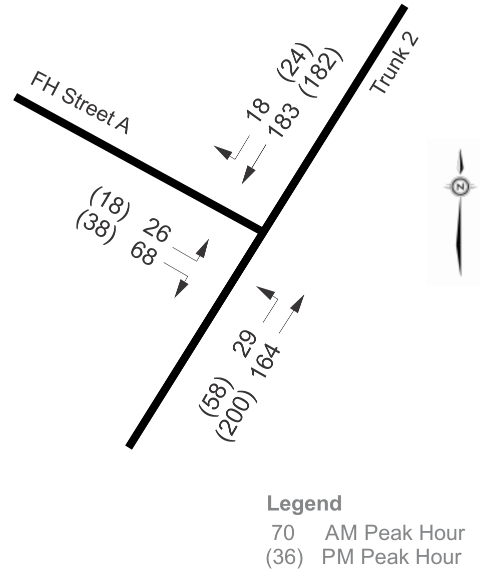


#2 - Trunk 2 / FH Street A

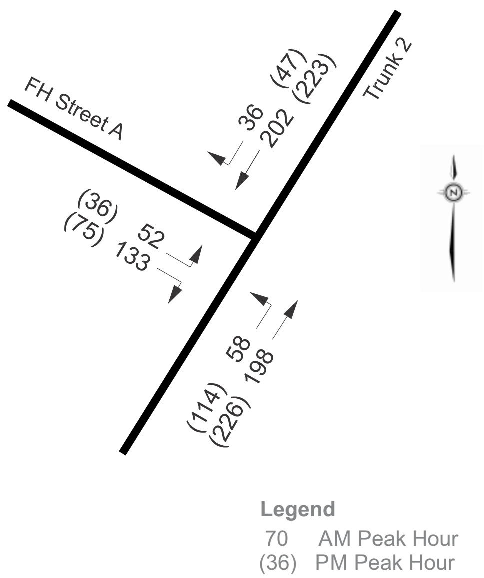
June 2023 Peak Hour Volumes



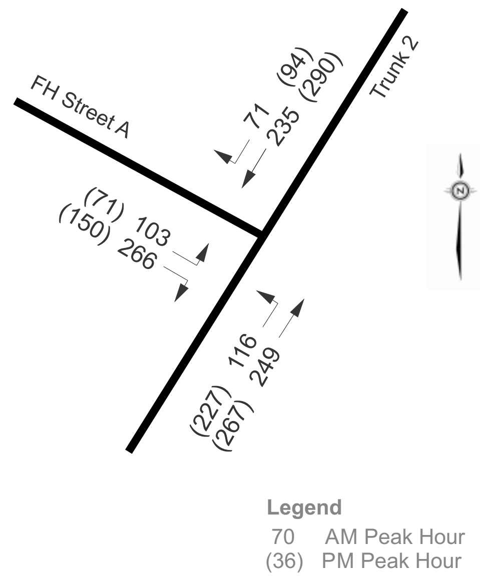
2033 Growth - Peak Hour Volumes



2043 Growth - Peak Hour Volumes

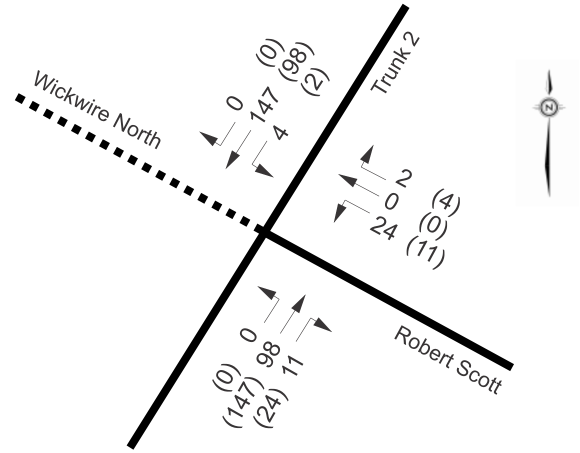


Unconstrained Growth - Peak Hour Volumes



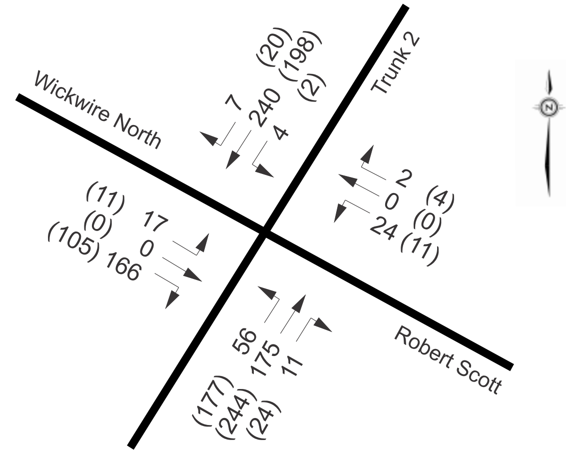
#3 - Trunk 2 / Robert Scott-Wickwire North

June 2023 Peak Hour Volumes



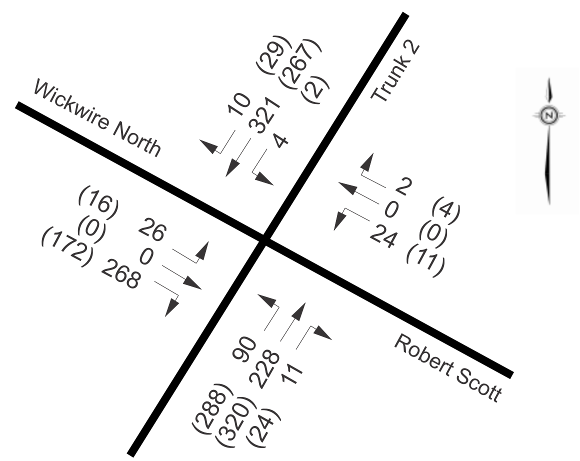
Legend
70 AM Peak Hour
(36) PM Peak Hour

2033 Growth - Peak Hour Volumes



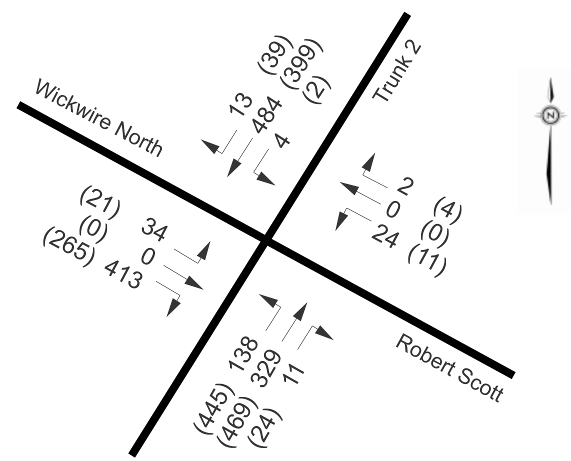
Legend
70 AM Peak Hour
(36) PM Peak Hour

2043 Growth - Peak Hour Volumes



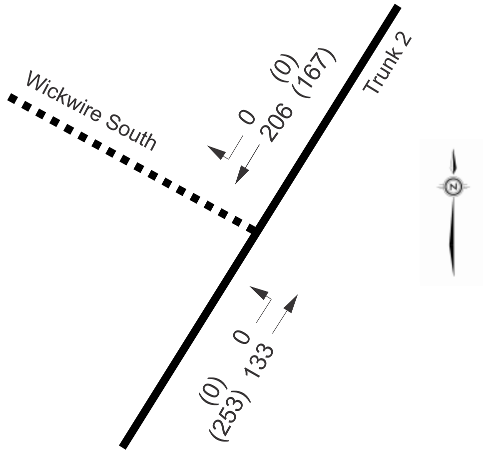
Legend
70 AM Peak Hour
(36) PM Peak Hour

Unconstrained Growth - Peak Hour Volumes



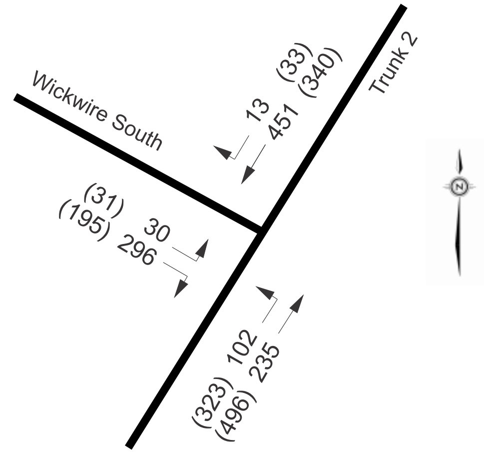
Legend
70 AM Peak Hour
(36) PM Peak Hour

June 2023 Peak Hour Volumes



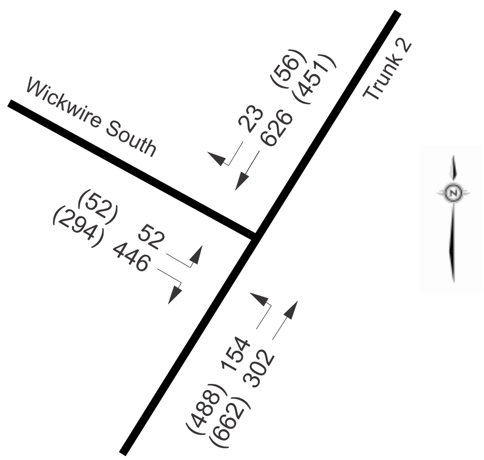
Legend
70 AM Peak Hour
(36) PM Peak Hour

2033 Growth - Peak Hour Volumes



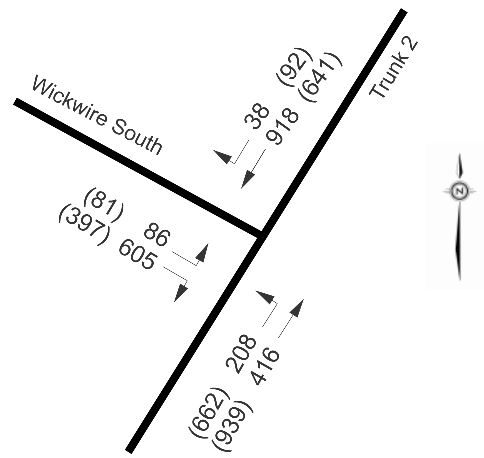
Legend
70 AM Peak Hour
(36) PM Peak Hour

2043 Growth - Peak Hour Volumes



Legend
70 AM Peak Hour
(36) PM Peak Hour

Unconstrained Growth - Peak Hour Volumes

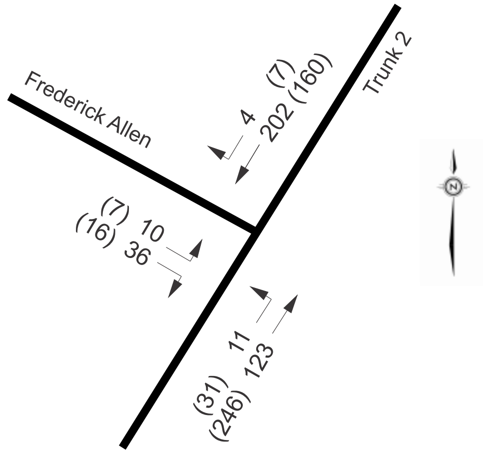


Legend
70 AM Peak Hour
(36) PM Peak Hour

#4 - Trunk 2 / Wickwire South St

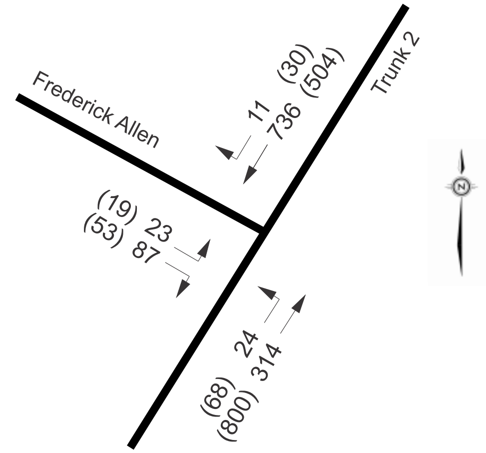
#5 - Trunk 2 / Frederick Allen Dr

June 2023 Peak Hour Volumes



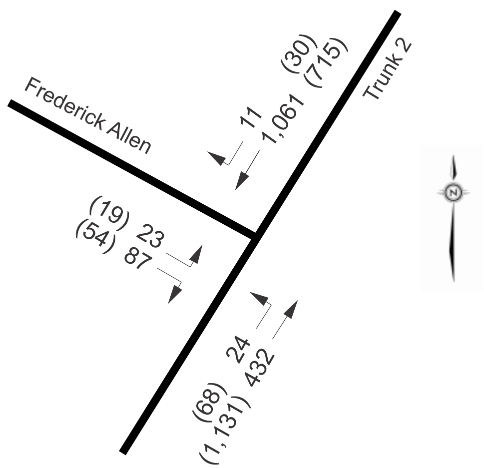
Legend
70 AM Peak Hour
(36) PM Peak Hour

2033 Growth - Peak Hour Volumes



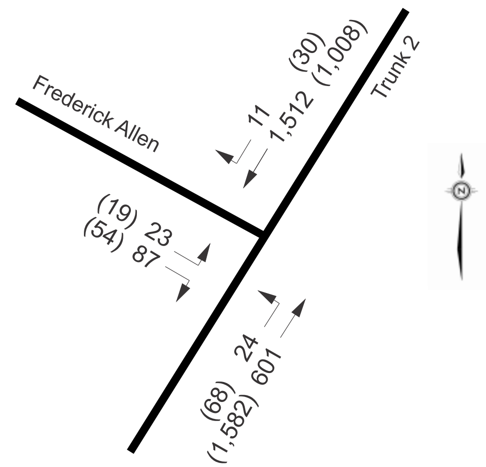
Legend
70 AM Peak Hour
(36) PM Peak Hour

2043 Growth - Peak Hour Volumes



Legend
70 AM Peak Hour
(36) PM Peak Hour

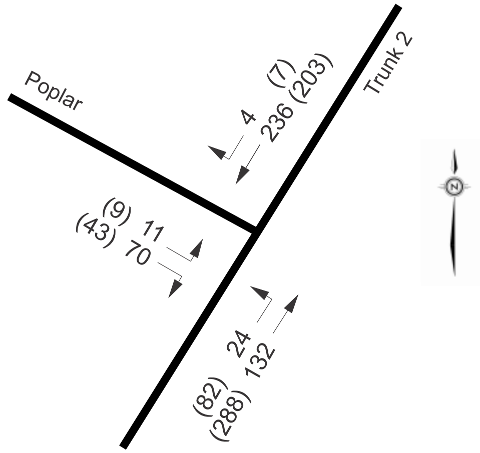
Unconstrained Growth - Peak Hour Volumes



Legend
70 AM Peak Hour
(36) PM Peak Hour

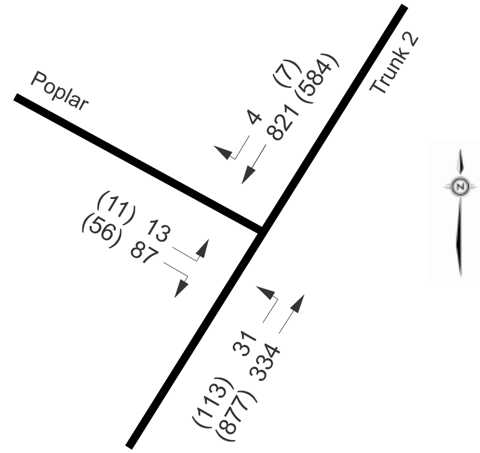
#6 - Trunk 2 / Poplar Dr

June 2023 Peak Hour Volumes



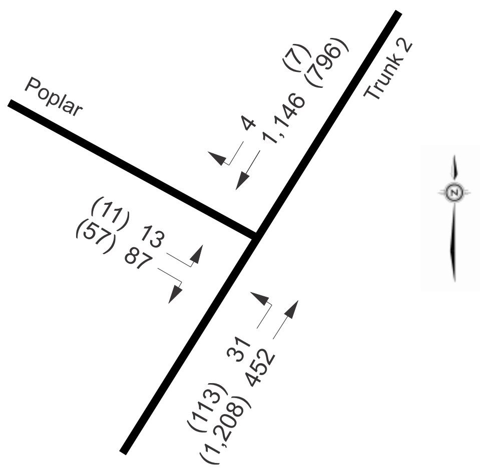
Legend
70 AM Peak Hour
(36) PM Peak Hour

2033 Growth - Peak Hour Volumes



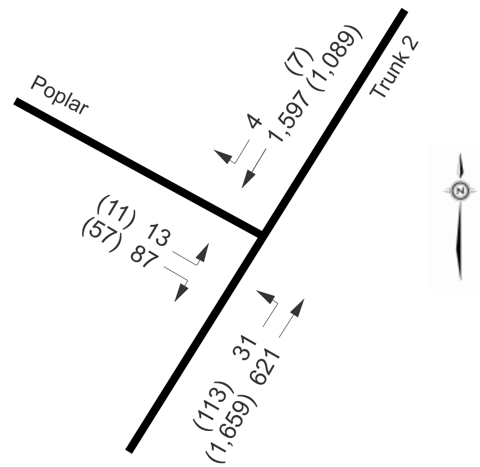
Legend
70 AM Peak Hour
(36) PM Peak Hour

2043 Growth - Peak Hour Volumes



Legend
70 AM Peak Hour
(36) PM Peak Hour

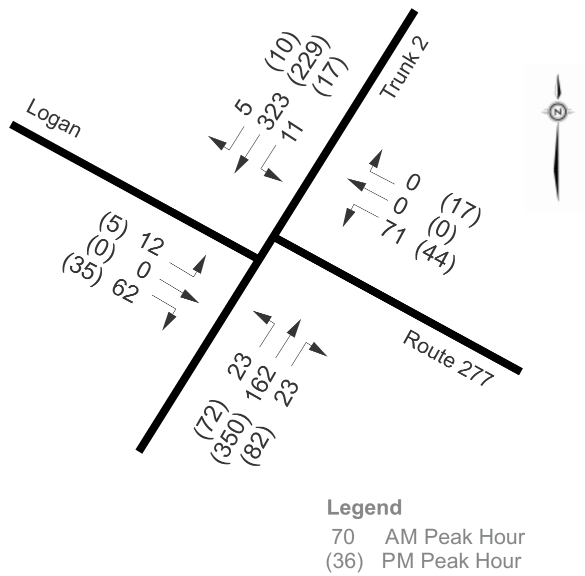
Unconstrained Growth - Peak Hour Volumes



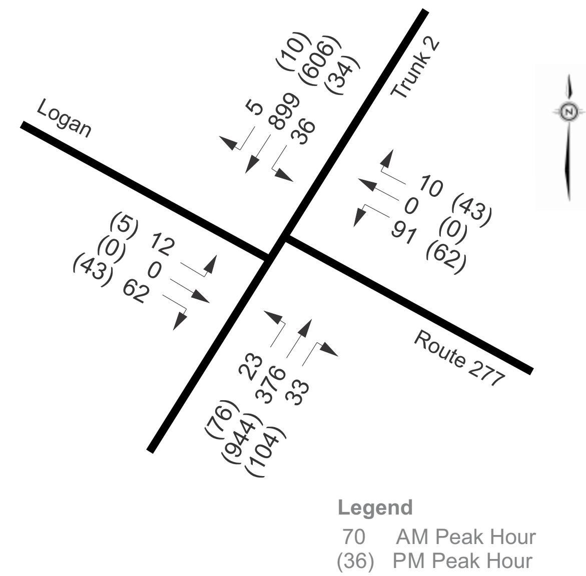
Legend
70 AM Peak Hour
(36) PM Peak Hour

#7 - Trunk 2 / Route 277-Logan

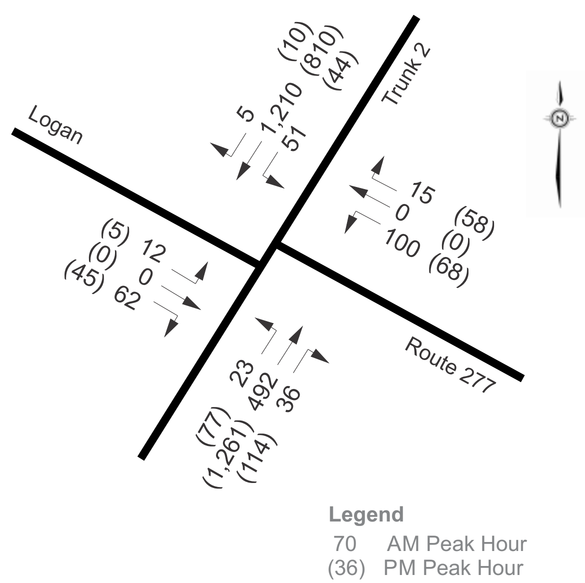
June 2023 Peak Hour Volumes



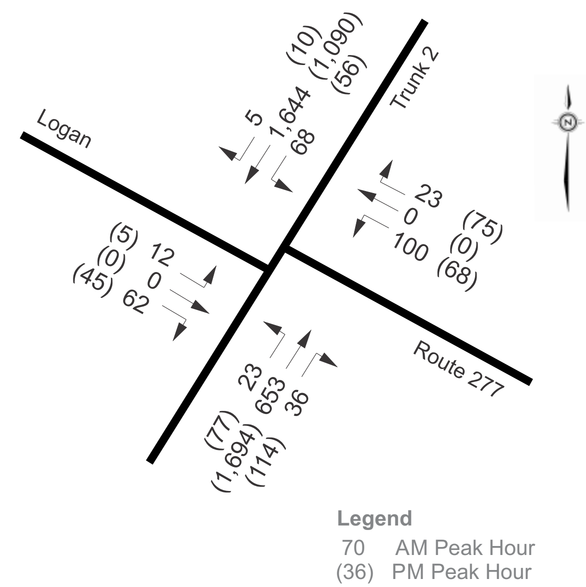
2033 Growth - Peak Hour Volumes



2043 Growth - Peak Hour Volumes

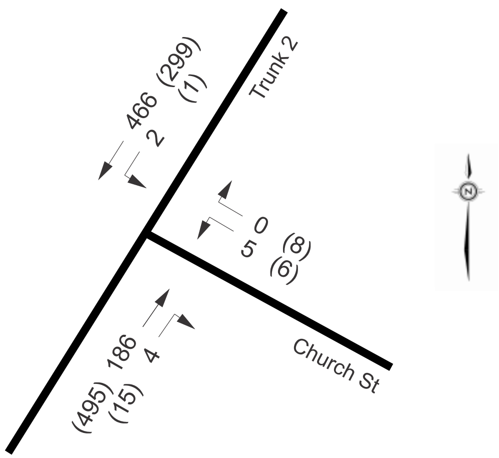


Unconstrained Growth - Peak Hour Volumes



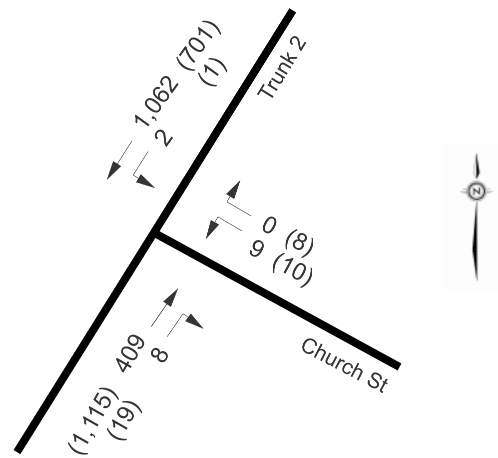
#8 - Trunk 2 / Church St

June 2023 Peak Hour Volumes



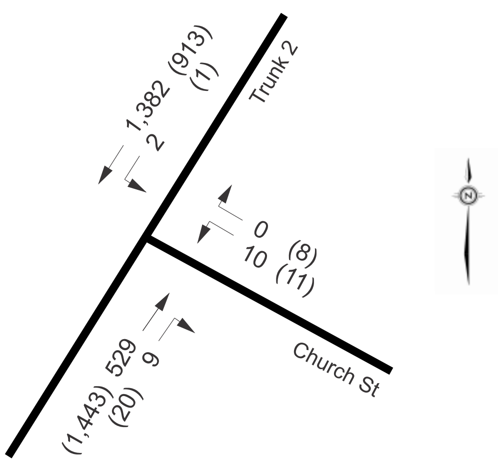
Legend
70 AM Peak Hour
(36) PM Peak Hour

2033 Growth - Peak Hour Volumes



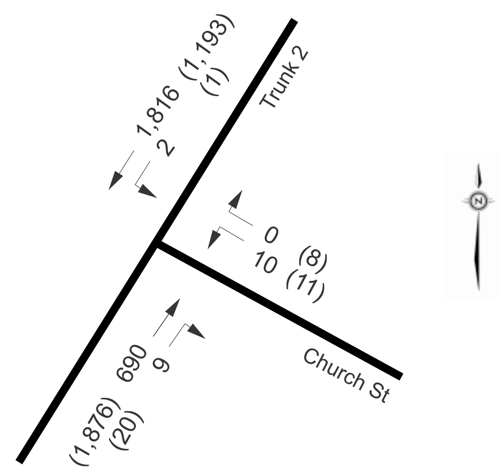
Legend
70 AM Peak Hour
(36) PM Peak Hour

2043 Growth - Peak Hour Volumes



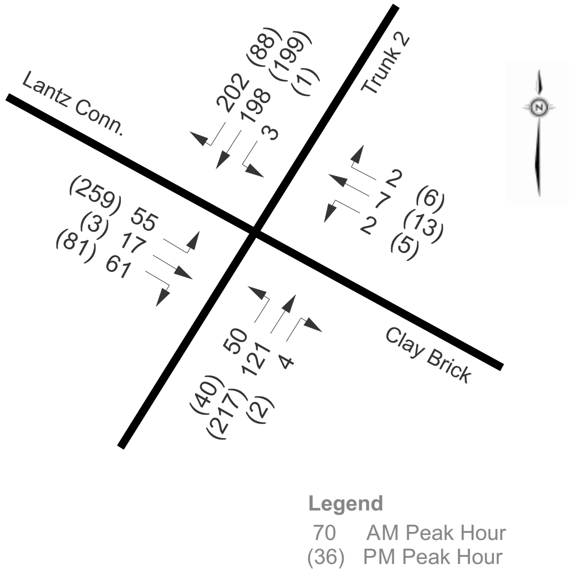
Legend
70 AM Peak Hour
(36) PM Peak Hour

Unconstrained Growth - Peak Hour Volumes

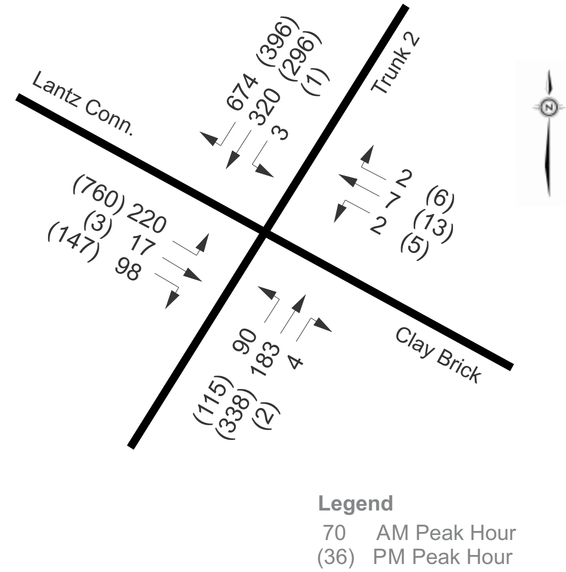


Legend
70 AM Peak Hour
(36) PM Peak Hour

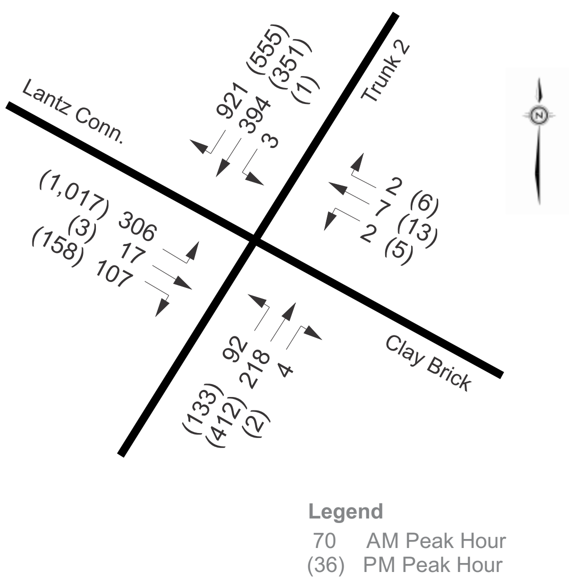
June 2023 Peak Hour Volumes



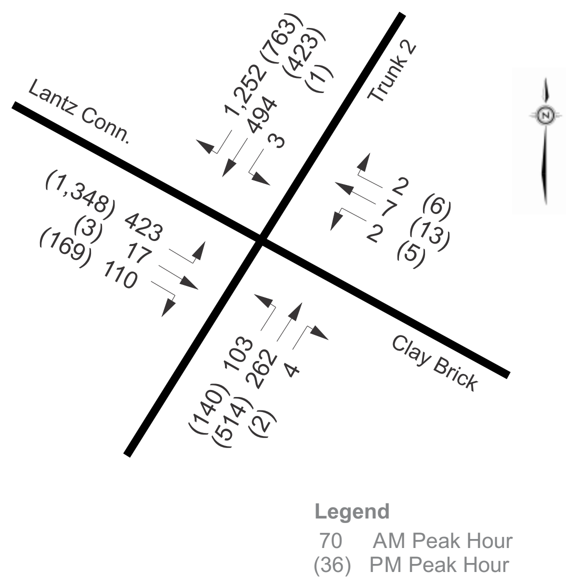
2033 Growth - Peak Hour Volumes



2043 Growth - Peak Hour Volumes



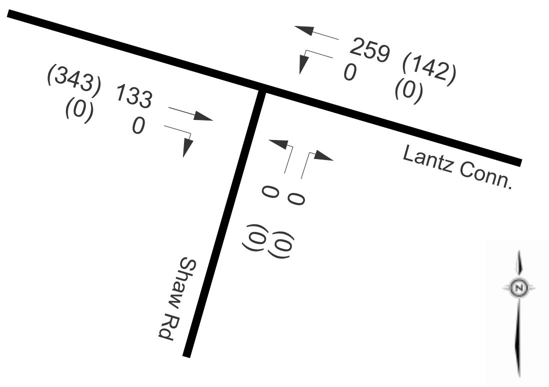
Unconstrained Growth - Peak Hour Volumes



#9 - Trunk 2 / Lantz Connector Rd

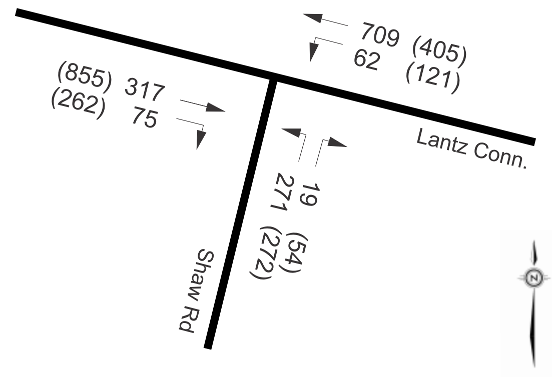
#10 - Lantz Conn. / Shaw Dr

June 2023 Peak Hour Volumes



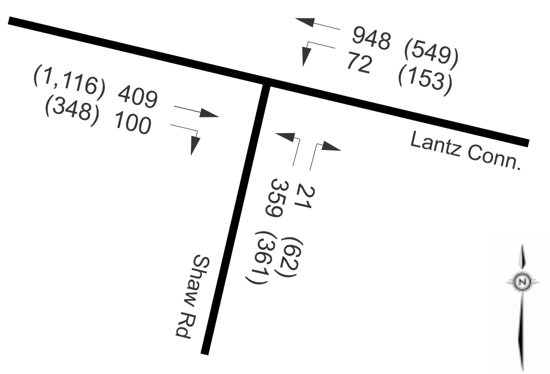
Legend
70 AM Peak Hour
(36) PM Peak Hour

2033 Growth - Peak Hour Volumes



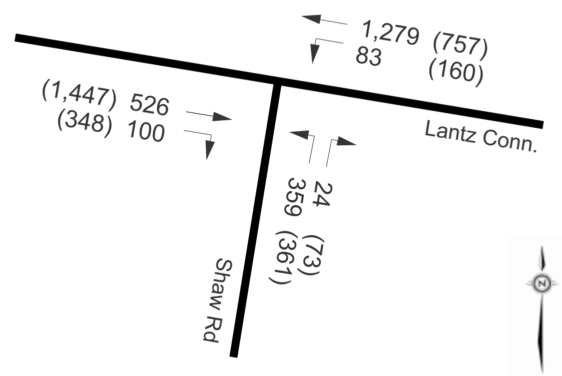
Legend
70 AM Peak Hour
(36) PM Peak Hour

2043 Growth - Peak Hour Volumes



Legend
70 AM Peak Hour
(36) PM Peak Hour

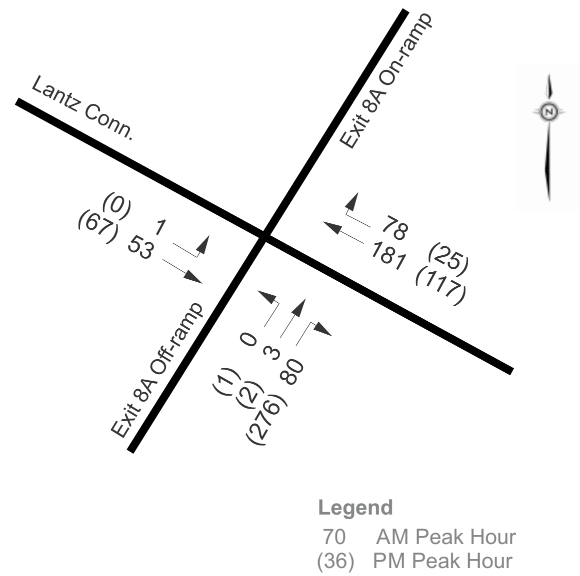
Unconstrained Growth - Peak Hour Volumes



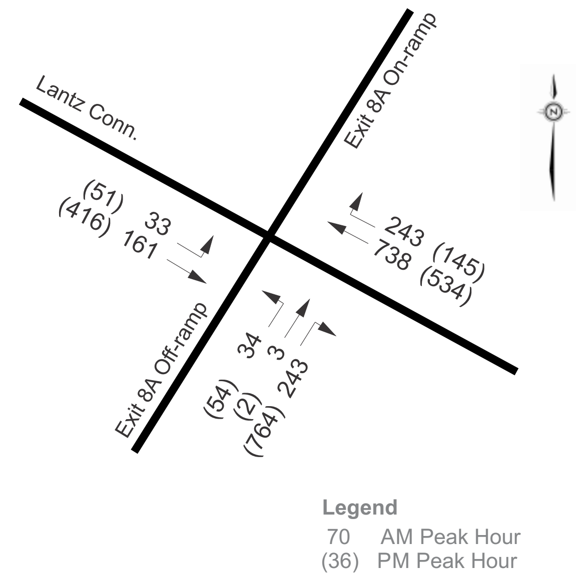
Legend
70 AM Peak Hour
(36) PM Peak Hour

#11 - Lantz Conn. / Exit 8A NB Ramps

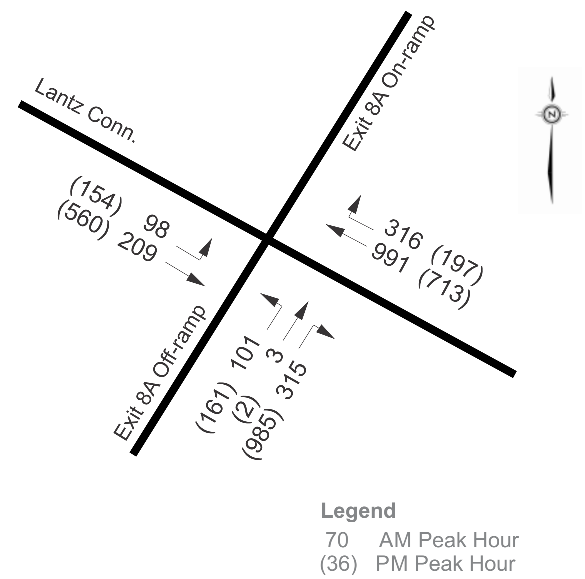
June 2023 Peak Hour Volumes



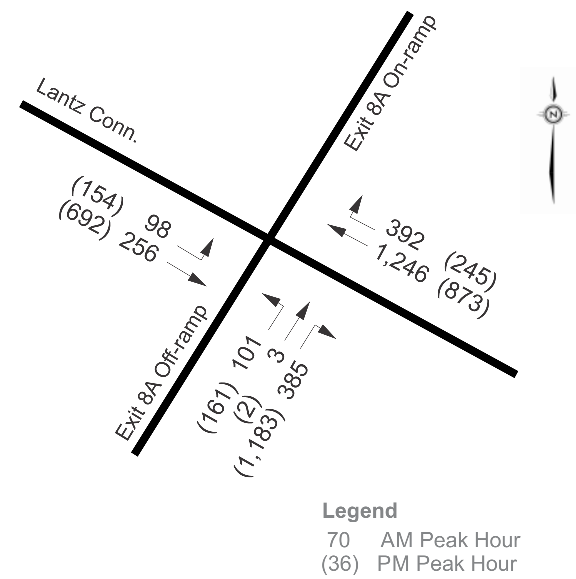
2033 Growth - Peak Hour Volumes



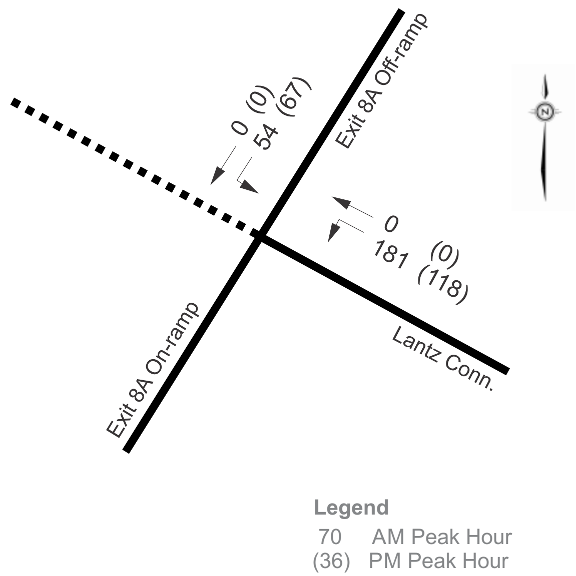
2043 Growth - Peak Hour Volumes



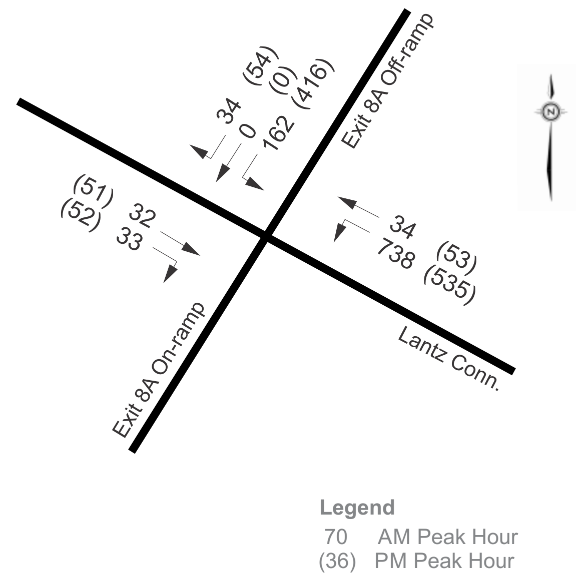
Unconstrained Growth - Peak Hour Volumes



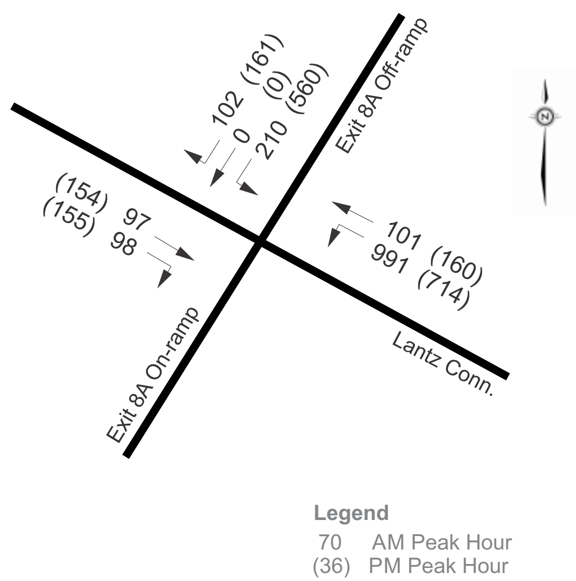
June 2023 Peak Hour Volumes



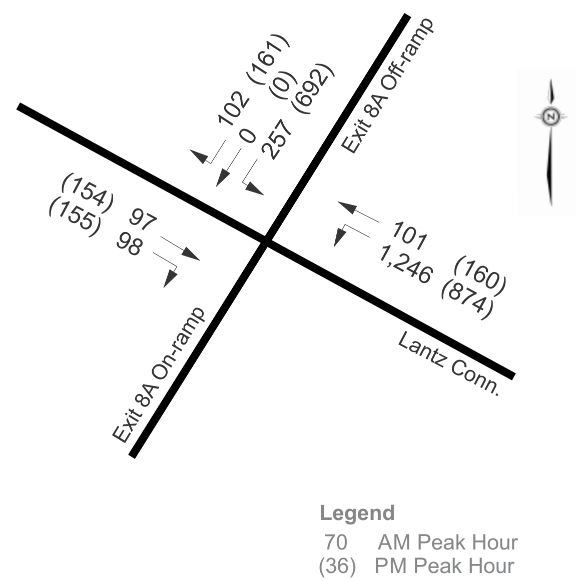
2033 Growth - Peak Hour Volumes



2043 Growth - Peak Hour Volumes

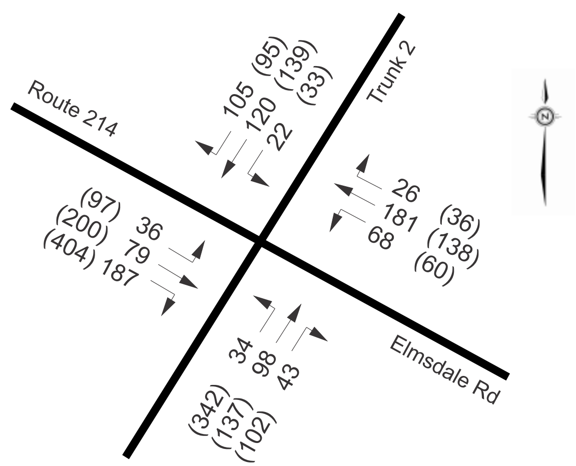


Unconstrained Growth - Peak Hour Volumes



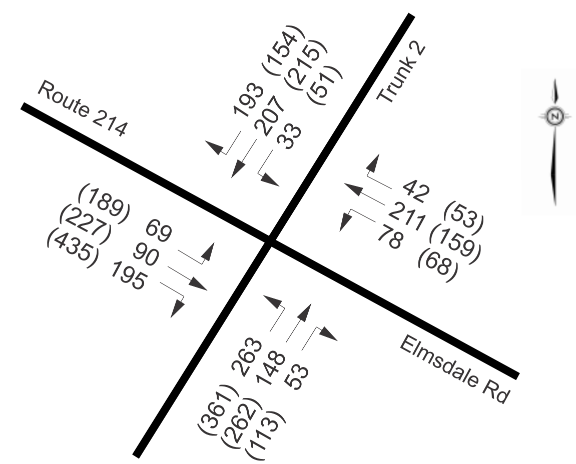
#12 - Lantz Conn. / Exit 8A SB Ramps

June 2023 Peak Hour Volumes



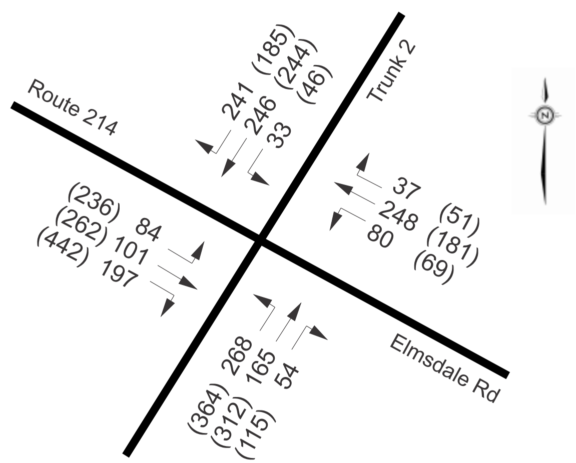
Legend
70 AM Peak Hour
(36) PM Peak Hour

2033 Growth - Peak Hour Volumes



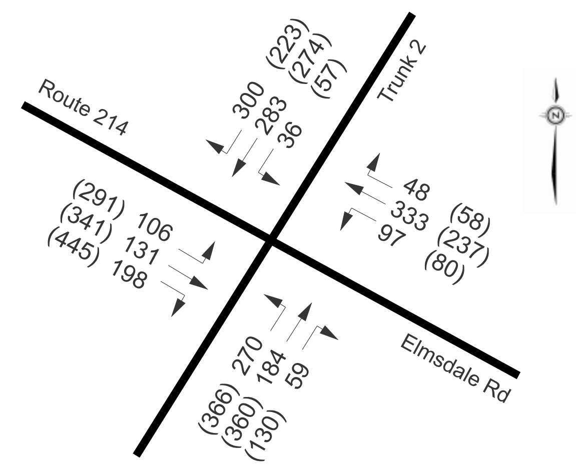
Legend
70 AM Peak Hour
(36) PM Peak Hour

2043 Growth - Peak Hour Volumes



Legend
70 AM Peak Hour
(36) PM Peak Hour

Unconstrained Growth - Peak Hour Volumes

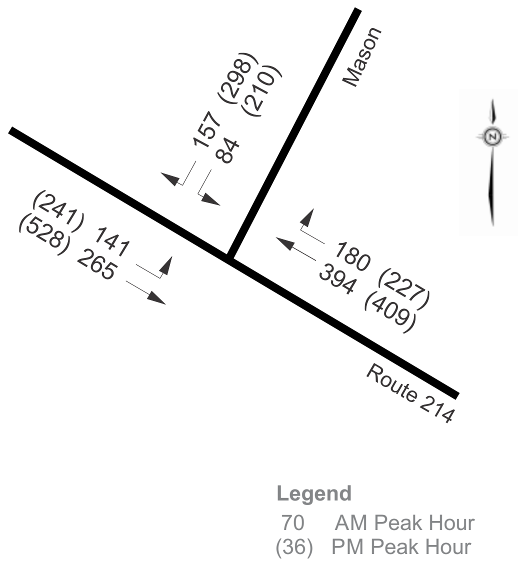


Legend
70 AM Peak Hour
(36) PM Peak Hour

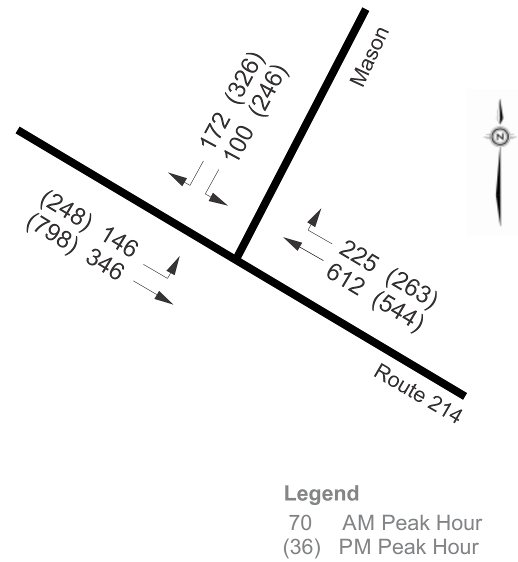
#13 - Trunk 2 / Route 214-ElmsdaleRd

#14 - Route 214 / Mason Dr

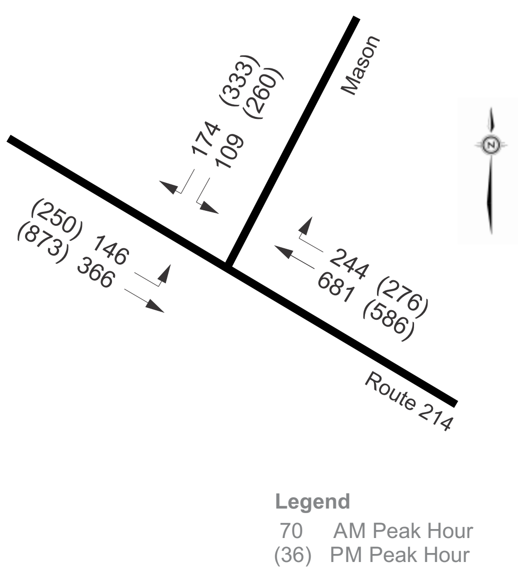
June 2023 Peak Hour Volumes



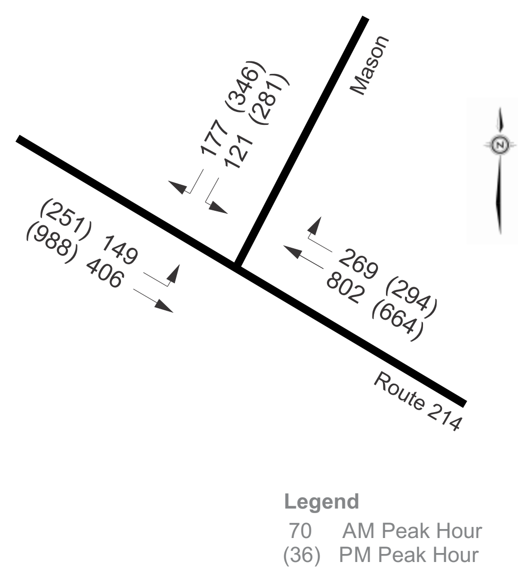
2033 Growth - Peak Hour Volumes



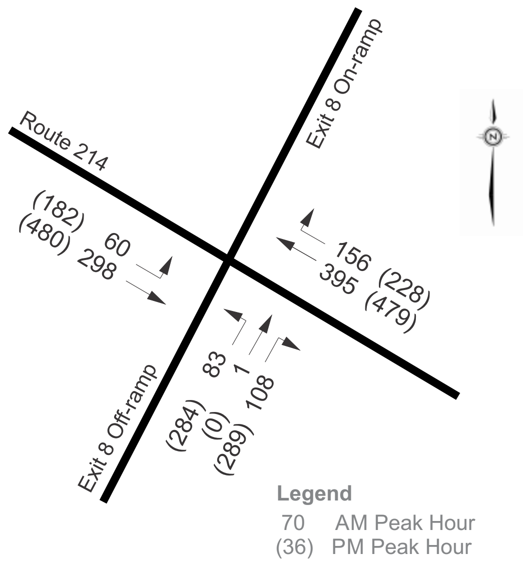
2043 Growth - Peak Hour Volumes



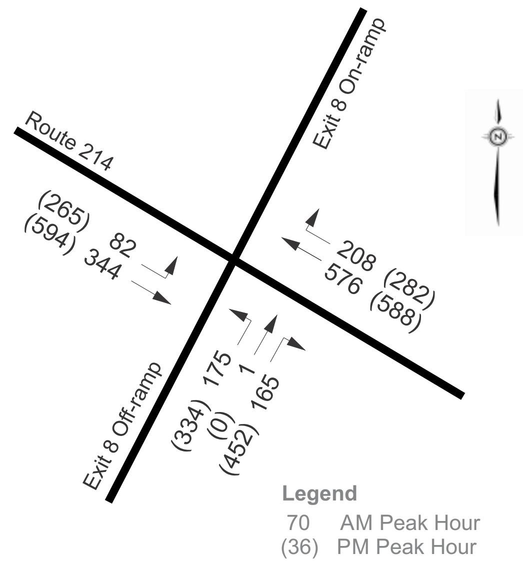
Unconstrained Growth - Peak Hour Volumes



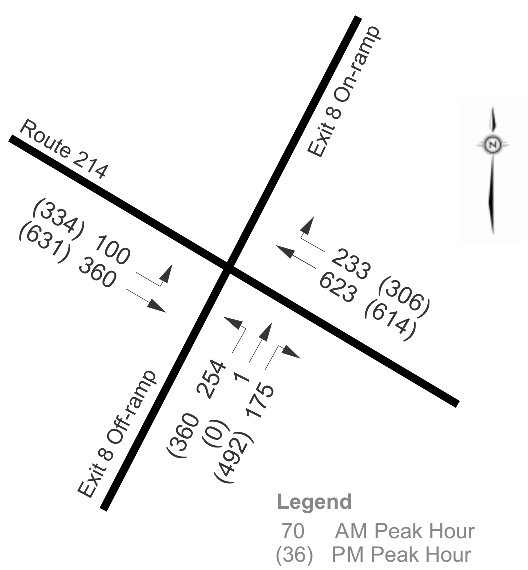
June 2023 Peak Hour Volumes



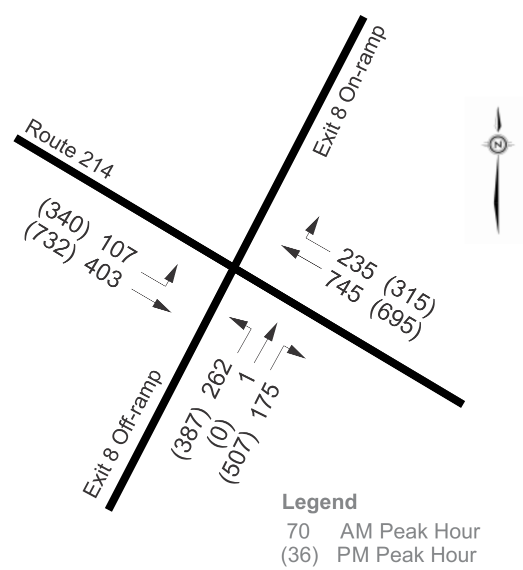
2033 Growth - Peak Hour Volumes



2043 Growth - Peak Hour Volumes



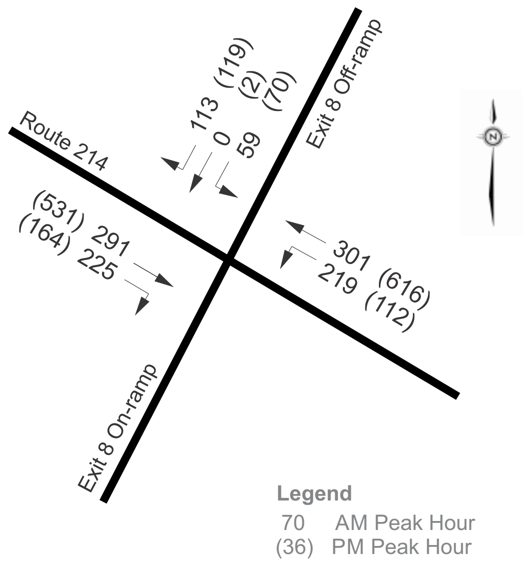
Unconstrained Growth - Peak Hour Volumes



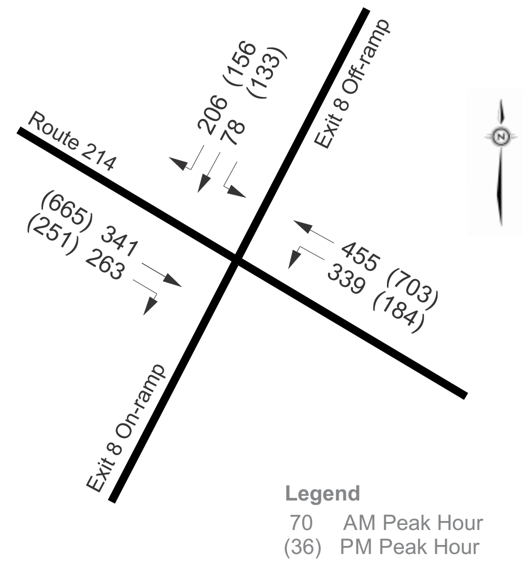
#15 - Route 214 / Exit 8 NB Ramps

#16 - Route 214 / Exit 8 SB Ramps

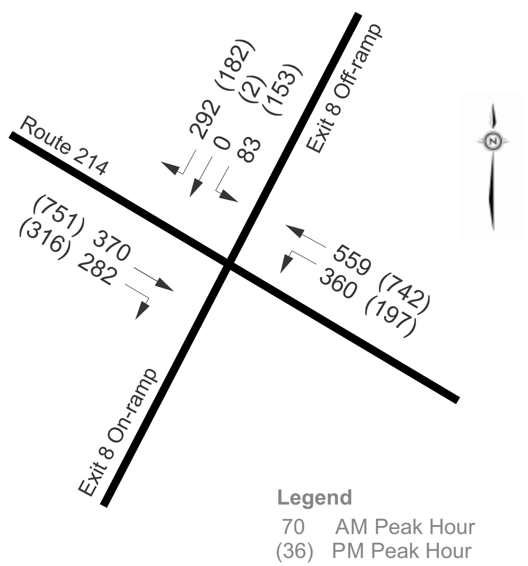
June 2023 Peak Hour Volumes



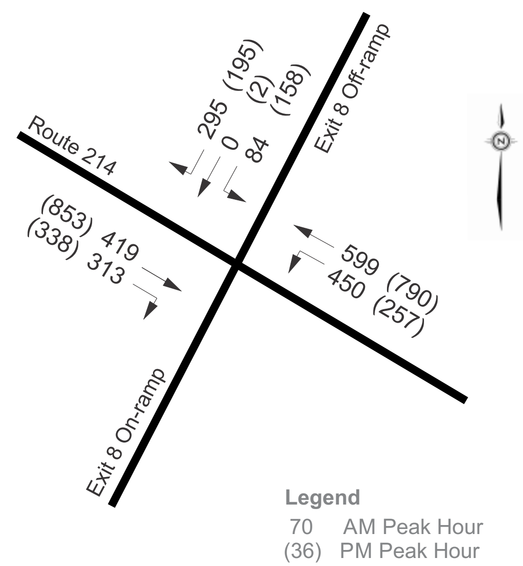
2033 Growth - Peak Hour Volumes



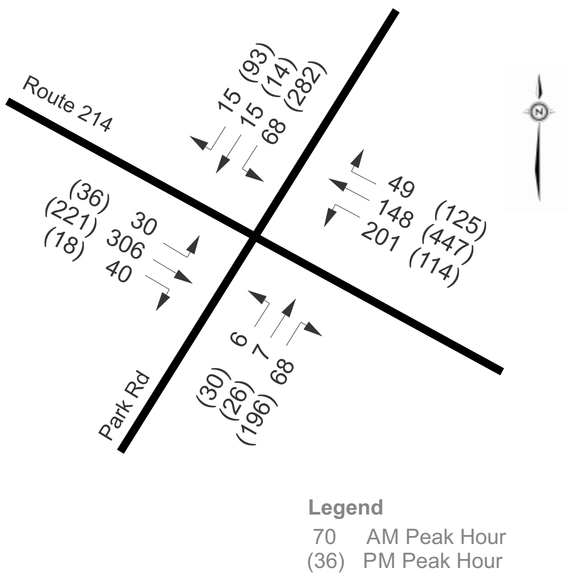
2043 Growth - Peak Hour Volumes



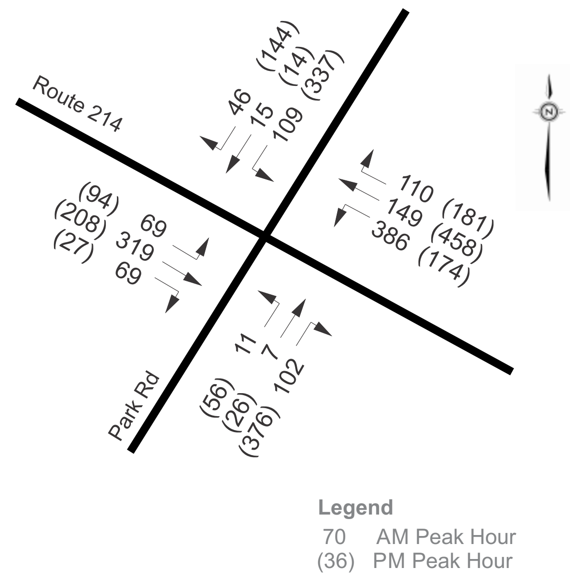
Unconstrained Growth - Peak Hour Volumes



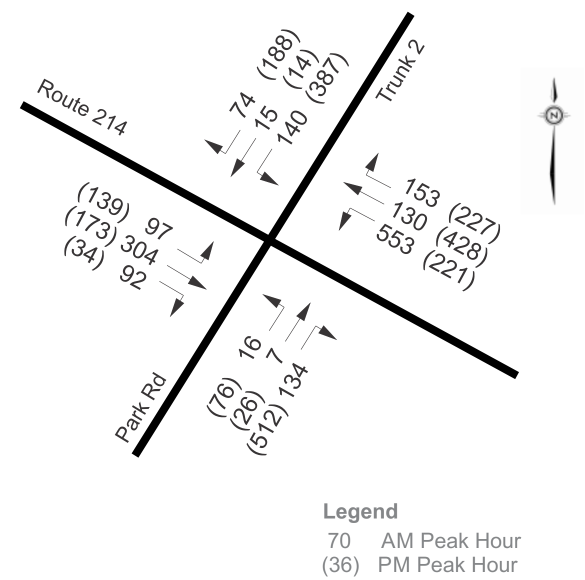
June 2023 Peak Hour Volumes



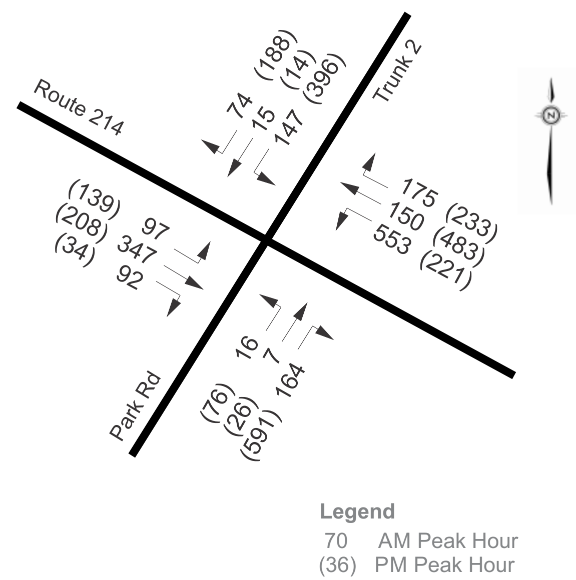
2033 Growth - Peak Hour Volumes



2043 Growth - Peak Hour Volumes

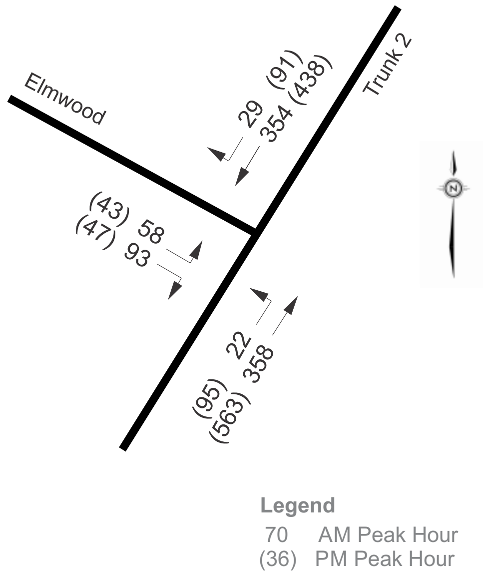


Unconstrained Growth - Peak Hour Volumes

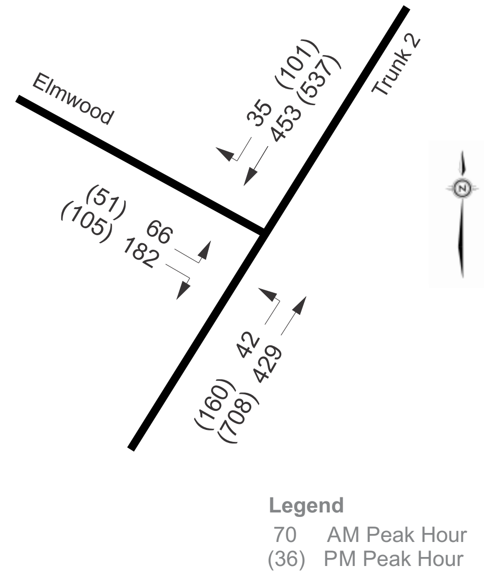


#17 - Routre 214 / Park Road

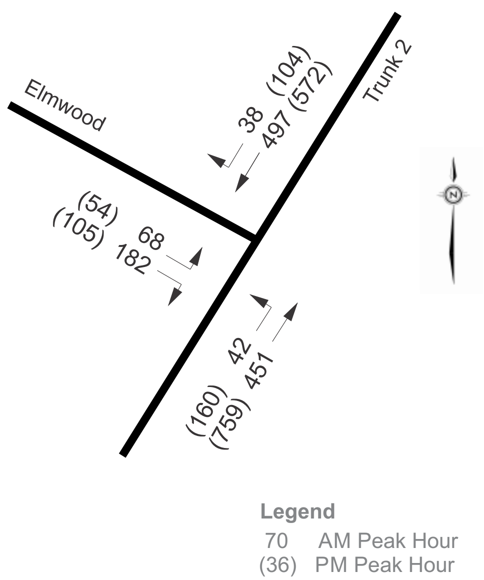
June 2023 Peak Hour Volumes



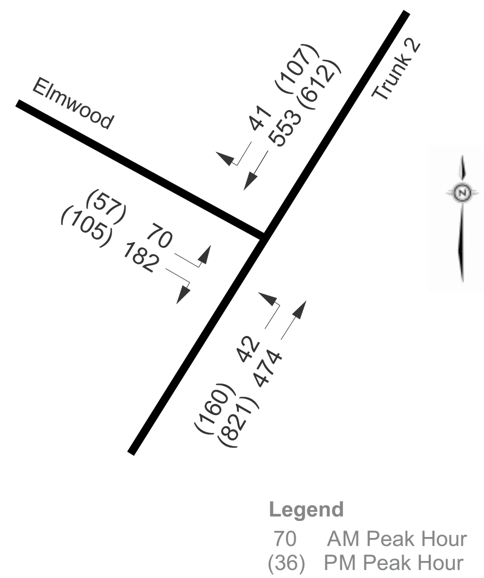
2033 Growth - Peak Hour Volumes



2043 Growth - Peak Hour Volumes

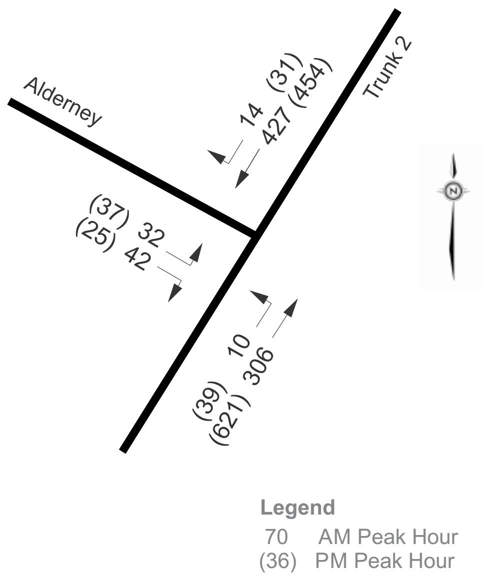


Unconstrained Growth - Peak Hour Volumes

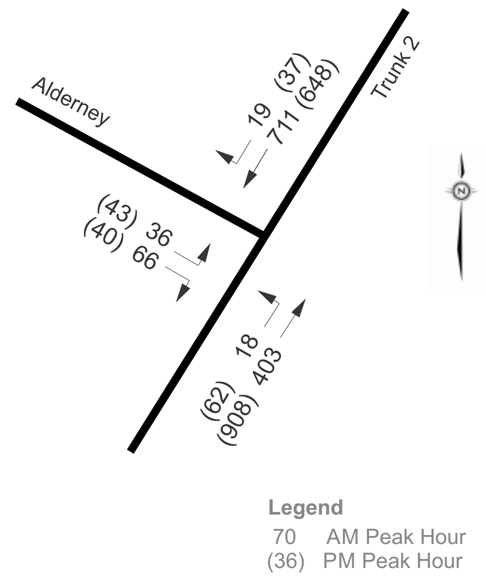


#18 - Trunk 2 / Elmwood Dr

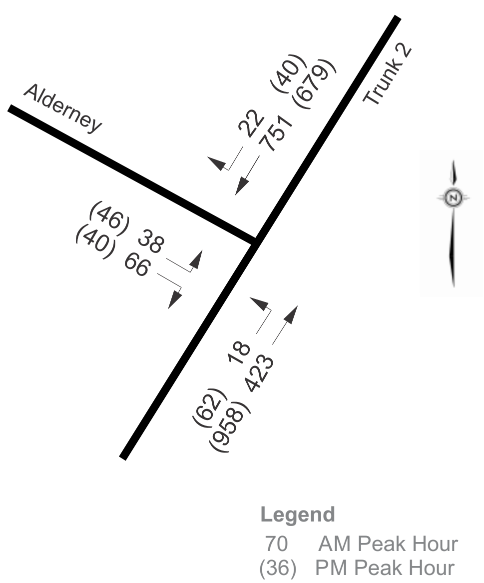
June 2023 Peak Hour Volumes



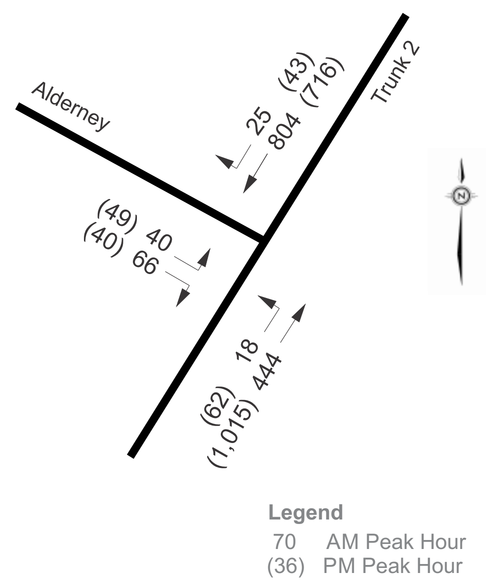
2033 Growth - Peak Hour Volumes



2043 Growth - Peak Hour Volumes



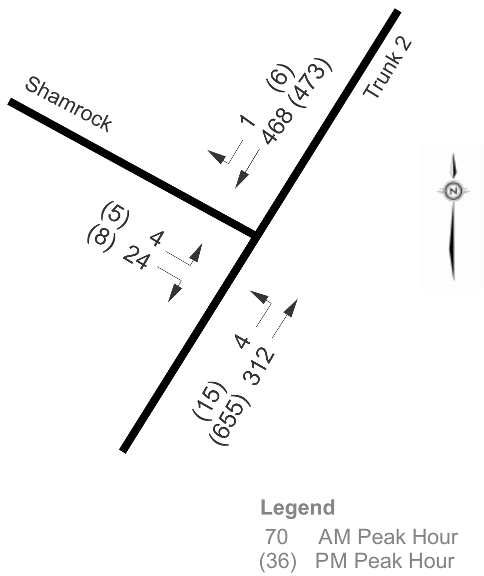
Unconstrained Growth - Peak Hour Volumes



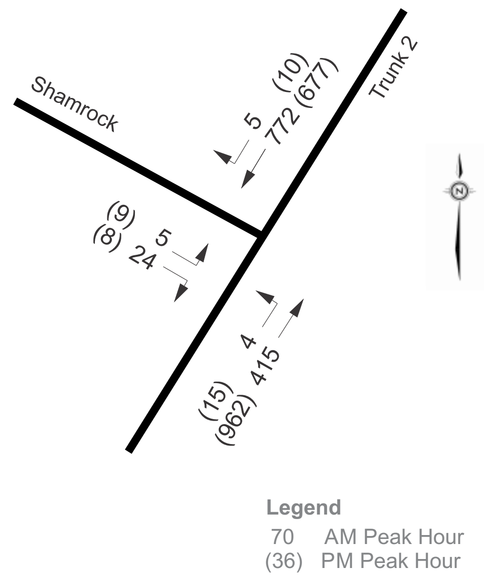
#19 - Trunk 2 / Alderney Dr

#20 - Trunk 2 / Shamrock

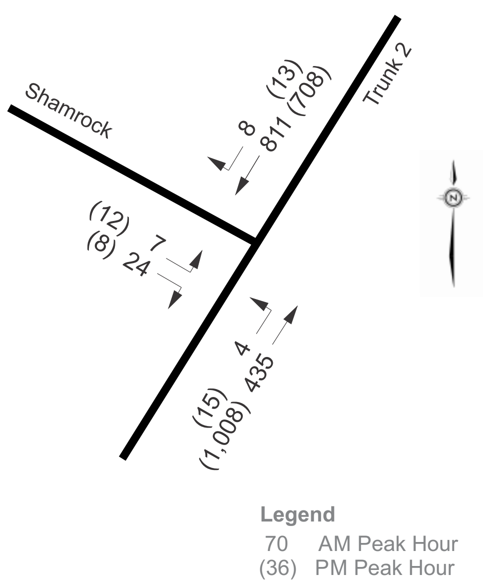
June 2023 Peak Hour Volumes



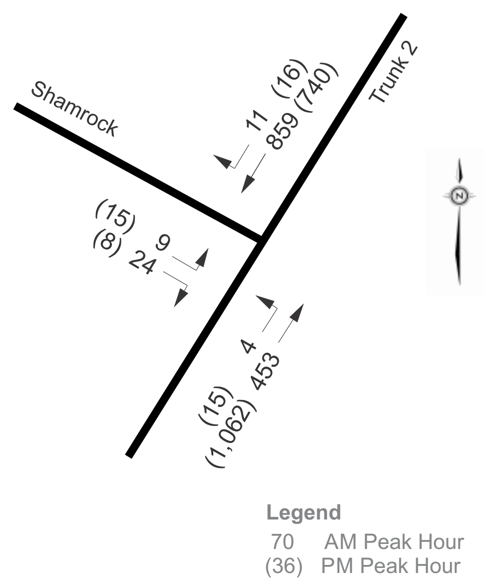
2033 Growth - Peak Hour Volumes



2043 Growth - Peak Hour Volumes

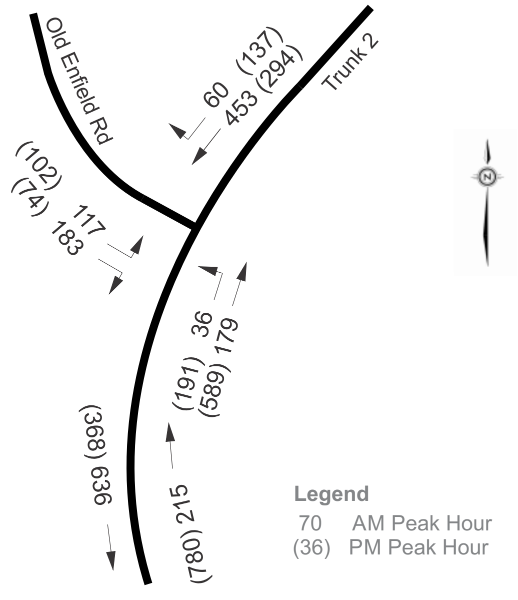


Unconstrained Growth - Peak Hour Volumes

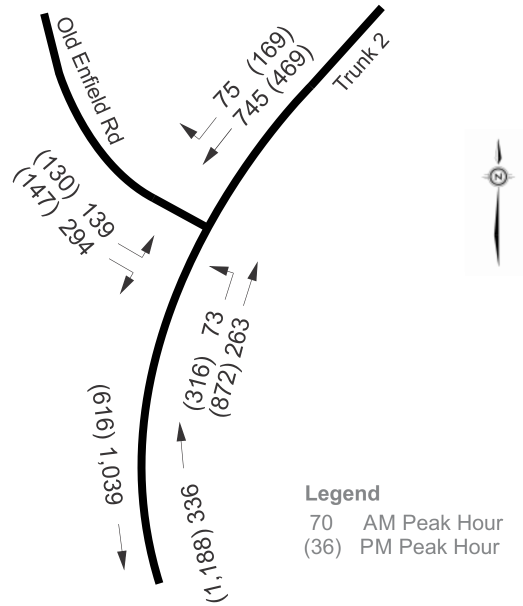


#21 - Trunk 2 / Old Enfield Rd

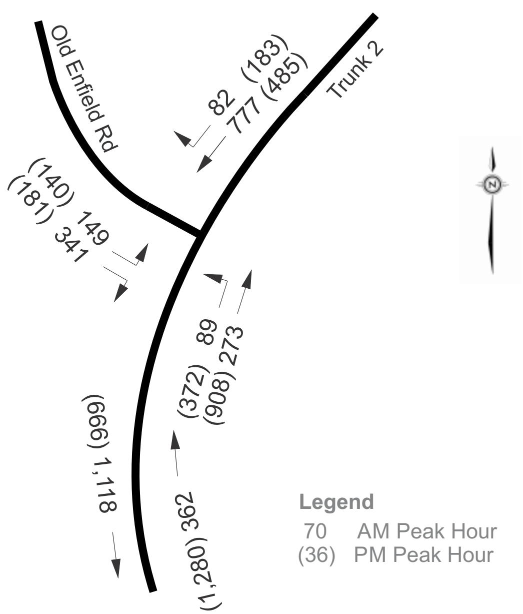
June 2023 Peak Hour Volumes



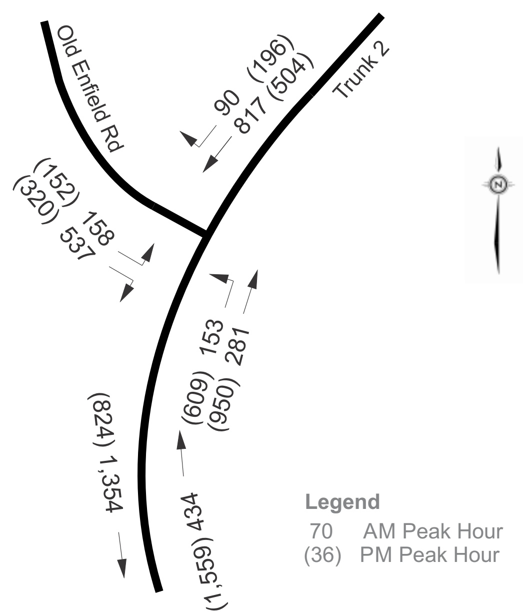
2033 Growth - Peak Hour Volumes



2043 Growth - Peak Hour Volumes



Unconstrained Growth - Peak Hour Volumes



Appendix IV

TAC Traffic Signal Warrant Results

Traffic Signal Warrant Results - Option 1 Road Network
Existing Stop-controlled intersections only

				Option 1 - Existing Roads	
				Equilibrium Assignment	
Community	**No.**	**Main Road**	**Secondary Road**	**2033**	**2043**
Lantz	1	Trunk 2	Milford Rd	24	25
	2	Trunk 2	FH Street A	20	43
	3	Trunk 2	Wickwire North	38	76
	4	Trunk 2	Wickwire South	131	266
	5	Trunk 2	Frederick Allen	67	94
	6	Trunk 2	Poplar	72	98
	7	Trunk 2	Rte 277 / Logan	128	194
	8	Trunk 2	Church	27	36
	9	Trunk 2	Lantz Connector	*Roundabout*	*Roundabout*
	10	Lantz Connector	Shaw Dr	*Roundabout*	*Roundabout*
	11	Lantz Connector	Hwy 102 NB Ramps	*Roundabout*	*Roundabout*
	12	Lantz Connector	Hwy 102 SB Ramps	*Roundabout*	*Roundabout*
Elmsdale	13	Route 214	Trunk 2	*Signals*	*Signals*
	14	Route 214	Mason Dr	*Signals*	*Signals*
	15	Route 214	Hwy 102 NB Ramps	*Signals*	*Signals*
	16	Route 214	Hwy 102 SB Ramps	244	266
	17	Route 214	Park Rd	*Signals*	*Signals*
Enfield	18	Trunk 2	Elmwood	124	135
	19	Trunk 2	Alderney	83	89
	20	Trunk 2	Shamrock	33	37
	21	Trunk 2	Old Enfield Rd	272	323

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2		Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Milford Road		Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Lantz 1	Comments	2033 Volumes Road Scenario 1 Existing Rd Layout		Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET				Count Date:	June 2023
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB					1		2,000	1
Trunk 2	SB		1					2,000	1
Milford Road	WB				1				
Milford Road	EB								

Are the Milford Road WB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Milford Road	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	0	275	20	24	194	0	12	0	52	0	0	0	5	5	5	5
8:00 - 9:00	0	207	15	18	146	0	9	0	39	0	0	0	5	5	5	5
12:00 - 13:00	0	213	20	36	146	0	14	0	35	0	0	0	5	5	5	5
13:00 - 14:00	0	229	21	39	157	0	15	0	38	0	0	0	5	5	5	5
16:00 - 17:00	0	305	28	52	209	0	20	0	50	0	0	0	5	5	5	5
17:00 - 18:00	0	286	26	49	196	0	19	0	47	0	0	0	5	5	5	5
Total (6-hour peak)	**0**	**1,515**	**130**	**218**	**1,048**	**0**	**89**	**0**	**261**	**0**	**0**	**0**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**0**	**253**	**22**	**36**	**175**	**0**	**15**	**0**	**44**	**0**	**0**	**0**	**5**	**5**	**5**	**5**

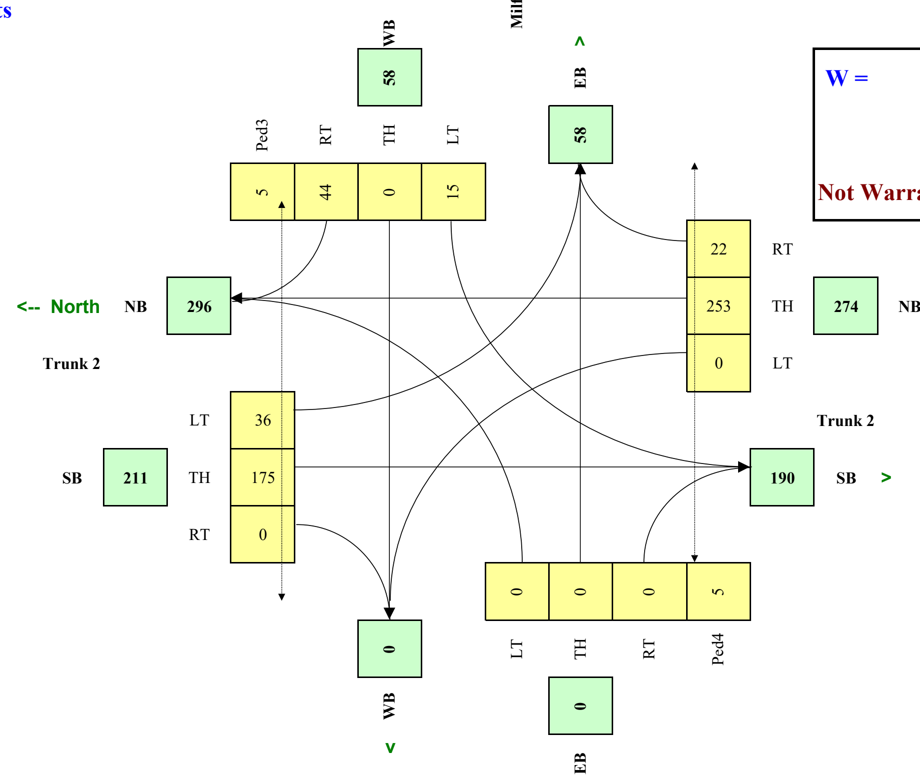
Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v-v}) / K_1 + (F\ (X_{v-p})\ L) / K_2] \times C_i$$

W =	24	18	6
		Veh	*Ped*

Not Warranted - Vs<75

RESET SHEET



Traffic Signal Warrant Spreadsheet - v3H © 2007 Transportation Association of Canada

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Milford Road	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Lantz 1	Comments	2043 Volumes Road Scenario 1 Existing Rd Layout	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB					1		2,000	1
Trunk 2	SB		1					2,000	1
Milford Road	WB				1				
Milford Road	EB								

Are the Milford Road WB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

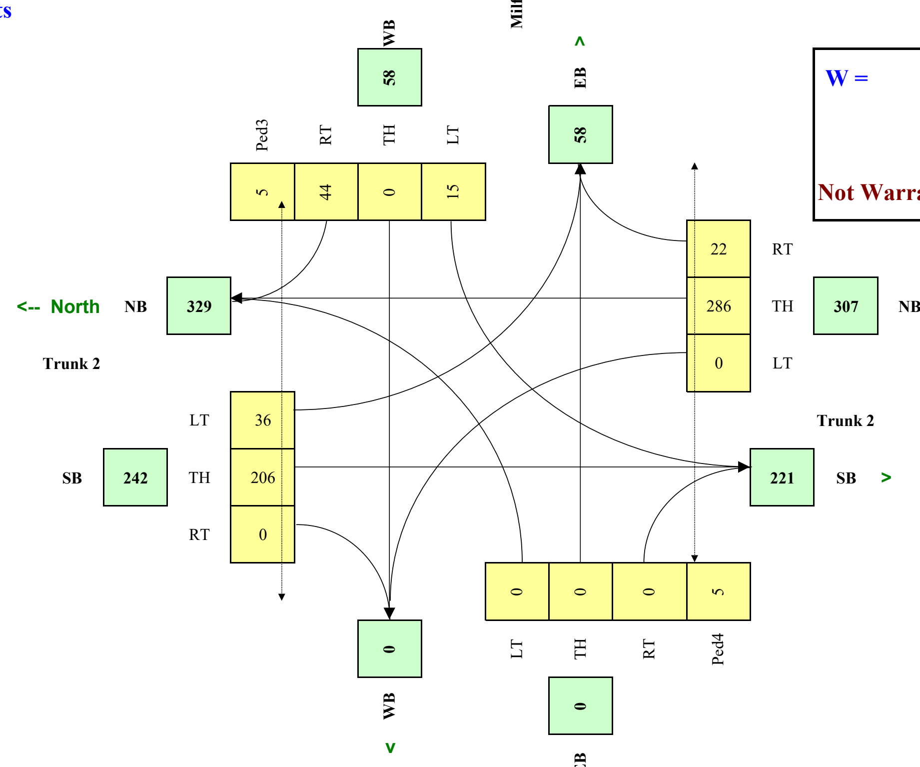
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Milford Road	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	0	330	20	24	220	0	12	0	52	0	0	0	5	5	5	5
8:00 - 9:00	0	249	15	18	166	0	9	0	39	0	0	0	5	5	5	5
12:00 - 13:00	0	234	20	36	175	0	14	0	35	0	0	0	5	5	5	5
13:00 - 14:00	0	251	21	39	188	0	15	0	38	0	0	0	5	5	5	5
16:00 - 17:00	0	335	28	52	251	0	20	0	50	0	0	0	5	5	5	5
17:00 - 18:00	0	314	26	49	235	0	19	0	47	0	0	0	5	5	5	5
Total (6-hour peak)	**0**	**1,713**	**130**	**218**	**1,235**	**0**	**89**	**0**	**261**	**0**	**0**	**0**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**0**	**286**	**22**	**36**	**206**	**0**	**15**	**0**	**44**	**0**	**0**	**0**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v-v}) / K_1 + (F (X_{v-p}) L) / K_2] \times C_i$$



W =	27	21	6
		Veh	Ped

Not Warranted - Vs<75

RESET SHEET

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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	**Trunk 2**	**Direction (EW or NS)**	**NS**		**Road Authority:**	**NSDPW**
Side Street (name)	**FH Street A**	**Direction (EW or NS)**	**EW**		**City:**	**Mun. of East Hants**
Quadrant / Int #	**Lantz 2**	**Comments**	**2033 Volumes Road Scenario 1 Existing Rd Layout**		**Analysis Date:**	**Dec 2023**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**				**Count Date:**	**June 2023**
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		2,000	1
FH Street A	WB								
FH Street A	EB				1		1		
							n		

Are the FH Street A EB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

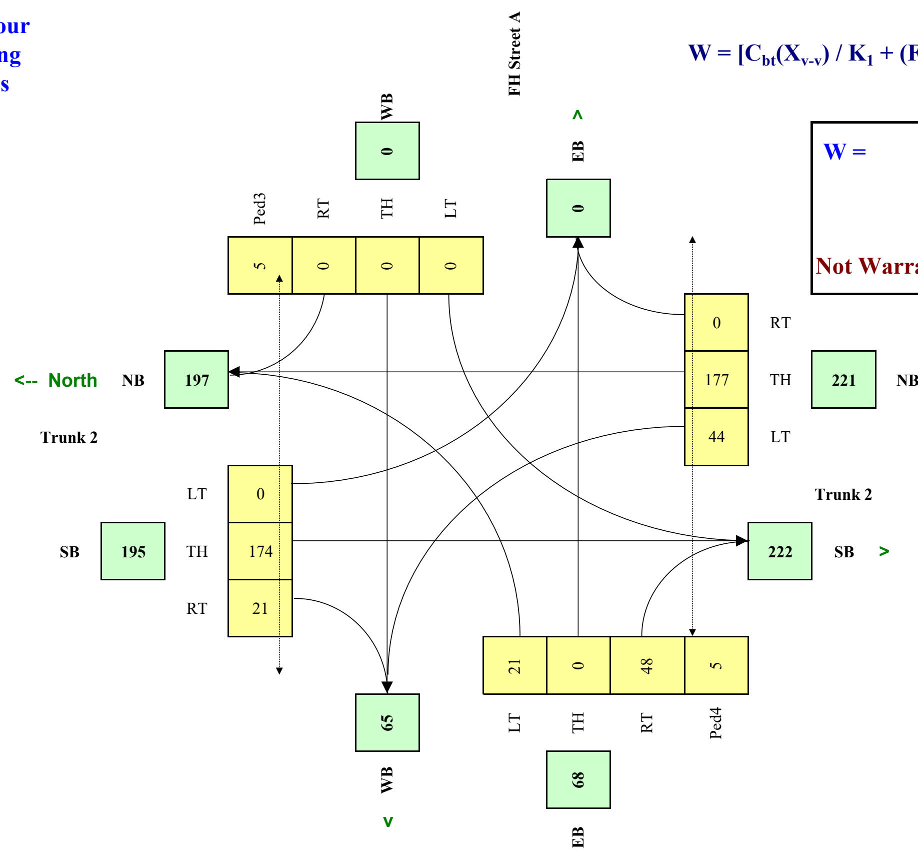
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
FH Street A	EW		5.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1 NS**	**Ped2 NS**	**Ped3 EW**	**Ped4 EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	39	218	0	0	243	24	0	0	0	35	0	90	5	5	5	5
8:00 - 9:00	29	164	0	0	183	18	0	0	0	26	0	68	5	5	5	5
12:00 - 13:00	40	139	0	0	127	17	0	0	0	13	0	26	5	5	5	5
13:00 - 14:00	44	150	0	0	137	18	0	0	0	14	0	29	5	5	5	5
16:00 - 17:00	58	200	0	0	182	24	0	0	0	18	0	38	5	5	5	5
17:00 - 18:00	54	188	0	0	171	23	0	0	0	17	0	36	5	5	5	5
Total (6-hour peak)	**264**	**1,059**	**0**	**0**	**1,043**	**124**	**0**	**0**	**0**	**123**	**0**	**287**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**44**	**177**	**0**	**0**	**174**	**21**	**0**	**0**	**0**	**21**	**0**	**48**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v-v}) / K_1 + (F\ (X_{v-p})\ L) / K_2] \times C_i$$



W =	**20**	**15**	**5**
		Veh	*Ped*

Not Warranted - Vs<75

RESET SHEET

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	**Trunk 2**	**Direction (EW or NS)**	**NS**			**Road Authority:**	**NSDPW**
Side Street (name)	**FH Street A**	**Direction (EW or NS)**	**EW**			**City:**	**Mun. of East Hants**
Quadrant / Int #	**Lantz 2**	**Comments**	**2043 Volumes Road Scenario 1 Existing Rd Layout**			**Analysis Date:**	**Dec 2023**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**					**Count Date:**	**June 2023**
						Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		2,000	1
FH Street A	WB								
FH Street A	EB				1		1		
							n		
Are the FH Street A EB right turns significantly impeded by through movements? (y/n)							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

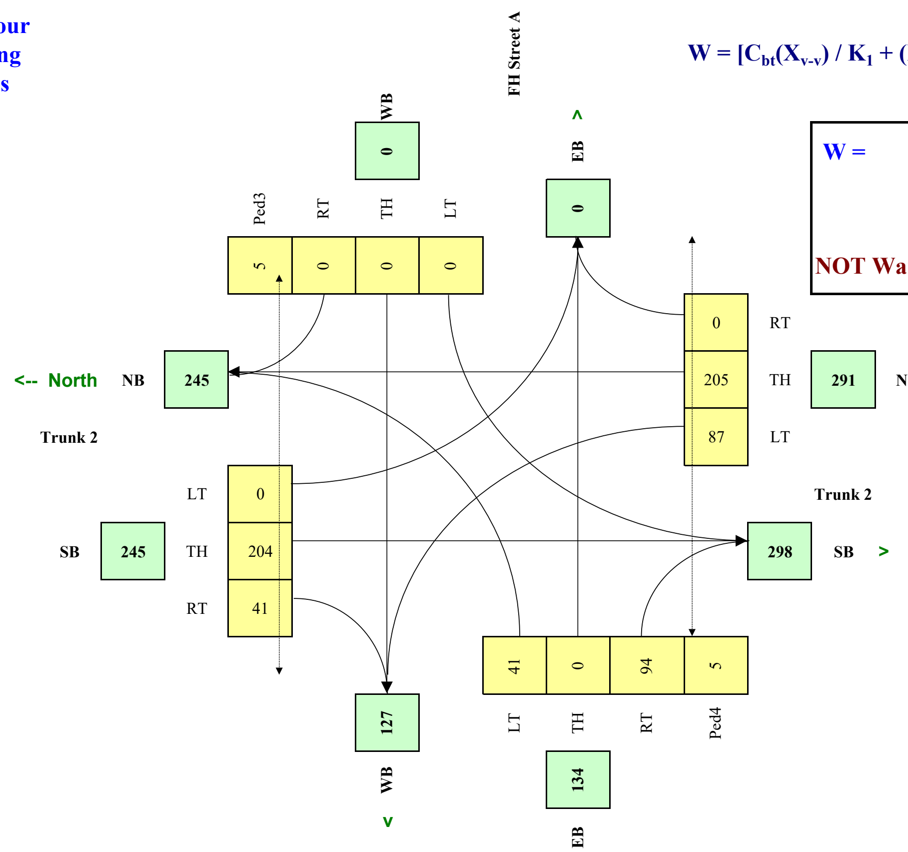
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
FH Street A	EW		5.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1 NS**	**Ped2 NS**	**Ped3 EW**	**Ped4 EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	77	263	0	0	269	48	0	0	0	69	0	177	5	5	5	5
8:00 - 9:00	58	198	0	0	202	36	0	0	0	52	0	133	5	5	5	5
12:00 - 13:00	79	158	0	0	155	33	0	0	0	25	0	52	5	5	5	5
13:00 - 14:00	86	170	0	0	167	35	0	0	0	27	0	56	5	5	5	5
16:00 - 17:00	114	226	0	0	223	47	0	0	0	36	0	75	5	5	5	5
17:00 - 18:00	107	212	0	0	209	44	0	0	0	34	0	70	5	5	5	5
Total (6-hour peak)	**521**	**1,227**	**0**	**0**	**1,225**	**243**	**0**	**0**	**0**	**243**	**0**	**563**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**87**	**205**	**0**	**0**	**204**	**41**	**0**	**0**	**0**	**41**	**0**	**94**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$



W =	**43**	**37**	**6**
		Veh	***Ped***
NOT Warranted			

RESET SHEET

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS		Road Authority:	NSDPW
Side Street (name)	Armco North / Robert Scottt	Direction (EW or NS)	EW		City:	Mun. of East Hants
Quadrant / Int #	Lantz 3	Comments	2033 Volumes Road Scenario 1 Existing Rd Layout		Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET				Count Date:	June 2023
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1				1		980	1
Trunk 2	SB	1				1		2,000	1
Armco North / Robert Scottt	WB				1				
Armco North / Robert Scottt	EB				1		1		

Armco North / Robert Scottt WB right turns significantly impeded by through movements? (y/n) n
Armco North / Robert Scottt EB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

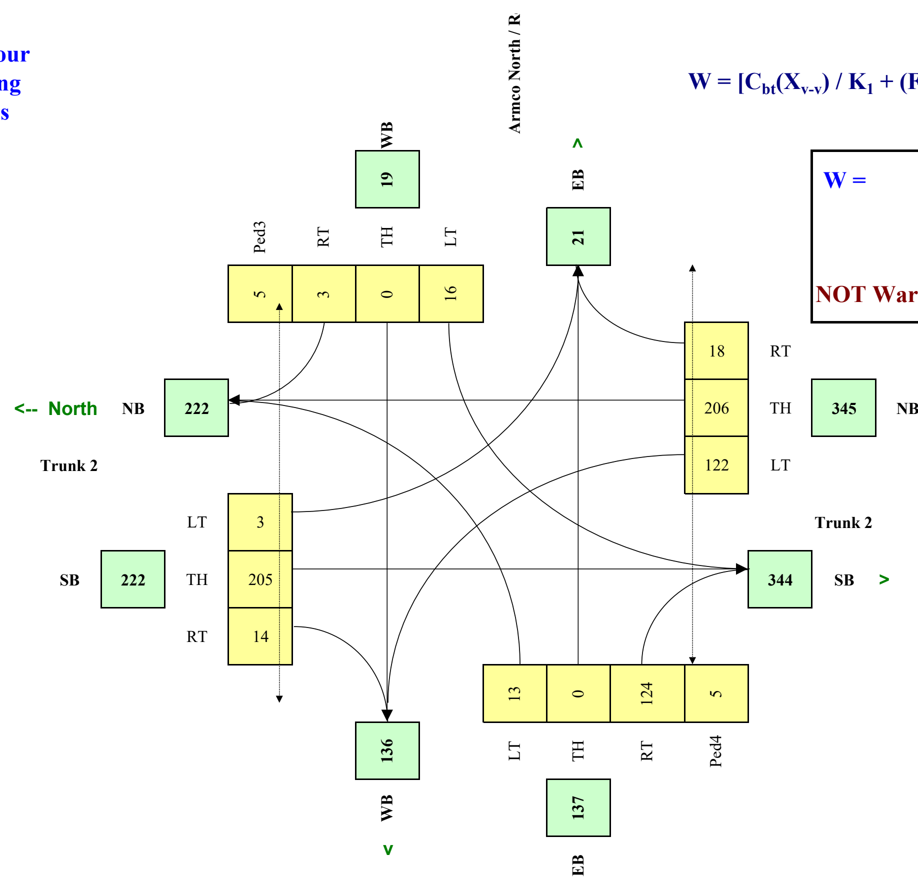
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Armco North / Robert Scottt	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	74	233	15	5	319	9	32	0	3	23	0	221	5	5	5	5
8:00 - 9:00	56	175	11	4	240	7	24	0	2	17	0	166	5	5	5	5
12:00 - 13:00	123	170	17	1	138	14	8	0	3	8	0	73	5	5	5	5
13:00 - 14:00	133	183	18	2	149	15	8	0	3	8	0	79	5	5	5	5
16:00 - 17:00	177	244	24	2	198	20	11	0	4	11	0	105	5	5	5	5
17:00 - 18:00	166	229	23	2	186	19	10	0	4	10	0	98	5	5	5	5
Total (6-hour peak)	**729**	**1,234**	**108**	**16**	**1,230**	**84**	**93**	**0**	**19**	**77**	**0**	**742**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**122**	**206**	**18**	**3**	**205**	**14**	**16**	**0**	**3**	**13**	**0**	**124**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$



W =	38	31	7
		Veh	*Ped*

NOT Warranted

RESET SHEET

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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Armco North / Robert Scottt	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Lantz 3	Comments	2043 Volumes Road Scenario 1 Existing Rd Layout	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1				1		980	1
Trunk 2	SB	1				1		2,000	1
Armco North / Robert Scottt	WB				1				
Armco North / Robert Scottt	EB				1		1		

Armco North / Robert Scottt WB right turns significantly impeded by through movements? (y/n) n

Armco North / Robert Scottt EB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Armco North / Robert Scottt	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	120	303	15	5	427	13	32	0	3	35	0	356	5	5	5	5
8:00 - 9:00	90	228	11	4	321	10	24	0	2	26	0	268	5	5	5	5
12:00 - 13:00	201	223	17	1	186	20	8	0	3	11	0	120	5	5	5	5
13:00 - 14:00	216	240	18	2	200	22	8	0	3	12	0	129	5	5	5	5
16:00 - 17:00	288	320	24	2	267	29	11	0	4	16	0	172	5	5	5	5
17:00 - 18:00	270	300	23	2	250	27	10	0	4	15	0	161	5	5	5	5
Total (6-hour peak)	**1,185**	**1,614**	**108**	**16**	**1,651**	**121**	**93**	**0**	**19**	**115**	**0**	**1,206**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**198**	**269**	**18**	**3**	**275**	**20**	**16**	**0**	**3**	**19**	**0**	**201**	**5**	**5**	**5**	**5**

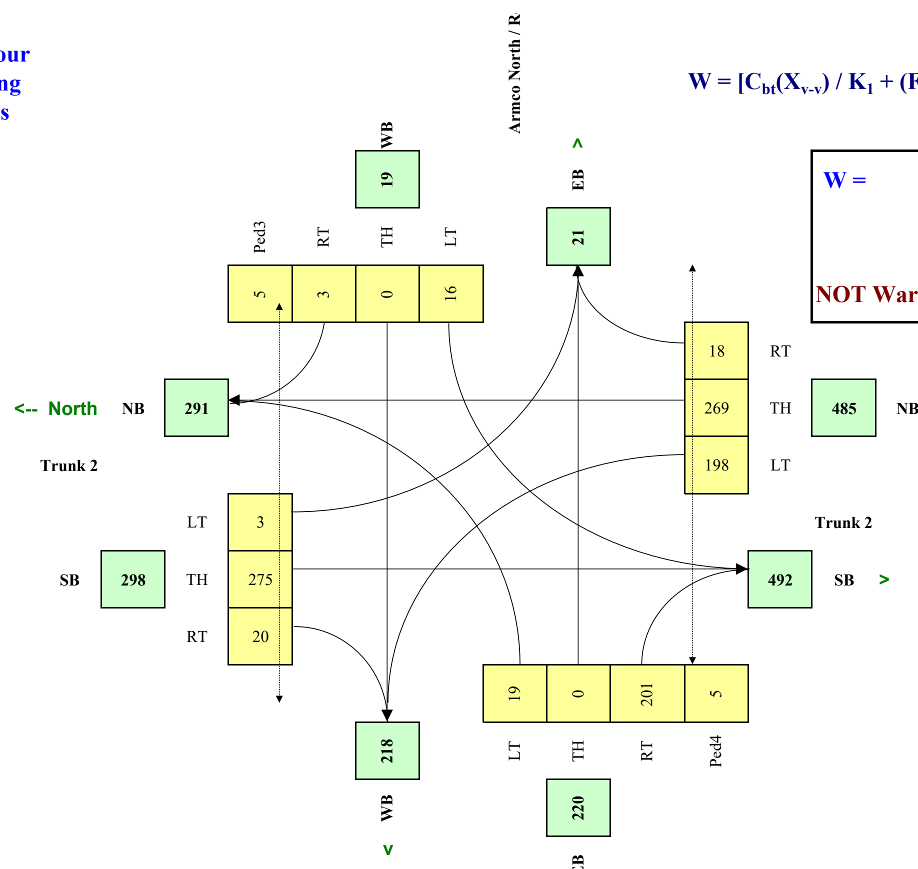
Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v-v}) / K_1 + (F (X_{v-p}) L) / K_2] \times C_i$$

W =	76	67	9
		Veh	*Ped*

NOT Warranted

RESET SHEET



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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Wickwire South	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Lantz 4	Comments	2033 Volumes Road Scenario 1 Existing Rd Layout	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		2,000	1
Wickwire South	WB								
Wickwire South	EB	1					1		
							n		
							n		

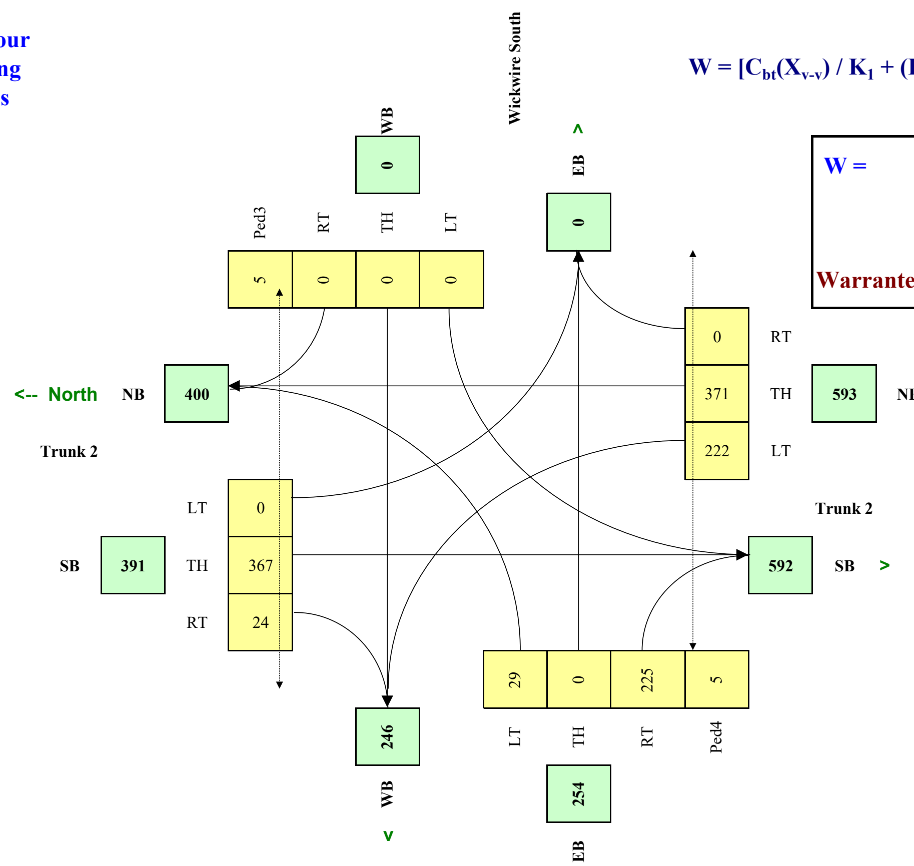
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Wickwire South	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	136	313	0	0	600	17	0	0	0	40	0	394	5	5	5	5
8:00 - 9:00	102	235	0	0	451	13	0	0	0	30	0	296	5	5	5	5
12:00 - 13:00	225	346	0	0	237	23	0	0	0	22	0	136	5	5	5	5
13:00 - 14:00	242	372	0	0	255	25	0	0	0	23	0	146	5	5	5	5
16:00 - 17:00	323	496	0	0	340	33	0	0	0	31	0	195	5	5	5	5
17:00 - 18:00	303	465	0	0	319	31	0	0	0	29	0	183	5	5	5	5
Total (6-hour peak)	**1,331**	**2,227**	**0**	**0**	**2,202**	**142**	**0**	**0**	**0**	**175**	**0**	**1,350**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**222**	**371**	**0**	**0**	**367**	**24**	**0**	**0**	**0**	**29**	**0**	**225**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W =	131	119	12
		Veh	*Ped*

Warranted

RESET SHEET

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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Wickwire South	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Lantz 4	Comments	2043 Volumes Road Scenario 1 Existing Rd Layout	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		2,000	1
Wickwire South	WB								
Wickwire South	EB	1					1		
							n		
							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Wickwire South	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	205	402	0	0	833	31	0	0	0	69	0	593	5	5	5	5
8:00 - 9:00	154	302	0	0	626	23	0	0	0	52	0	446	5	5	5	5
12:00 - 13:00	340	462	0	0	314	39	0	0	0	36	0	205	5	5	5	5
13:00 - 14:00	366	497	0	0	338	42	0	0	0	39	0	221	5	5	5	5
16:00 - 17:00	488	662	0	0	451	56	0	0	0	52	0	294	5	5	5	5
17:00 - 18:00	458	621	0	0	423	53	0	0	0	49	0	276	5	5	5	5
Total (6-hour peak)	**2,011**	**2,946**	**0**	**0**	**2,985**	**244**	**0**	**0**	**0**	**297**	**0**	**2,035**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**335**	**491**	**0**	**0**	**498**	**41**	**0**	**0**	**0**	**50**	**0**	**339**	**5**	**5**	**5**	**5**

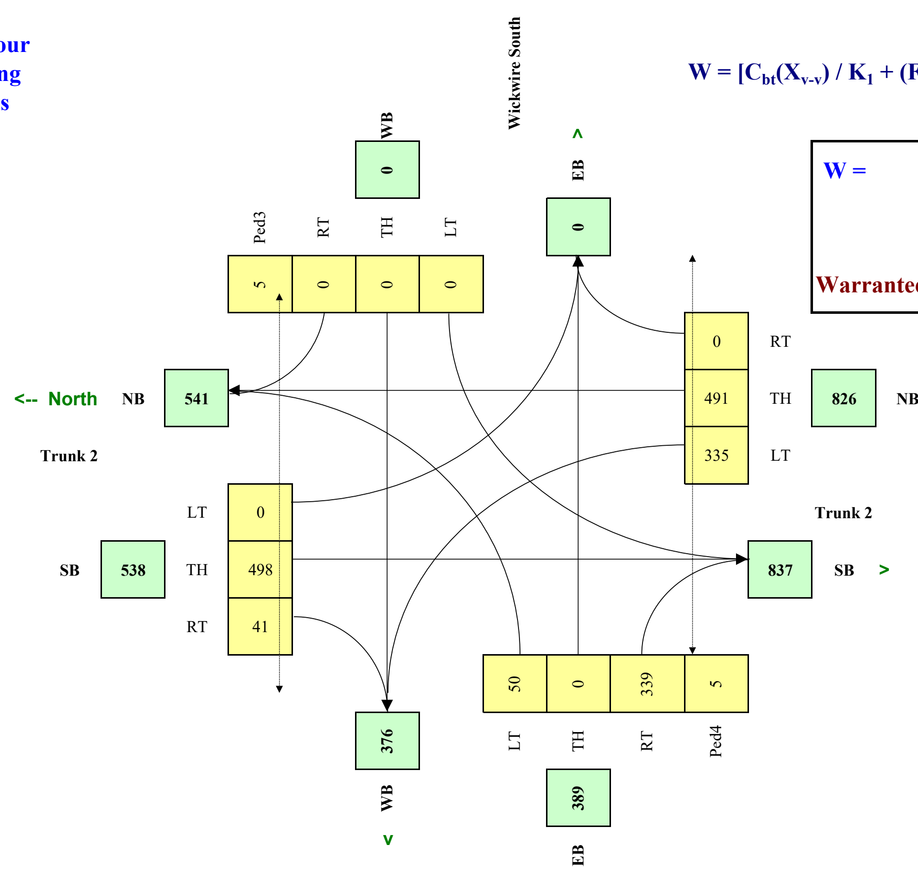
Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W =	266	251	15
		Veh	*Ped*

Warranted

RESET SHEET



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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	**Trunk 2**	**Direction (EW or NS)**	**NS**		**Road Authority:**	**NSDPW**
Side Street (name)	**Frederick Allen**	**Direction (EW or NS)**	**EW**		**City:**	**Mun. of East Hants**
Quadrant / Int #	**Lantz 5**	**Comments**	**2033 Volumes** **Road Scenario 1** **Existing Rd Layout**		**Analysis Date:**	**Dec 2023**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**				**Count Date:**	**June 2023**
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		1,000	1
Frederick Allen	WB								
Frederick Allen	EB				1				
							n		
Are the Frederick Allen EB right turns significantly impeded by through movements? (y/n)							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

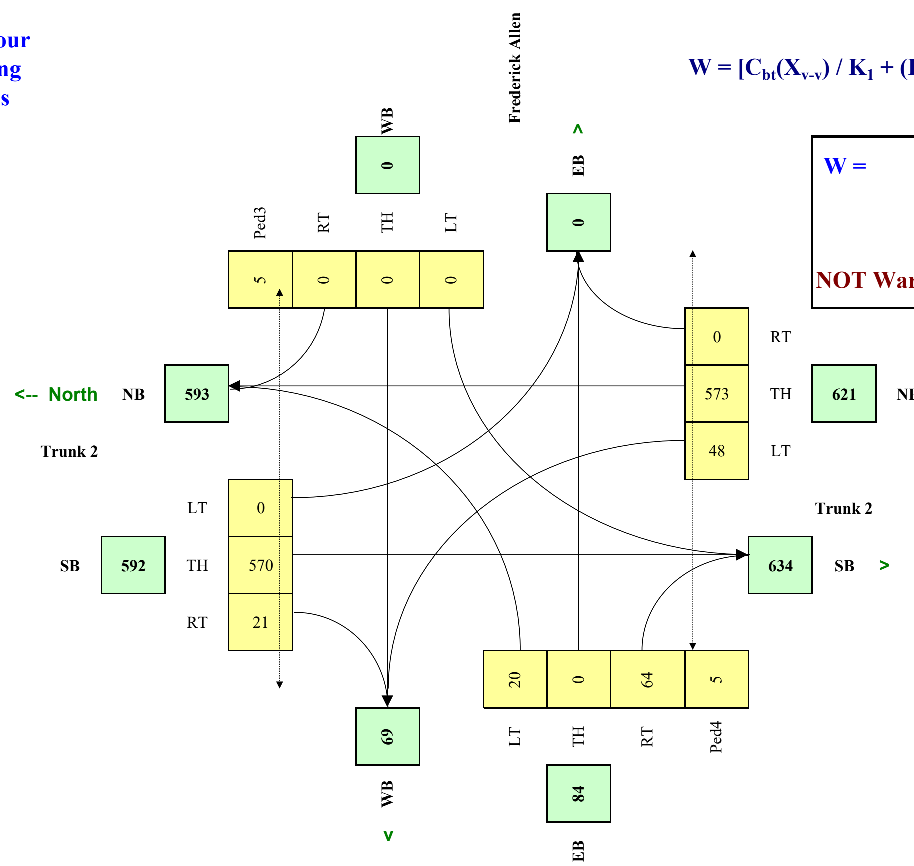
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Frederick Allen	EW		5.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1 NS**	**Ped2 NS**	**Ped3 EW**	**Ped4 EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	32	418	0	0	979	15	0	0	0	31	0	116	5	5	5	5
8:00 - 9:00	24	314	0	0	736	11	0	0	0	23	0	87	5	5	5	5
12:00 - 13:00	47	558	0	0	351	21	0	0	0	13	0	37	5	5	5	5
13:00 - 14:00	51	600	0	0	378	23	0	0	0	14	0	40	5	5	5	5
16:00 - 17:00	68	800	0	0	504	30	0	0	0	19	0	53	5	5	5	5
17:00 - 18:00	64	750	0	0	473	28	0	0	0	18	0	50	5	5	5	5
Total (6-hour peak)	**286**	**3,440**	**0**	**0**	**3,421**	**128**	**0**	**0**	**0**	**118**	**0**	**383**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**48**	**573**	**0**	**0**	**570**	**21**	**0**	**0**	**0**	**20**	**0**	**64**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v-v}) / K_1 + (F\ (X_{v-p})\ L) / K_2] \times C_i$$



W =	**67**	**53**	**14**
		Veh	***Ped***
NOT Warranted			

RESET SHEET

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Frederick Allen	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Lantz 5	Comments	2043 Volumes Road Scenario 1 Existing Rd Layout	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		1,000	1
Frederick Allen	WB								
Frederick Allen	EB				1				
							n		

Are the Frederick Allen EB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

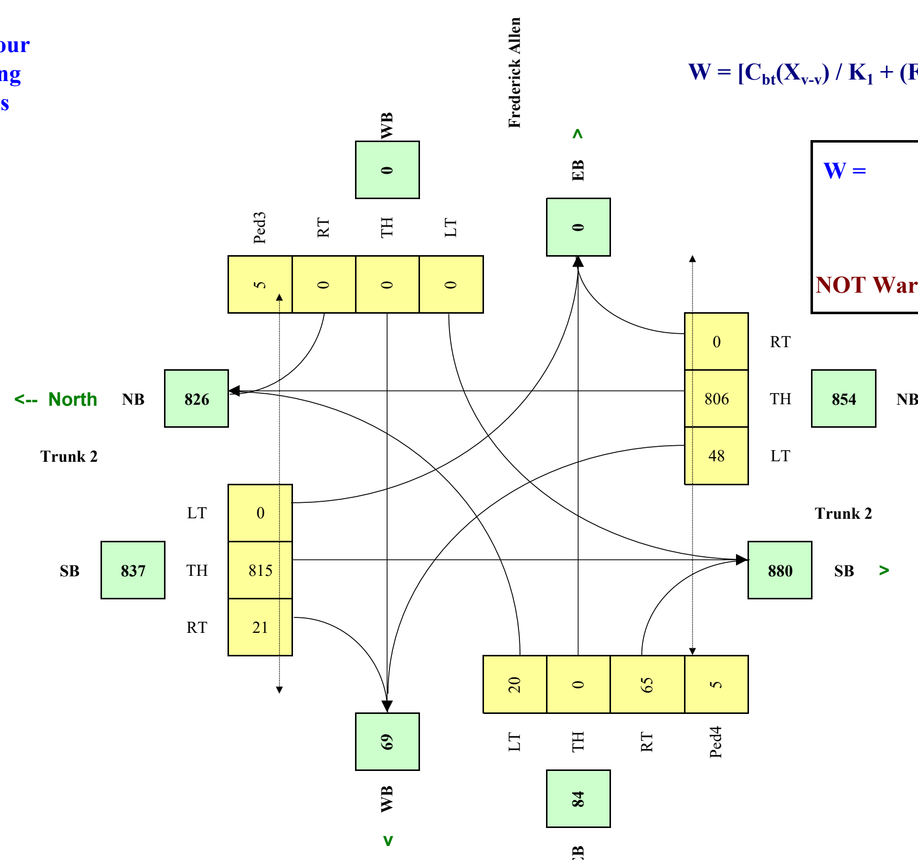
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Frederick Allen	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	32	575	0	0	1411	15	0	0	0	31	0	116	5	5	5	5
8:00 - 9:00	24	432	0	0	1061	11	0	0	0	23	0	87	5	5	5	5
12:00 - 13:00	47	789	0	0	498	21	0	0	0	13	0	38	5	5	5	5
13:00 - 14:00	51	848	0	0	536	23	0	0	0	14	0	41	5	5	5	5
16:00 - 17:00	68	1131	0	0	715	30	0	0	0	19	0	54	5	5	5	5
17:00 - 18:00	64	1061	0	0	671	28	0	0	0	18	0	51	5	5	5	5
Total (6-hour peak)	**286**	**4,836**	**0**	**0**	**4,892**	**128**	**0**	**0**	**0**	**118**	**0**	**387**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**48**	**806**	**0**	**0**	**815**	**21**	**0**	**0**	**0**	**20**	**0**	**65**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$



W =	94	75	19
		Veh	*Ped*

NOT Warranted

RESET SHEET

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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Poplar	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Lantz 6	Comments	2033 Volumes Road Scenario 1 Existing Rd Layout	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				280	1
Trunk 2	SB					1		1,250	1
Poplar	WB								
Poplar	EB				1				
							n		

Are the Poplar EB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Poplar	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	41	444	0	0	1092	5	0	0	0	17	0	116	5	5	5	5
8:00 - 9:00	31	334	0	0	821	4	0	0	0	13	0	87	5	5	5	5
12:00 - 13:00	79	611	0	0	407	5	0	0	0	8	0	39	5	5	5	5
13:00 - 14:00	85	658	0	0	438	5	0	0	0	8	0	42	5	5	5	5
16:00 - 17:00	113	877	0	0	584	7	0	0	0	11	0	56	5	5	5	5
17:00 - 18:00	106	823	0	0	548	7	0	0	0	10	0	53	5	5	5	5
Total (6-hour peak)	**455**	**3,747**	**0**	**0**	**3,890**	**33**	**0**	**0**	**0**	**67**	**0**	**393**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**76**	**625**	**0**	**0**	**648**	**6**	**0**	**0**	**0**	**11**	**0**	**66**	**5**	**5**	**5**	**5**

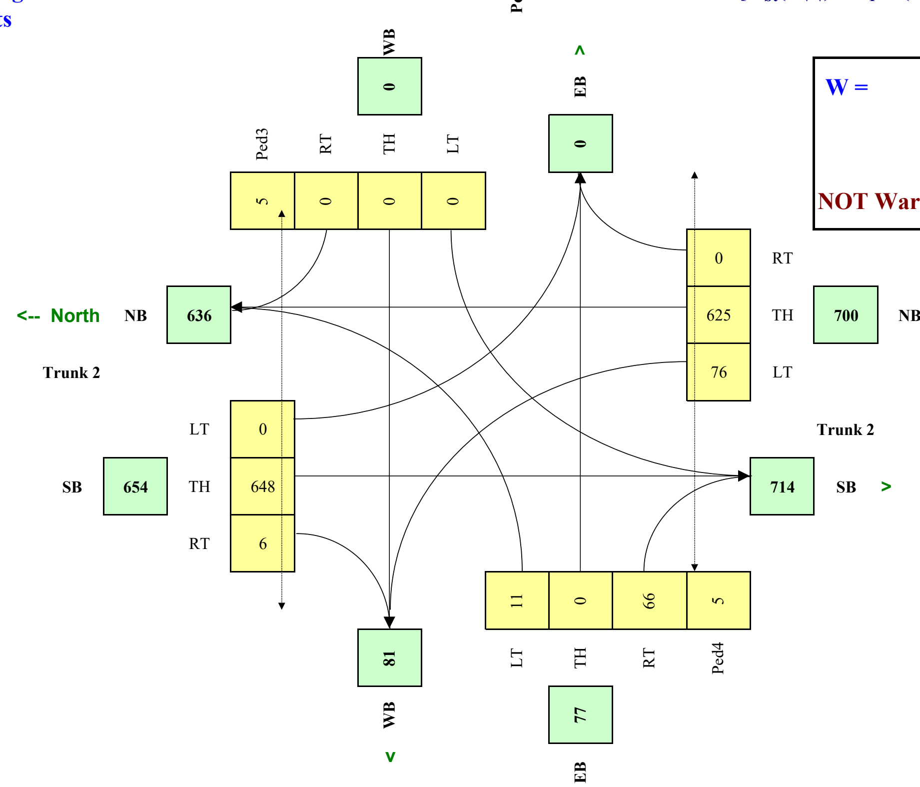
Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W =	72	58	14
		Veh	Ped

NOT Warranted

RESET SHEET



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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	**Trunk 2**		**Direction (EW or NS)**	**NS**	**Road Authority:**	**NSDPW**
Side Street (name)	**Poplar**		**Direction (EW or NS)**	**EW**	**City:**	**Mun. of East Hants**
Quadrant / Int #	**Lantz 6**	**Comments**	**2043 Volumes Road Scenario 1 Existing Rd Layout**		**Analysis Date:**	**Dec 2023**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**				**Count Date:**	**June 2023**
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				280	1
Trunk 2	SB					1		1,250	1
Poplar	WB								
Poplar	EB				1				
							n		

Are the Poplar EB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Poplar	EW		5.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1 NS**	**Ped2 NS**	**Ped3 EW**	**Ped4 EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	41	601	0	0	1524	5	0	0	0	17	0	116	5	5	5	5
8:00 - 9:00	31	452	0	0	1146	4	0	0	0	13	0	87	5	5	5	5
12:00 - 13:00	79	842	0	0	555	5	0	0	0	8	0	40	5	5	5	5
13:00 - 14:00	85	906	0	0	597	5	0	0	0	8	0	43	5	5	5	5
16:00 - 17:00	113	1208	0	0	796	7	0	0	0	11	0	57	5	5	5	5
17:00 - 18:00	106	1133	0	0	747	7	0	0	0	10	0	53	5	5	5	5
Total (6-hour peak)	**455**	**5,142**	**0**	**0**	**5,365**	**33**	**0**	**0**	**0**	**67**	**0**	**396**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**76**	**857**	**0**	**0**	**894**	**6**	**0**	**0**	**0**	**11**	**0**	**66**	**5**	**5**	**5**	**5**

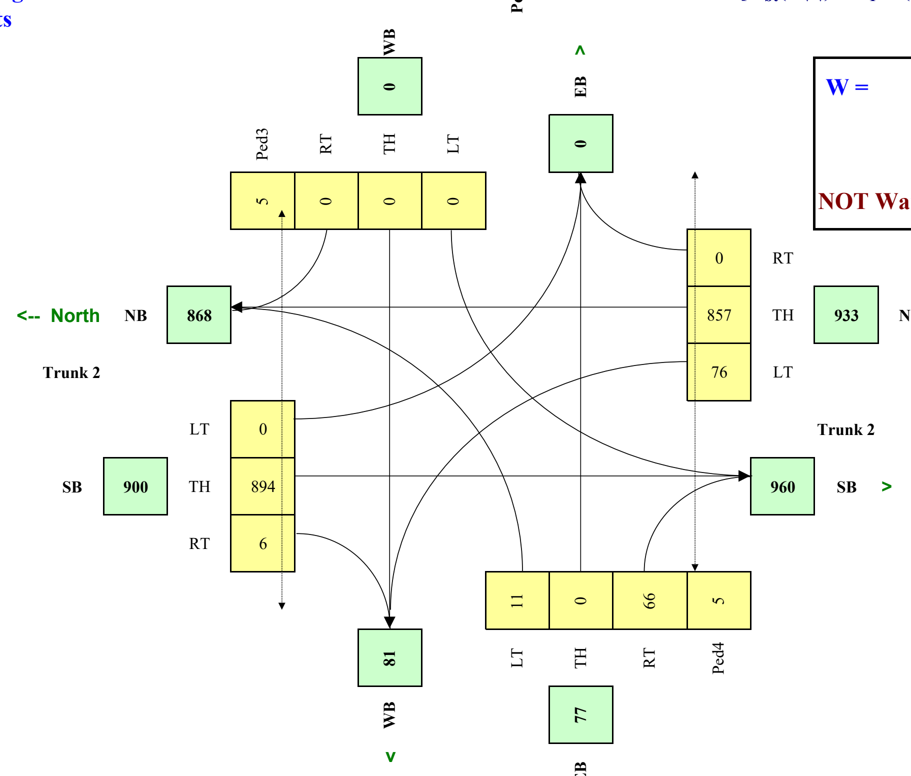
Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W =	**98**	**80**	**18**
		Veh	***Ped***

NOT Warranted

RESET SHEET



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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Rte 277 / Logan	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Lantz 7	Comments	2033 Volumes Road Scenario 1 Existing Rd Layout	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1				1		2,000	1
Trunk 2	SB	1				1		280	1
Rte 277 / Logan	WB				1				
Rte 277 / Logan	EB				1				

Are the Rte 277 / Logan WB right turns significantly impeded by through movements? (y/n) n

Are the Rte 277 / Logan EB right turns significantly impeded by through movements? (y/n) n

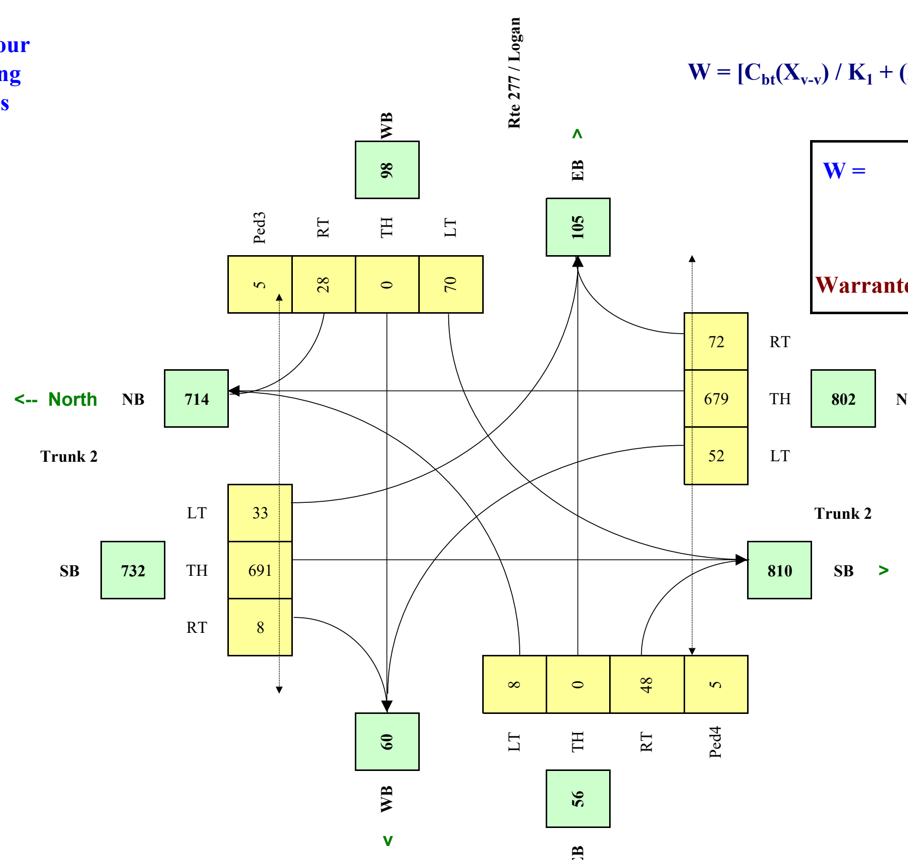
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Rte 277 / Logan	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	31	500	44	48	1196	7	121	0	13	16	0	82	5	5	5	5
8:00 - 9:00	23	376	33	36	899	5	91	0	10	12	0	62	5	5	5	5
12:00 - 13:00	53	658	73	24	422	7	43	0	30	3	0	30	5	5	5	5
13:00 - 14:00	57	708	78	26	455	8	47	0	32	4	0	32	5	5	5	5
16:00 - 17:00	76	944	104	34	606	10	62	0	43	5	0	43	5	5	5	5
17:00 - 18:00	71	885	98	32	568	9	58	0	40	5	0	40	5	5	5	5
Total (6-hour peak)	**311**	**4,071**	**430**	**200**	**4,146**	**46**	**422**	**0**	**168**	**45**	**0**	**289**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**52**	**679**	**72**	**33**	**691**	**8**	**70**	**0**	**28**	**8**	**0**	**48**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W =	128	112	16
		Veh	*Ped*

Warranted

RESET SHEET

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	**Trunk 2**	**Direction (EW or NS)**	**NS**	**Road Authority:**	**NSDPW**
Side Street (name)	**Rte 277 / Logan**	**Direction (EW or NS)**	**EW**	**City:**	**Mun. of East Hants**
Quadrant / Int #	**Lantz 7**	**Comments**	**2043 Volumes Road Scenario 1 Existing Rd Layout**	**Analysis Date:**	**Dec 2023**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**			**Count Date:**	**June 2023**
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1				1		2,000	1
Trunk 2	SB	1				1		280	1
Rte 277 / Logan	WB				1				
Rte 277 / Logan	EB				1				

Are the Rte 277 / Logan WB right turns significantly impeded by through movements? (y/n) n

Are the Rte 277 / Logan EB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

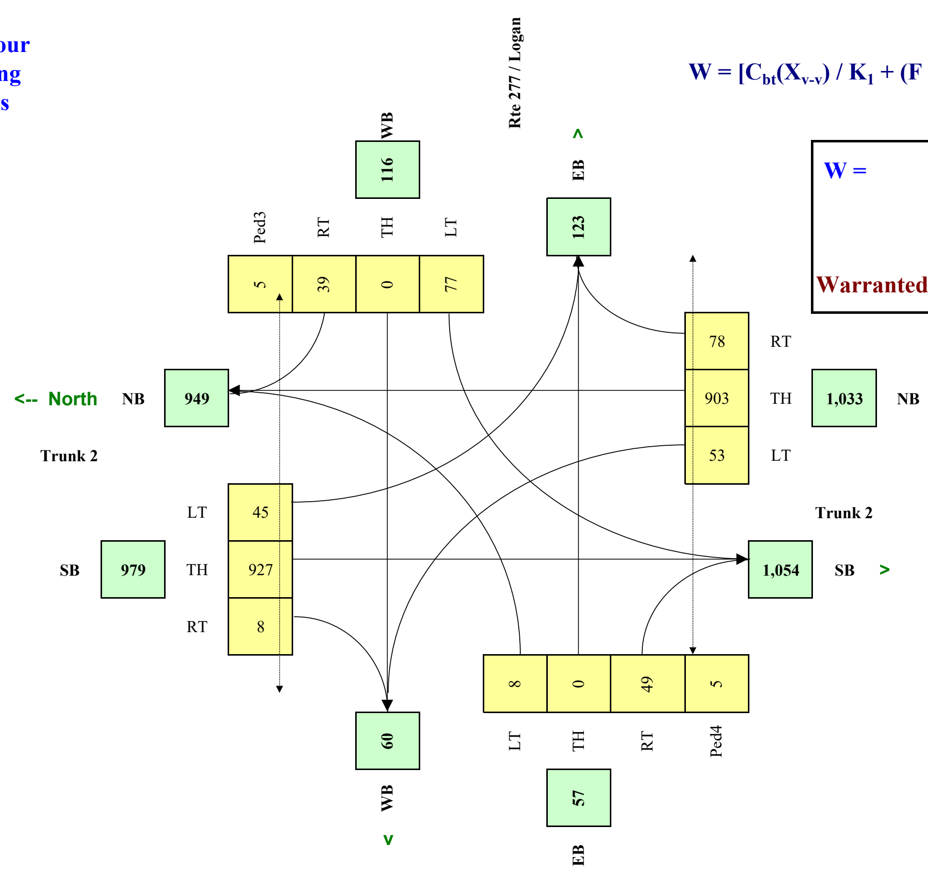
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Rte 277 / Logan	EW		5.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1 NS**	**Ped2 NS**	**Ped3 EW**	**Ped4 EW**
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	31	654	48	68	1609	7	133	0	20	16	0	82	5	5	5	5
8:00 - 9:00	23	492	36	51	1210	5	100	0	15	12	0	62	5	5	5	5
12:00 - 13:00	54	879	79	31	565	7	47	0	40	3	0	31	5	5	5	5
13:00 - 14:00	58	946	86	33	608	8	51	0	44	4	0	34	5	5	5	5
16:00 - 17:00	77	1261	114	44	810	10	68	0	58	5	0	45	5	5	5	5
17:00 - 18:00	72	1183	107	41	760	9	64	0	54	5	0	42	5	5	5	5
Total (6-hour peak)	**315**	**5,415**	**470**	**268**	**5,562**	**46**	**463**	**0**	**231**	**45**	**0**	**296**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**53**	**903**	**78**	**45**	**927**	**8**	**77**	**0**	**39**	**8**	**0**	**49**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$



W =	**194**	**174**	**20**
		Veh	***Ped***
Warranted			

RESET SHEET

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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS		Road Authority:	NSDPW
Side Street (name)	Church	Direction (EW or NS)	EW		City:	Mun. of East Hants
Quadrant / Int #	Lantz 8	Comments	2033 Volumes Road Scenario 1 Existing Rd Layout		Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET				Count Date:	June 2023
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB					1		2,000	1
Trunk 2	SB		1					155	1
Church	WB				1				
Church	EB								

Are the Church WB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Church	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	0	544	11	3	1412	0	12	0	1	0	0	0	5	5	5	5
8:00 - 9:00	0	409	8	2	1062	0	9	0	1	0	0	0	5	5	5	5
12:00 - 13:00	0	777	13	1	489	0	7	0	6	0	0	0	5	5	5	5
13:00 - 14:00	0	836	14	1	526	0	8	0	6	0	0	0	5	5	5	5
16:00 - 17:00	0	1115	19	1	701	0	10	0	8	0	0	0	5	5	5	5
17:00 - 18:00	0	1046	18	1	657	0	9	0	8	0	0	0	5	5	5	5
Total (6-hour peak)	**0**	**4,727**	**83**	**9**	**4,847**	**0**	**55**	**0**	**30**	**0**	**0**	**0**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**0**	**788**	**14**	**2**	**808**	**0**	**9**	**0**	**5**	**0**	**0**	**0**	**5**	**5**	**5**	**5**

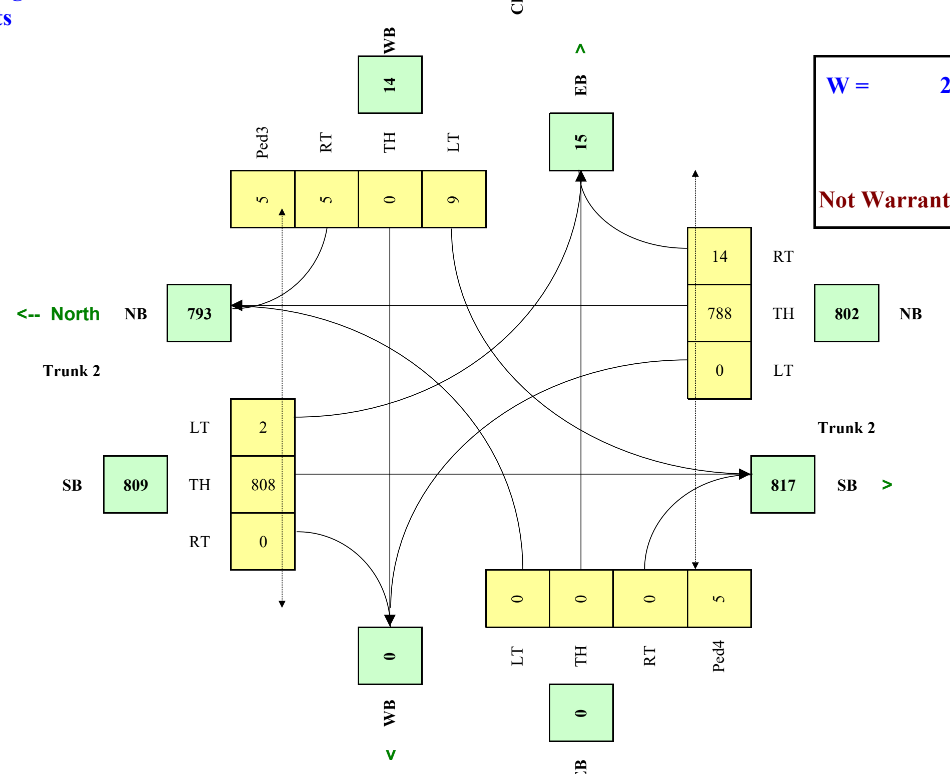
Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v-v}) / K_1 + (F\ (X_{v-p})\ L) / K_2] \times C_i$$

W =	27	11	16
		Veh	*Ped*

Not Warranted - Vs<75

RESET SHEET



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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Church	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Lantz 8	Comments	2043 Volumes Road Scenario 1 Existing Rd Layout	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB					1		2,000	1
Trunk 2	SB		1					155	1
Church	WB				1				
Church	EB								

Are the Church WB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

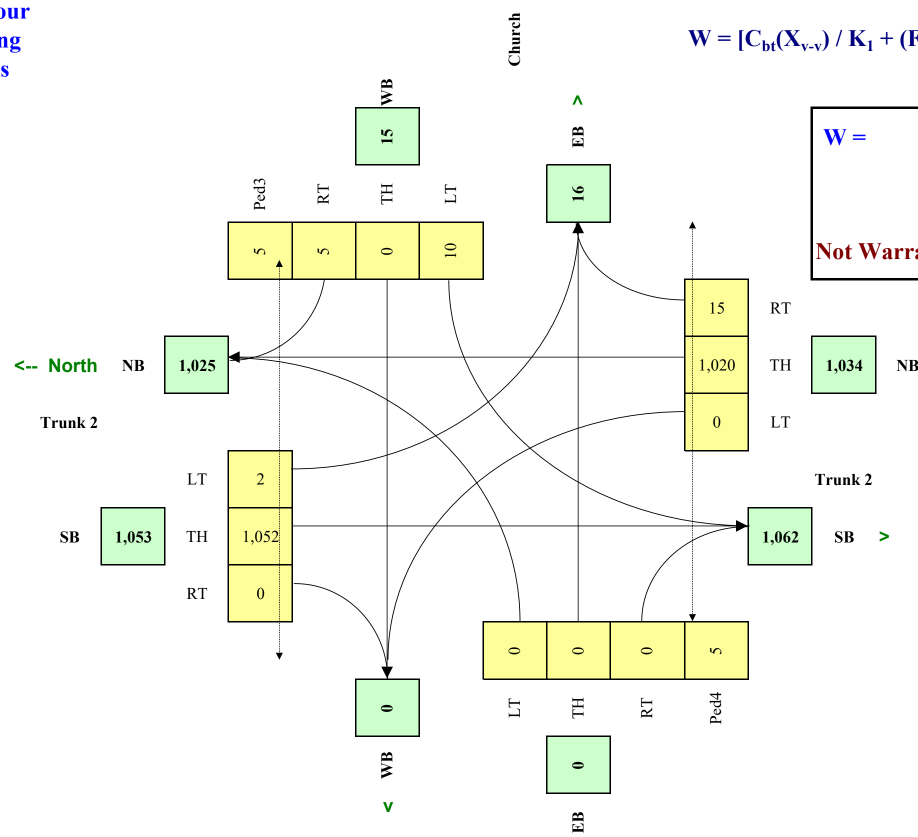
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Church	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	0	704	12	3	1838	0	13	0	1	0	0	0	5	5	5	5
8:00 - 9:00	0	529	9	2	1382	0	10	0	1	0	0	0	5	5	5	5
12:00 - 13:00	0	1006	14	1	637	0	8	0	6	0	0	0	5	5	5	5
13:00 - 14:00	0	1082	15	1	685	0	8	0	6	0	0	0	5	5	5	5
16:00 - 17:00	0	1443	20	1	913	0	11	0	8	0	0	0	5	5	5	5
17:00 - 18:00	0	1353	19	1	856	0	10	0	8	0	0	0	5	5	5	5
Total (6-hour peak)	**0**	**6,117**	**89**	**9**	**6,311**	**0**	**60**	**0**	**30**	**0**	**0**	**0**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**0**	**1,020**	**15**	**2**	**1,052**	**0**	**10**	**0**	**5**	**0**	**0**	**0**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F (X_{v\text{-}p}) L) / K_2] \times C_i$$



W =	36	15	21
		Veh	*Ped*

Not Warranted - Vs<75

RESET SHEET

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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Route 214		Direction (EW or NS)	EW		Road Authority:	NSDPW
Side Street (name)	Hwy 102 SB Ramps		Direction (EW or NS)	NS		City:	Mun. of East Hants
Quadrant / Int #	Elm 16	Comments	2033 Volumes Road Scenario 1 Existing Rd Layout			Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET					Count Date:	June 2023
						Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Route 214	WB		1					220	1
Route 214	EB					1		230	1
Hwy 102 SB Ramps	NB								
Hwy 102 SB Ramps	SB				1				
							n		

Are the Hwy 102 SB Ramps SB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Route 214	EW	60	5.0%	n	0.0
Hwy 102 SB Ramps	NS		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	0	0	0	104	0	274	451	605	0	0	454	350	5	5	5	5
8:00 - 9:00	0	0	0	78	0	206	339	455	0	0	341	263	5	5	5	5
12:00 - 13:00	0	0	0	93	1	109	128	490	0	0	464	175	5	5	5	5
13:00 - 14:00	0	0	0	100	2	117	138	527	0	0	499	188	5	5	5	5
16:00 - 17:00	0	0	0	133	2	156	184	703	0	0	665	251	5	5	5	5
17:00 - 18:00	0	0	0	125	2	146	173	659	0	0	624	235	5	5	5	5
Total (6-hour peak)	**0**	**0**	**0**	**633**	**7**	**1,008**	**1,413**	**3,439**	**0**	**0**	**3,047**	**1,462**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**0**	**0**	**0**	**106**	**1**	**168**	**236**	**573**	**0**	**0**	**508**	**244**	**5**	**5**	**5**	**5**

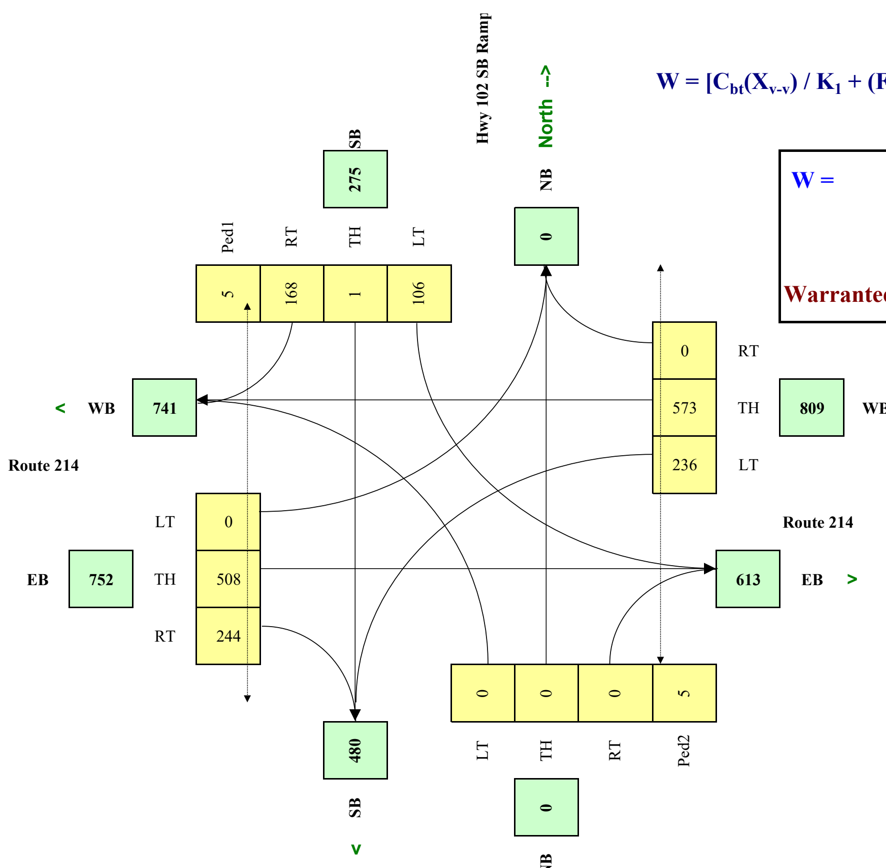
Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v-v}) / K_1 + (F (X_{v-p}) L) / K_2] \times C_i$$

W =	244	229	15
		Veh	*Ped*

Warranted

RESET SHEET



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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Route 214	Direction (EW or NS)	EW	Road Authority:	NSDPW
Side Street (name)	Hwy 102 SB Ramps	Direction (EW or NS)	NS	City:	Mun. of East Hants
Quadrant / Int #	Elm 16	Comments	2043 Volumes Road Scenario 1 Existing Rd Layout	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Route 214	WB	1		1				220	1
Route 214	EB					1		230	1
Hwy 102 SB Ramps	NB								
Hwy 102 SB Ramps	SB				1				

Are the Hwy 102 SB Ramps SB right turns significantly impeded by through movements? (y/n) n

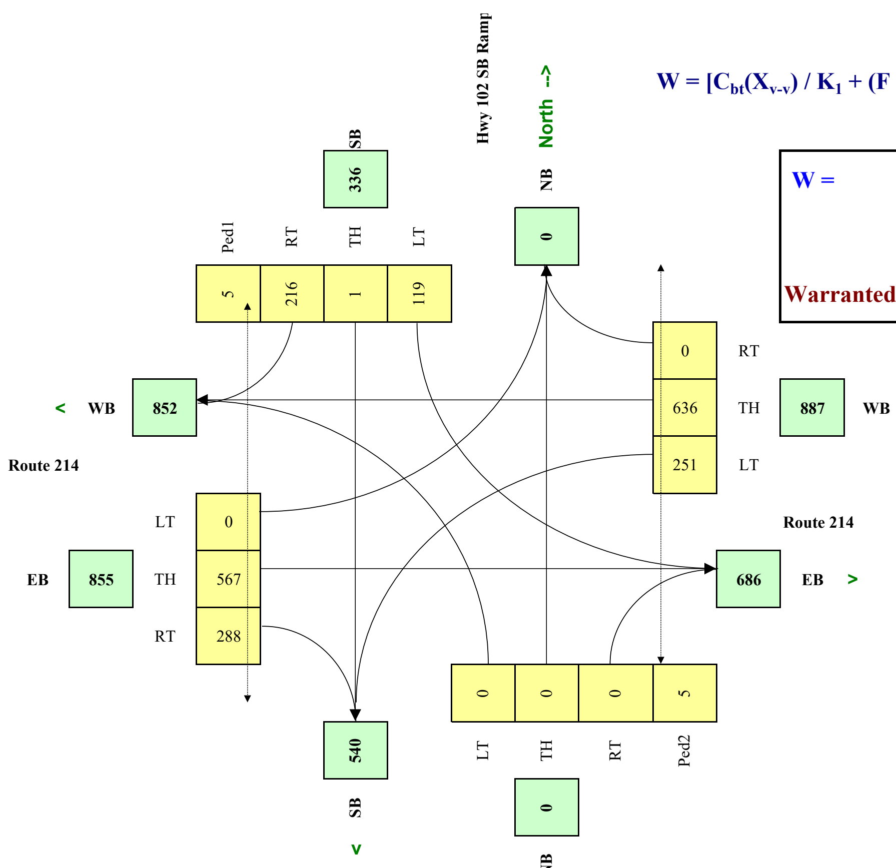
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Route 214	EW	60	5.0%	n	0.0
Hwy 102 SB Ramps	NS		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	0	0	0	110	0	388	479	743	0	0	492	375	5	5	5	5
8:00 - 9:00	0	0	0	83	0	292	360	559	0	0	370	282	5	5	5	5
12:00 - 13:00	0	0	0	107	1	127	137	517	0	0	524	220	5	5	5	5
13:00 - 14:00	0	0	0	115	2	137	148	557	0	0	563	237	5	5	5	5
16:00 - 17:00	0	0	0	153	2	182	197	742	0	0	751	316	5	5	5	5
17:00 - 18:00	0	0	0	143	2	171	185	696	0	0	704	296	5	5	5	5
Total (6-hour peak)	**0**	**0**	**0**	**711**	**7**	**1,297**	**1,506**	**3,814**	**0**	**0**	**3,404**	**1,726**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**0**	**0**	**0**	**119**	**1**	**216**	**251**	**636**	**0**	**0**	**567**	**288**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W =	**266**	**250**	**16**
		Veh	*Ped*

Warranted

RESET SHEET

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2		Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Elmwood		Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Enfield 18	Comments	2033 Volumes Road Scenario 1 Existing Rd Layout		Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET				Count Date:	June 2023
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		1,200	1
Elmwood	WB								
Elmwood	EB				1				
							n		

Are the Elmwood EB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Elmwood	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	56	571	0	0	602	47	0	0	0	88	0	242	5	5	5	5
8:00 - 9:00	42	429	0	0	453	35	0	0	0	66	0	182	5	5	5	5
12:00 - 13:00	112	494	0	0	374	70	0	0	0	36	0	73	5	5	5	5
13:00 - 14:00	120	531	0	0	403	76	0	0	0	38	0	79	5	5	5	5
16:00 - 17:00	160	708	0	0	537	101	0	0	0	51	0	105	5	5	5	5
17:00 - 18:00	150	664	0	0	504	95	0	0	0	48	0	98	5	5	5	5
Total (6-hour peak)	**640**	**3,397**	**0**	**0**	**2,873**	**424**	**0**	**0**	**0**	**327**	**0**	**779**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**107**	**566**	**0**	**0**	**479**	**71**	**0**	**0**	**0**	**55**	**0**	**130**	**5**	**5**	**5**	**5**

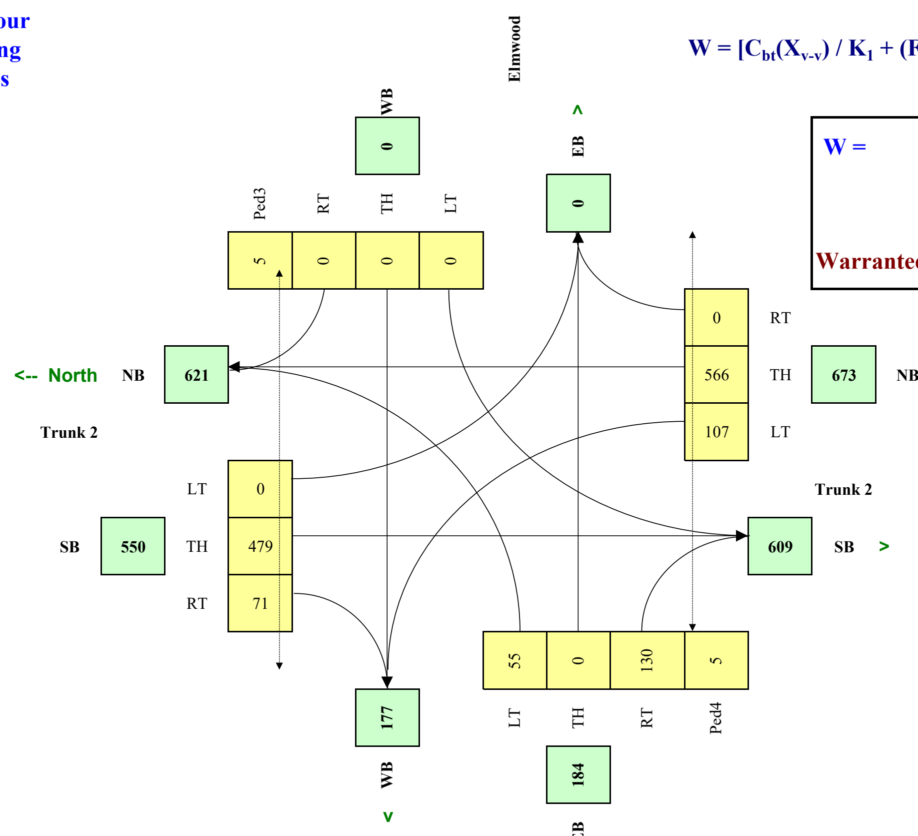
Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v-v}) / K_1 + (F (X_{v-p}) L) / K_2] \times C_i$$

W =	124	110	14
		Veh	*Ped*

Warranted

RESET SHEET



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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	**Trunk 2**	**Direction (EW or NS)**	**NS**		**Road Authority:**	**NSDPW**
Side Street (name)	**Elmwood**	**Direction (EW or NS)**	**EW**		**City:**	**Mun. of East Hants**
Quadrant / Int #	**Enfield 18**	**Comments**	**2043 Volumes Road Scenario 1 Existing Rd Layout**		**Analysis Date:**	**Dec 2023**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**				**Count Date:**	**June 2023**
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		1,200	1
Elmwood	WB								
Elmwood	EB				1				
							n		

Are the Elmwood EB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Elmwood	EW		5.0%	n	

Set Peak Hours

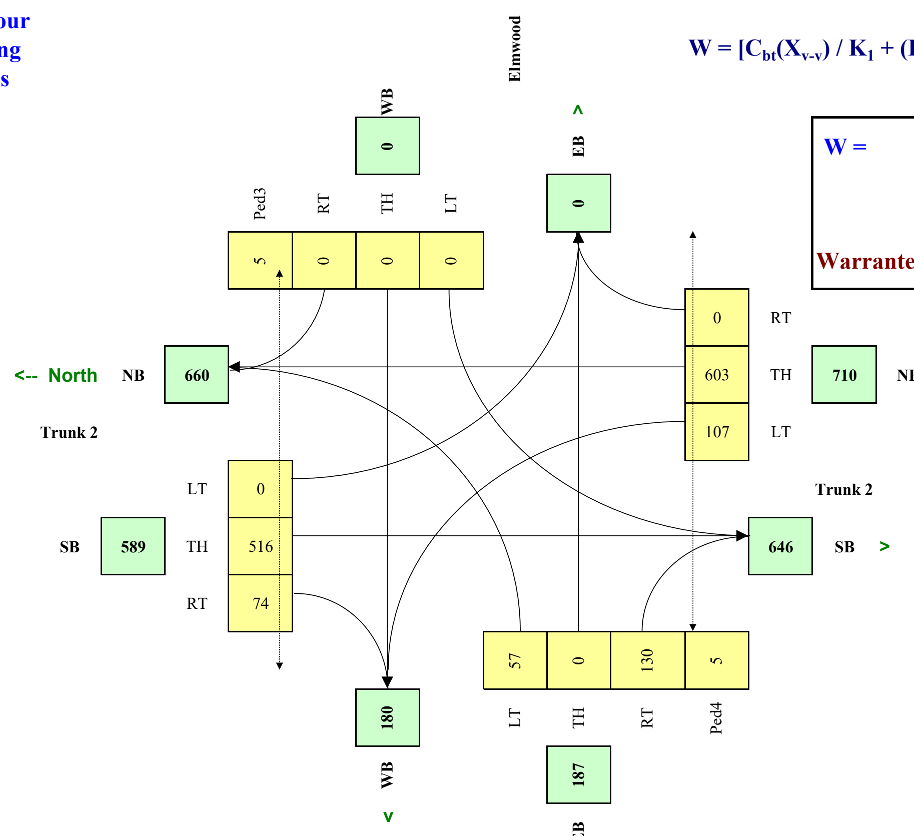
Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1 NS**	**Ped2 NS**	**Ped3 EW**	**Ped4 EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	56	600	0	0	661	51	0	0	0	90	0	242	5	5	5	5
8:00 - 9:00	42	451	0	0	497	38	0	0	0	68	0	182	5	5	5	5
12:00 - 13:00	112	529	0	0	399	73	0	0	0	38	0	73	5	5	5	5
13:00 - 14:00	120	569	0	0	429	78	0	0	0	41	0	79	5	5	5	5
16:00 - 17:00	160	759	0	0	572	104	0	0	0	54	0	105	5	5	5	5
17:00 - 18:00	150	712	0	0	536	98	0	0	0	51	0	98	5	5	5	5
Total (6-hour peak)	**640**	**3,620**	**0**	**0**	**3,094**	**442**	**0**	**0**	**0**	**342**	**0**	**779**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**107**	**603**	**0**	**0**	**516**	**74**	**0**	**0**	**0**	**57**	**0**	**130**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W =	**135**	**120**	**15**
		Veh	***Ped***
Warranted			

RESET SHEET



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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	**Trunk 2**	**Direction (EW or NS)**	**NS**		**Road Authority:**	**NSDPW**
Side Street (name)	**Alderney**	**Direction (EW or NS)**	**EW**		**City:**	**Mun. of East Hants**
Quadrant / Int #	**Enfield 19**	**Comments**	**2033 Volumes Road Scenario 1 Existing Rd Layout**		**Analysis Date:**	**Dec 2023**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**				**Count Date:**	**June 2023**
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		2,000	1
Alderney	WB								
Alderney	EB				1				

Are the Alderney EB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

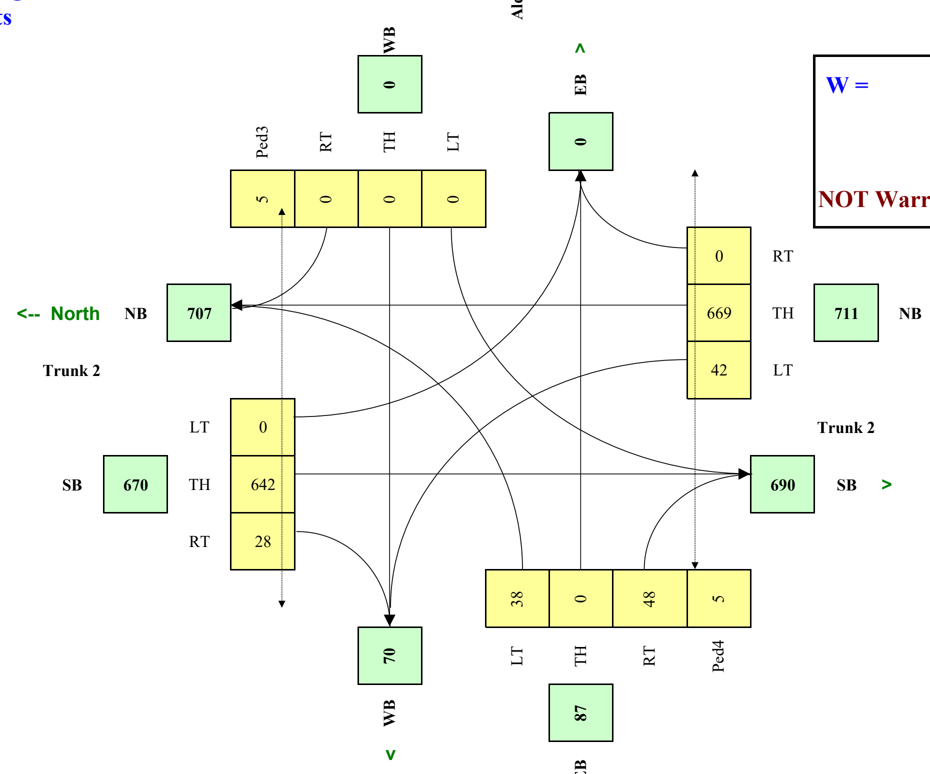
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Alderney	EW		5.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1 NS**	**Ped2 NS**	**Ped3 EW**	**Ped4 EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	24	536	0	0	946	25	0	0	0	48	0	88	5	5	5	5
8:00 - 9:00	18	403	0	0	711	19	0	0	0	36	0	66	5	5	5	5
12:00 - 13:00	43	633	0	0	452	26	0	0	0	30	0	28	5	5	5	5
13:00 - 14:00	47	681	0	0	486	28	0	0	0	32	0	30	5	5	5	5
16:00 - 17:00	62	908	0	0	648	37	0	0	0	43	0	40	5	5	5	5
17:00 - 18:00	58	852	0	0	608	35	0	0	0	40	0	38	5	5	5	5
Total (6-hour peak)	**252**	**4,013**	**0**	**0**	**3,851**	**170**	**0**	**0**	**0**	**229**	**0**	**290**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**42**	**669**	**0**	**0**	**642**	**28**	**0**	**0**	**0**	**38**	**0**	**48**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$



W =	**83**	**67**	**16**
		Veh	***Ped***

NOT Warranted

RESET SHEET

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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS		Road Authority:	NSDPW
Side Street (name)	Alderney	Direction (EW or NS)	EW		City:	Mun. of East Hants
Quadrant / Int #	Enfield 19	Comments	2043 Volumes Road Scenario 1 Existing Rd Layout		Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET				Count Date:	June 2023
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		2,000	1
Alderney	WB								
Alderney	EB				1				
							n		
Are the Alderney EB right turns significantly impeded by through movements? (y/n)							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

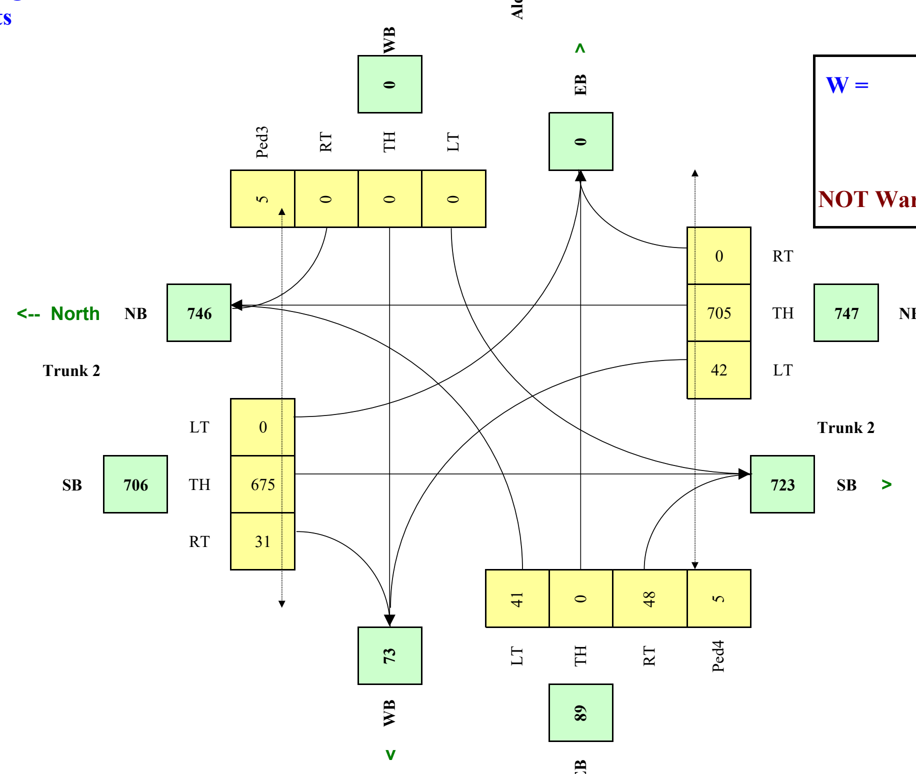
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Alderney	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	24	563	0	0	999	29	0	0	0	51	0	88	5	5	5	5
8:00 - 9:00	18	423	0	0	751	22	0	0	0	38	0	66	5	5	5	5
12:00 - 13:00	43	668	0	0	473	28	0	0	0	32	0	28	5	5	5	5
13:00 - 14:00	47	719	0	0	509	30	0	0	0	35	0	30	5	5	5	5
16:00 - 17:00	62	958	0	0	679	40	0	0	0	46	0	40	5	5	5	5
17:00 - 18:00	58	898	0	0	637	38	0	0	0	43	0	38	5	5	5	5
Total (6-hour peak)	**252**	**4,229**	**0**	**0**	**4,048**	**187**	**0**	**0**	**0**	**245**	**0**	**290**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**42**	**705**	**0**	**0**	**675**	**31**	**0**	**0**	**0**	**41**	**0**	**48**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$



W =	**89**	**73**	**16**
		Veh	***Ped***
NOT Warranted			

RESET SHEET

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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Shamrock	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Enfield 20	Comments	2033 Volumes Road Scenario 1 Existing Rd Layout	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB		1					2,000	1
Trunk 2	SB					1		2,000	1
Shamrock	WB								
Shamrock	EB				1				
							n		
Are the Shamrock EB right turns significantly impeded by through movements? (y/n)							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

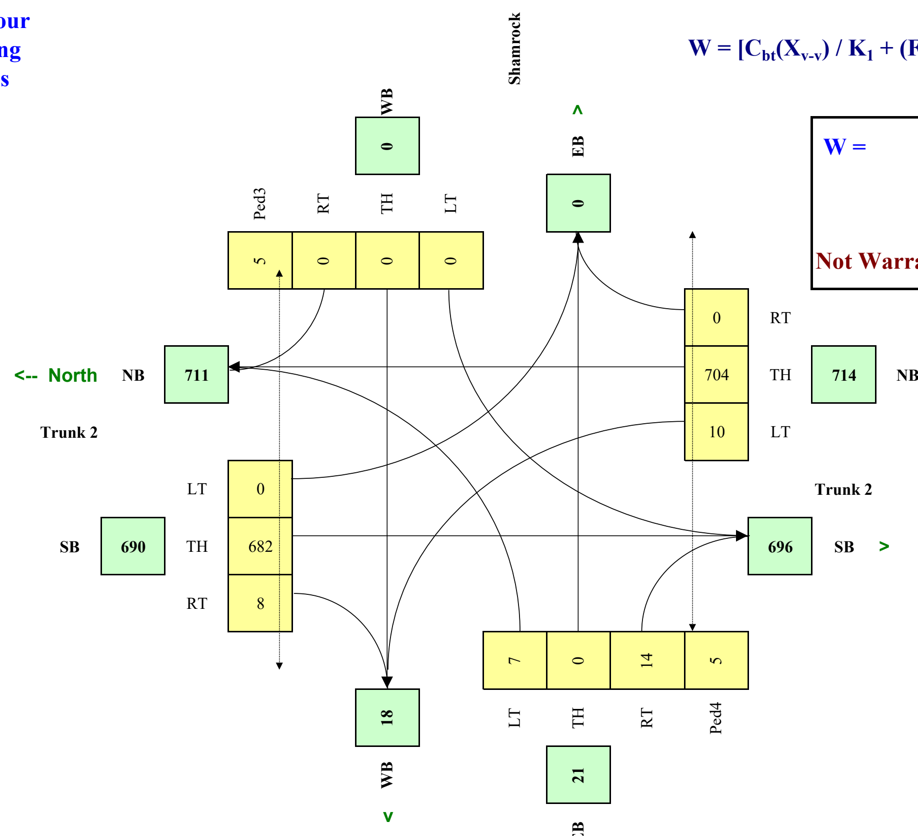
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Shamrock	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	5	552	0	0	1027	7	0	0	0	7	0	32	5	5	5	5
8:00 - 9:00	4	415	0	0	772	5	0	0	0	5	0	24	5	5	5	5
12:00 - 13:00	10	671	0	0	472	7	0	0	0	6	0	6	5	5	5	5
13:00 - 14:00	11	722	0	0	508	8	0	0	0	7	0	6	5	5	5	5
16:00 - 17:00	15	962	0	0	677	10	0	0	0	9	0	8	5	5	5	5
17:00 - 18:00	14	902	0	0	635	9	0	0	0	8	0	8	5	5	5	5
Total (6-hour peak)	**59**	**4,224**	**0**	**0**	**4,091**	**46**	**0**	**0**	**0**	**42**	**0**	**84**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**10**	**704**	**0**	**0**	**682**	**8**	**0**	**0**	**0**	**7**	**0**	**14**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$



W =	33	17	16
		Veh	*Ped*
Not Warranted - Vs<75			

RESET SHEET

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Shamrock	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Enfield 20	Comments	2043 Volumes Road Scenario 1 Existing Rd Layout	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB		1					2,000	1
Trunk 2	SB					1		2,000	1
Shamrock	WB								
Shamrock	EB				1				

Are the Shamrock EB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

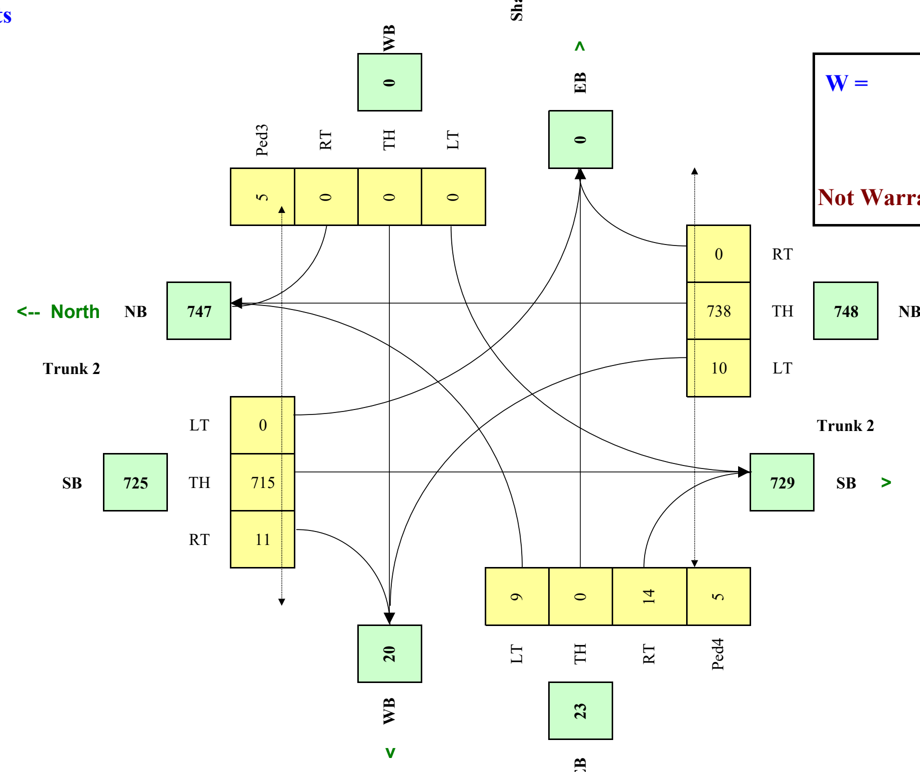
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Shamrock	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	5	579	0	0	1079	11	0	0	0	9	0	32	5	5	5	5
8:00 - 9:00	4	435	0	0	811	8	0	0	0	7	0	24	5	5	5	5
12:00 - 13:00	10	703	0	0	494	9	0	0	0	8	0	6	5	5	5	5
13:00 - 14:00	11	756	0	0	531	10	0	0	0	9	0	6	5	5	5	5
16:00 - 17:00	15	1008	0	0	708	13	0	0	0	12	0	8	5	5	5	5
17:00 - 18:00	14	945	0	0	664	12	0	0	0	11	0	8	5	5	5	5
Total (6-hour peak)	**59**	**4,426**	**0**	**0**	**4,287**	**63**	**0**	**0**	**0**	**56**	**0**	**84**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**10**	**738**	**0**	**0**	**715**	**11**	**0**	**0**	**0**	**9**	**0**	**14**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v-v}) / K_1 + (F (X_{v-p}) L) / K_2] \times C_i$$



W =	37	20	17
		Veh	*Ped*

Not Warranted - Vs<75

RESET SHEET

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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Old Enfield	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Enfield 21	Comments	2033 Volumes Road Scenario 1 Existing Rd Layout	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		2,000	1
Old Enfield	WB								
Old Enfield	EB	1					1		
							n		
							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

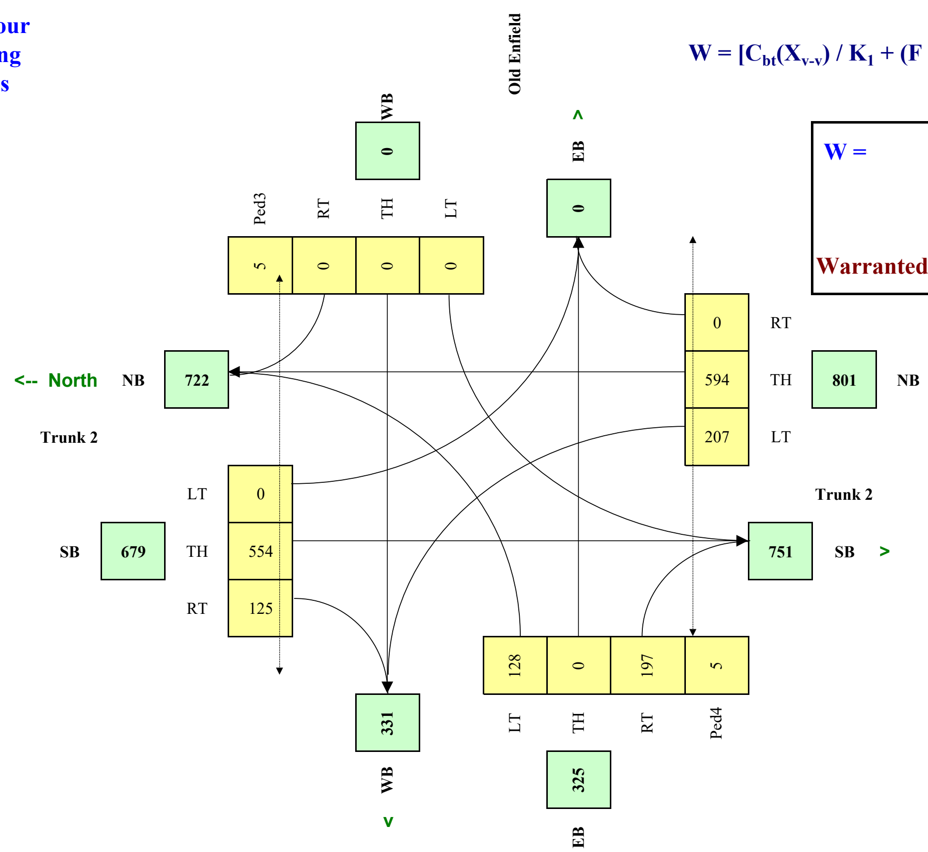
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Old Enfield	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	97	350	0	0	991	100	0	0	0	185	0	391	5	5	5	5
8:00 - 9:00	73	263	0	0	745	75	0	0	0	139	0	294	5	5	5	5
12:00 - 13:00	220	608	0	0	327	118	0	0	0	91	0	102	5	5	5	5
13:00 - 14:00	237	654	0	0	352	127	0	0	0	98	0	110	5	5	5	5
16:00 - 17:00	316	872	0	0	469	169	0	0	0	130	0	147	5	5	5	5
17:00 - 18:00	296	818	0	0	440	158	0	0	0	122	0	138	5	5	5	5
Total (6-hour peak)	**1,239**	**3,565**	**0**	**0**	**3,324**	**747**	**0**	**0**	**0**	**765**	**0**	**1,182**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**207**	**594**	**0**	**0**	**554**	**125**	**0**	**0**	**0**	**128**	**0**	**197**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v-v}) / K_1 + (F (X_{v-p}) L) / K_2] \times C_i$$



W =	**272**	**255**	**17**
		Veh	*Ped*
Warranted			

RESET SHEET

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS		Road Authority:	NSDPW
Side Street (name)	Old Enfield	Direction (EW or NS)	EW		City:	Mun. of East Hants
Quadrant / Int #	Enfield 21	Comments	2043 Volumes Road Scenario 1 Existing Rd Layout		Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET				Count Date:	June 2023
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		2,000	1
Old Enfield	WB								
Old Enfield	EB	1					1		
							n		
							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Old Enfield	EW		5.0%	n	

Set Peak Hours

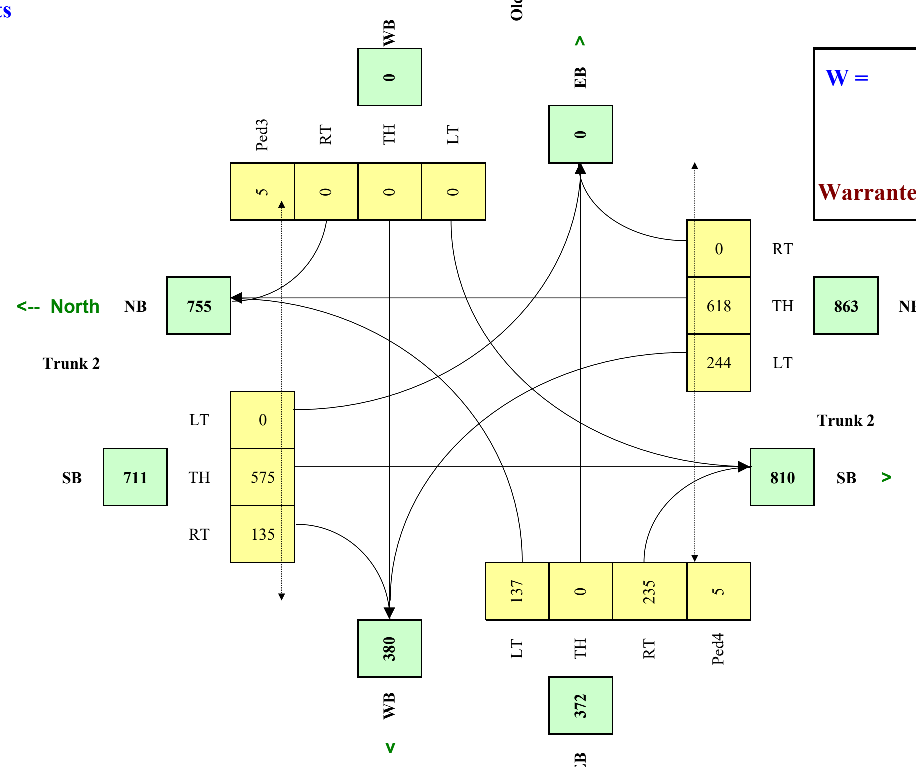
Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	118	363	0	0	1033	109	0	0	0	198	0	454	5	5	5	5
8:00 - 9:00	89	273	0	0	777	82	0	0	0	149	0	341	5	5	5	5
12:00 - 13:00	259	633	0	0	338	128	0	0	0	98	0	126	5	5	5	5
13:00 - 14:00	279	681	0	0	364	137	0	0	0	105	0	136	5	5	5	5
16:00 - 17:00	372	908	0	0	485	183	0	0	0	140	0	181	5	5	5	5
17:00 - 18:00	349	852	0	0	455	172	0	0	0	131	0	170	5	5	5	5
Total (6-hour peak)	**1,466**	**3,710**	**0**	**0**	**3,452**	**811**	**0**	**0**	**0**	**821**	**0**	**1,408**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**244**	**618**	**0**	**0**	**575**	**135**	**0**	**0**	**0**	**137**	**0**	**235**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W =	**323**	**306**	**17**
		Veh	*Ped*
Warranted			

RESET SHEET



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Traffic Signal Warrant Results - Option 2 Road Network

Existing Stop-controlled intersections only

				Option 2 - North I/C	
				Equilibrium Assignment	
Community	**No.**	**Main Road**	**Secondary Road**	**2043**	**Unconstrained**
Lantz	1	Trunk 2	Milford Rd	48	62
	2	Trunk 2	FH Street A	73	180
	3	Trunk 2	Wickwire North	107	212
	4	Trunk 2	Wickwire South	210	380
	5	Trunk 2	Frederick Allen	57	76
	6	Trunk 2	Poplar	75	99
	7	Trunk 2	Rte 277 / Logan	153	210
	8	Trunk 2	Church	27	33
	9	Trunk 2	Lantz Connector	*Roundabout*	*Roundabout*
	10	Lantz Connector	Shaw Dr	*Roundabout*	*Roundabout*
	11	Lantz Connector	Hwy 102 NB Ramps	*Roundabout*	*Roundabout*
	12	Lantz Connector	Hwy 102 SB Ramps	*Roundabout*	*Roundabout*
Elmsdale	13	Route 214	Trunk 2	*Signals*	*Signals*
	14	Route 214	Mason Dr	*Signals*	*Signals*
	15	Route 214	Hwy 102 NB Ramps	*Signals*	*Signals*
	16	Route 214	Hwy 102 SB Ramps	266	338
	17	Route 214	Park Rd	*Signals*	*Signals*
Enfield	18	Trunk 2	Elmwood	135	147
	19	Trunk 2	Alderney	89	97
	20	Trunk 2	Shamrock	37	41
	21	Trunk 2	Old Enfield Rd	323	491

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	**Trunk 2**	**Direction (EW or NS)**	**NS**	
Side Street (name)	**Milford Road**	**Direction (EW or NS)**	**EW**	
Quadrant / Int #	**Lantz 1**	**Comments**	**2043 Volumes Road Scenario 2 New North I/C**	
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**			

Road Authority:	**NSDPW**
City:	**Mun. of East Hants**
Analysis Date:	**Dec 2023**
Count Date:	**June 2023**
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB					1		2,000	1
Trunk 2	SB		1					2,000	1
Milford Road	WB				1				
Milford Road	EB								

Are the Milford Road WB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

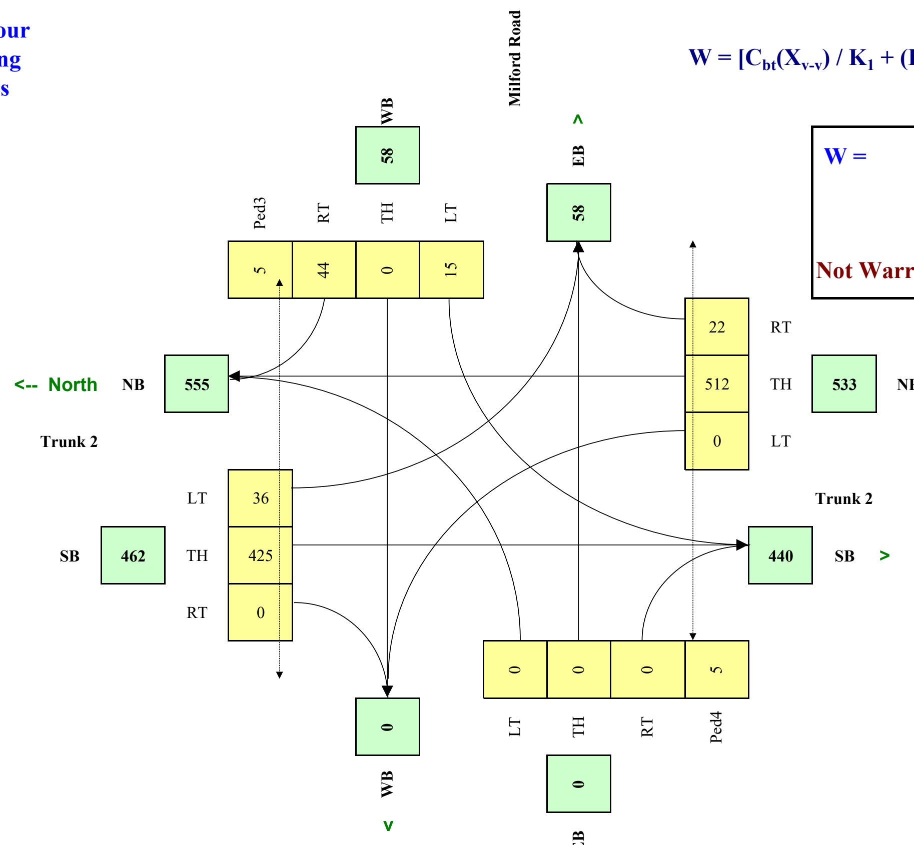
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Milford Road	EW		5.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1 NS**	**Ped2 NS**	**Ped3 EW**	**Ped4 EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	0	729	20	24	354	0	12	0	52	0	0	0	5	5	5	5
8:00 - 9:00	0	550	15	18	267	0	9	0	39	0	0	0	5	5	5	5
12:00 - 13:00	0	369	20	36	397	0	14	0	35	0	0	0	5	5	5	5
13:00 - 14:00	0	397	21	39	428	0	15	0	38	0	0	0	5	5	5	5
16:00 - 17:00	0	529	28	52	570	0	20	0	50	0	0	0	5	5	5	5
17:00 - 18:00	0	496	26	49	535	0	19	0	47	0	0	0	5	5	5	5
Total (6-hour peak)	**0**	**3,070**	**130**	**218**	**2,551**	**0**	**89**	**0**	**261**	**0**	**0**	**0**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**0**	**512**	**22**	**36**	**425**	**0**	**15**	**0**	**44**	**0**	**0**	**0**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v-v}) / K_1 + (F\ (X_{v-p})\ L) / K_2] \times C_i$$



W =	**48**	**37**	**11**
		Veh	***Ped***

Not Warranted - Vs<75

RESET SHEET

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	
Side Street (name)	Milford Road	Direction (EW or NS)	EW	
Quadrant / Int #	Lantz 1	Comments	2053 Volumes Road Scenario 2 New North I/C	
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			

Road Authority:	NSDPW
City:	Mun. of East Hants
Analysis Date:	Dec 2023
Count Date:	June 2023
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB					1		2,000	1
Trunk 2	SB		1					2,000	1
Milford Road	WB				1				
Milford Road	EB								

Are the Milford Road WB right turns significantly impeded by through movements? (y/n) n

n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Milford Road	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	0	988	20	24	453	0	12	0	52	0	0	0	5	5	5	5
8:00 - 9:00	0	745	15	18	342	0	9	0	39	0	0	0	5	5	5	5
12:00 - 13:00	0	457	20	36	534	0	14	0	35	0	0	0	5	5	5	5
13:00 - 14:00	0	492	21	39	575	0	15	0	38	0	0	0	5	5	5	5
16:00 - 17:00	0	656	28	52	766	0	20	0	50	0	0	0	5	5	5	5
17:00 - 18:00	0	615	26	49	718	0	19	0	47	0	0	0	5	5	5	5
Total (6-hour peak)	**0**	**3,953**	**130**	**218**	**3,388**	**0**	**89**	**0**	**261**	**0**	**0**	**0**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**0**	**659**	**22**	**36**	**565**	**0**	**15**	**0**	**44**	**0**	**0**	**0**	**5**	**5**	**5**	**5**

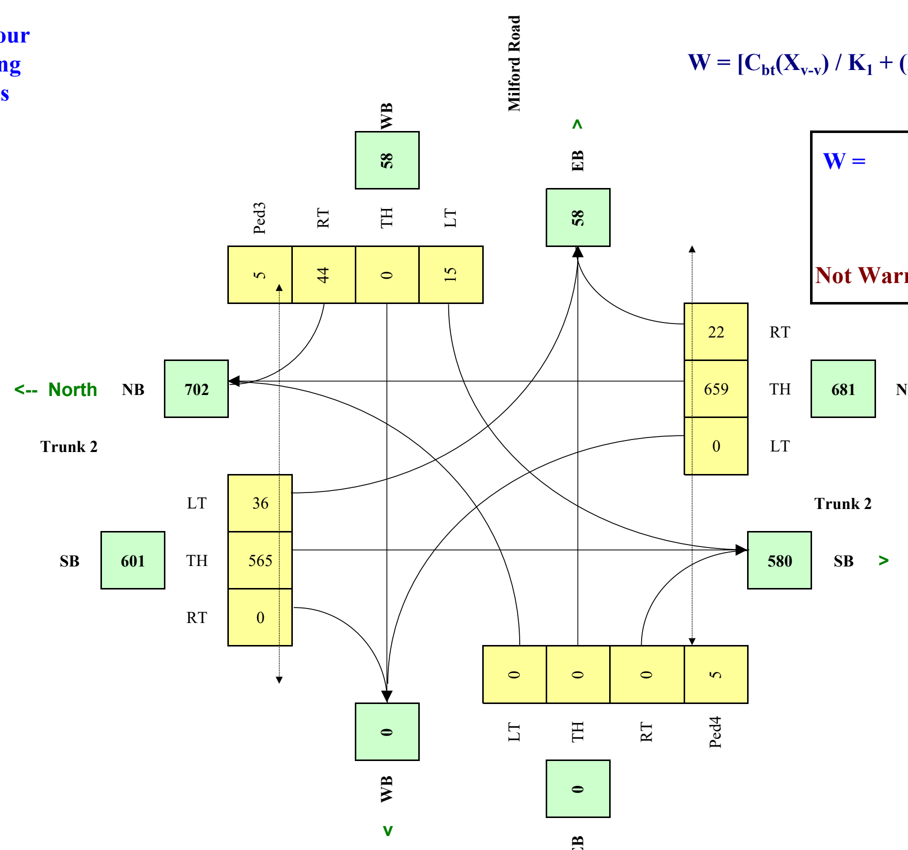
Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v-v}) / K_1 + (F\,(X_{v-p})\,L) / K_2] \times C_i$$

W =	62	47	15
		Veh	*Ped*

Not Warranted - Vs<75

RESET SHEET



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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	FH Street A	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Lantz 2	Comments	2043 Volumes Road Scenario 2 New North I/C	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				430	1
Trunk 2	SB					1		2,000	1
FH Street A	WB								
FH Street A	EB				1		1		
							n		
Are the FH Street A EB right turns significantly impeded by through movements? (y/n)							n		

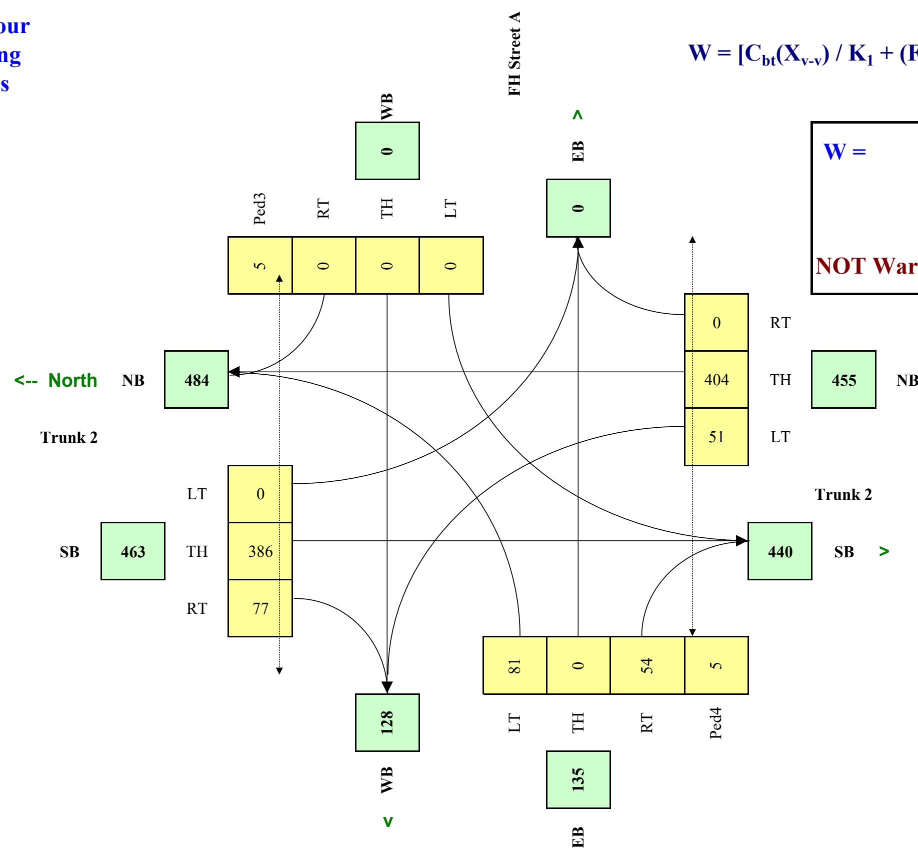
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
FH Street A	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	51	610	0	0	390	74	0	0	0	148	0	98	5	5	5	5
8:00 - 9:00	38	459	0	0	293	56	0	0	0	111	0	74	5	5	5	5
12:00 - 13:00	45	279	0	0	337	68	0	0	0	46	0	31	5	5	5	5
13:00 - 14:00	48	300	0	0	362	73	0	0	0	50	0	34	5	5	5	5
16:00 - 17:00	64	400	0	0	483	97	0	0	0	66	0	45	5	5	5	5
17:00 - 18:00	60	375	0	0	453	91	0	0	0	62	0	42	5	5	5	5
Total (6-hour peak)	**306**	**2,423**	**0**	**0**	**2,318**	**459**	**0**	**0**	**0**	**483**	**0**	**324**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**51**	**404**	**0**	**0**	**386**	**77**	**0**	**0**	**0**	**81**	**0**	**54**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W =	73	63	10
		Veh	*Ped*

NOT Warranted

RESET SHEET

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	FH Street A	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Lantz 2	Comments	2053 Volumes Road Scenario 2 New North I/C	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				430	1
Trunk 2	SB					1		2,000	1
FH Street A	WB								
FH Street A	EB				1		1		
							n		
Are the FH Street A EB right turns significantly impeded by through movements? (y/n)							n		

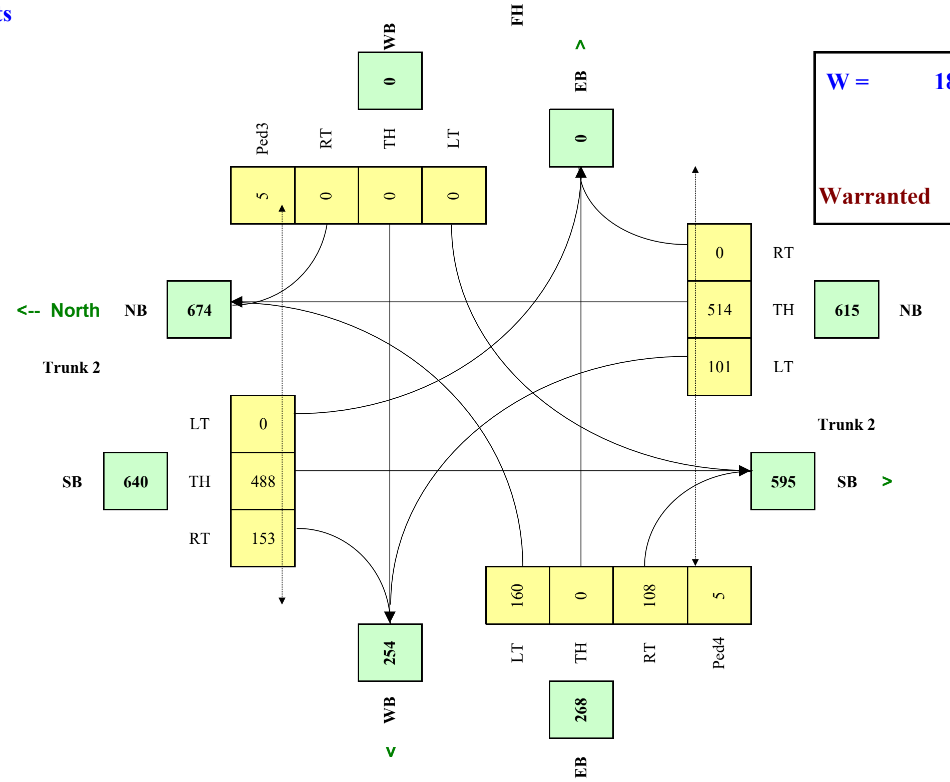
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
FH Street A	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	100	794	0	0	473	149	0	0	0	294	0	197	5	5	5	5
8:00 - 9:00	75	597	0	0	356	112	0	0	0	221	0	148	5	5	5	5
12:00 - 13:00	89	349	0	0	432	135	0	0	0	92	0	62	5	5	5	5
13:00 - 14:00	96	375	0	0	464	145	0	0	0	99	0	67	5	5	5	5
16:00 - 17:00	128	500	0	0	619	193	0	0	0	132	0	89	5	5	5	5
17:00 - 18:00	120	469	0	0	581	181	0	0	0	124	0	83	5	5	5	5
Total (6-hour peak)	**608**	**3,084**	**0**	**0**	**2,925**	**915**	**0**	**0**	**0**	**962**	**0**	**646**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**101**	**514**	**0**	**0**	**488**	**153**	**0**	**0**	**0**	**160**	**0**	**108**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$

W =	180	166	14
		Veh	*Ped*

Warranted

RESET SHEET

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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS		Road Authority:	NSDPW
Side Street (name)	Armco North / Robert Scottt	Direction (EW or NS)	EW		City:	Mun. of East Hants
Quadrant / Int #	Lantz 3	Comments	2043 Volumes Road Scenario 2 New North I/C		Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET				Count Date:	June 2023
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1				1		980	1
Trunk 2	SB	1				1		2,000	1
Armco North / Robert Scottt	WB				1				
Armco North / Robert Scottt	EB				1		1		

Armco North / Robert Scottt WB right turns significantly impeded by through movements? (y/n)	n
Armco North / Robert Scottt EB right turns significantly impeded by through movements? (y/n)	n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

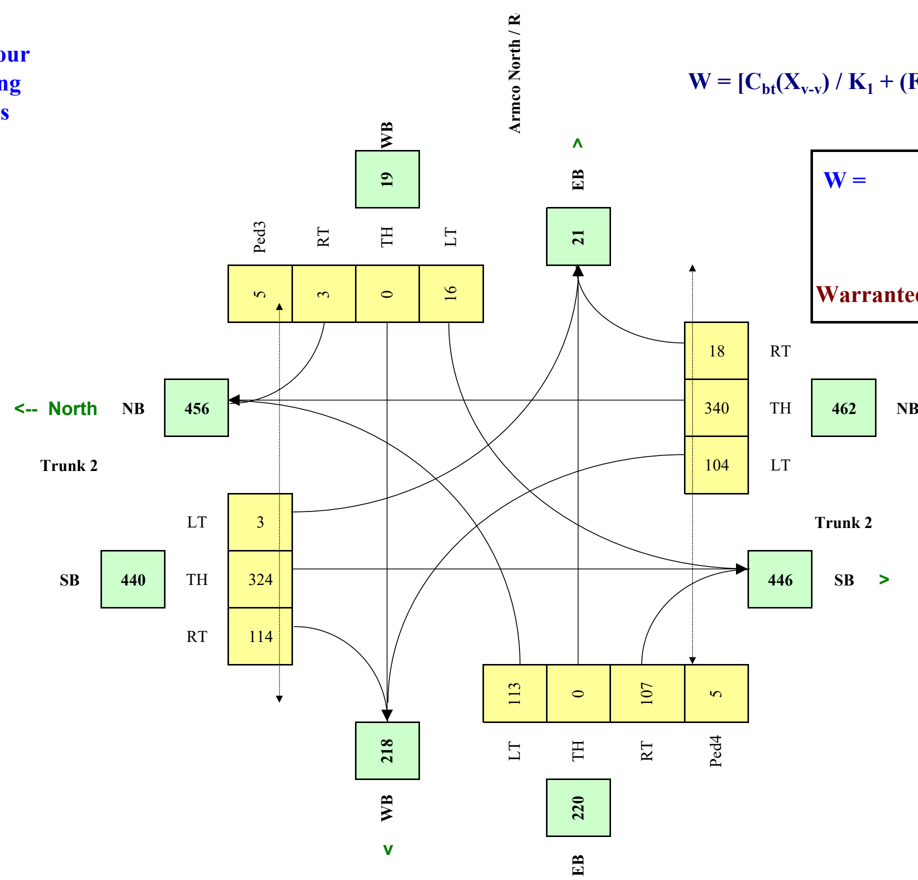
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Armco North / Robert Scottt	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	52	458	15	5	402	82	32	0	3	200	0	190	5	5	5	5
8:00 - 9:00	39	344	11	4	302	62	24	0	2	150	0	143	5	5	5	5
12:00 - 13:00	110	254	17	1	255	111	8	0	3	68	0	63	5	5	5	5
13:00 - 14:00	119	274	18	2	275	119	8	0	3	73	0	68	5	5	5	5
16:00 - 17:00	158	365	24	2	366	159	11	0	4	97	0	91	5	5	5	5
17:00 - 18:00	148	342	23	2	343	149	10	0	4	91	0	85	5	5	5	5
Total (6-hour peak)	**626**	**2,037**	**108**	**16**	**1,943**	**682**	**93**	**0**	**19**	**679**	**0**	**640**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**104**	**340**	**18**	**3**	**324**	**114**	**16**	**0**	**3**	**113**	**0**	**107**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v-v}) / K_1 + (F (X_{v-p}) L) / K_2] \times C_i$$



W =	107	97	10
		Veh	*Ped*
Warranted			

RESET SHEET

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS		Road Authority:	NSDPW	
Side Street (name)	Armco North / Robert Scottt	Direction (EW or NS)	EW		City:	Mun. of East Hants	
Quadrant / Int #	Lantz 3	Comments	2053 Volumes Road Scenario 2 New North I/C		Analysis Date:	Dec 2023	
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET				Count Date:	June 2023	
					Date Entry Format:	(yyyy-mm-dd)	

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1				1		980	1
Trunk 2	SB	1				1		2,000	1
Armco North / Robert Scottt	WB				1				
Armco North / Robert Scottt	EB				1		1		

Armco North / Robert Scottt WB right turns significantly impeded by through movements? (y/n) n

Armco North / Robert Scottt EB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

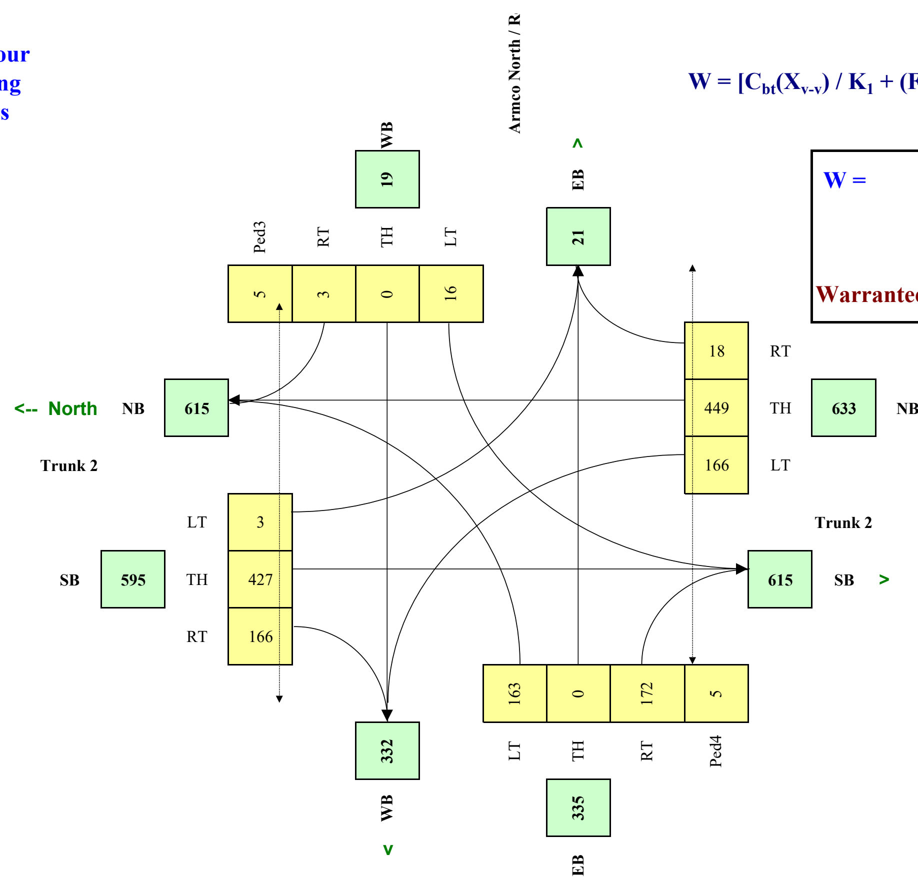
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Armco North / Robert Scottt	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	77	602	15	5	541	124	32	0	3	289	0	306	5	5	5	5
8:00 - 9:00	58	453	11	4	407	93	24	0	2	217	0	230	5	5	5	5
12:00 - 13:00	178	337	17	1	333	160	8	0	3	98	0	102	5	5	5	5
13:00 - 14:00	191	363	18	2	358	172	8	0	3	105	0	110	5	5	5	5
16:00 - 17:00	255	484	24	2	477	229	11	0	4	140	0	146	5	5	5	5
17:00 - 18:00	239	454	23	2	447	215	10	0	4	131	0	137	5	5	5	5
Total (6-hour peak)	**998**	**2,693**	**108**	**16**	**2,563**	**993**	**93**	**0**	**19**	**980**	**0**	**1,031**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**166**	**449**	**18**	**3**	**427**	**166**	**16**	**0**	**3**	**163**	**0**	**172**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$



W =	212	198	14
		Veh	*Ped*

Warranted

RESET SHEET

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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority: NSDPW
Side Street (name)	Wickwire South	Direction (EW or NS)	EW	City: Mun. of East Hants
Quadrant / Int #	Lantz 4	Comments	2043 Volumes Road Scenario 2 New North I/C	Analysis Date: Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date: June 2023
				Date Entry Format: (yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		980	1
Wickwire South	WB								
Wickwire South	EB	1					1		
							n		
							n		

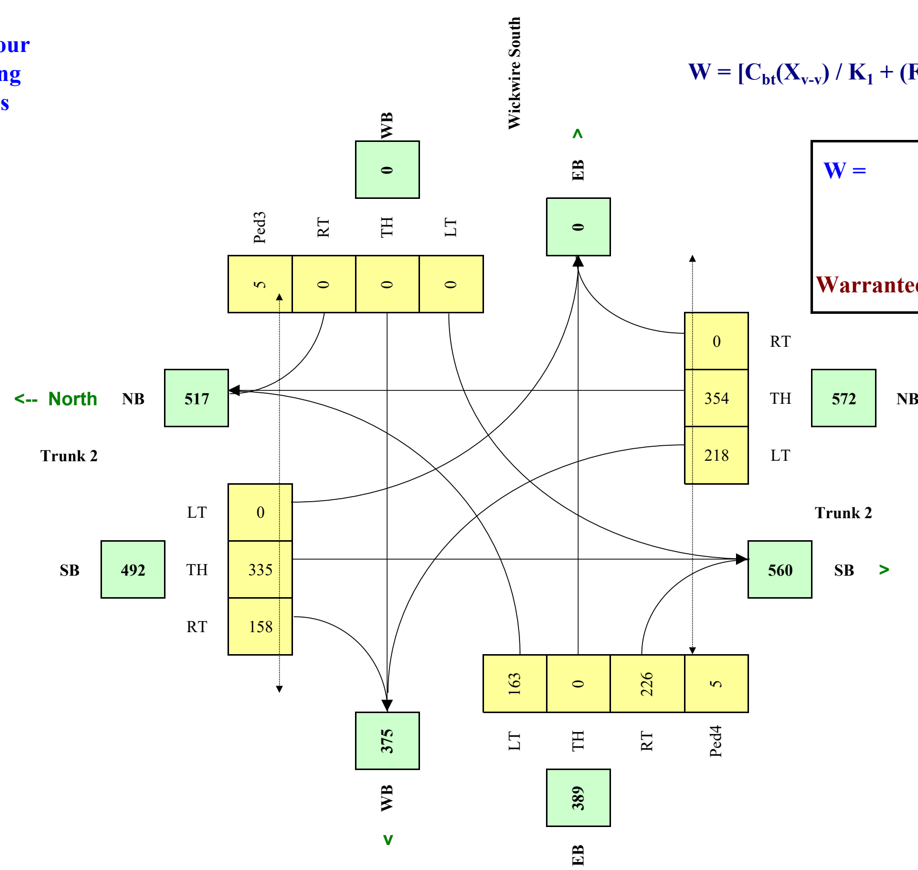
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Wickwire South	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	133	278	0	0	569	101	0	0	0	278	0	384	5	5	5	5
8:00 - 9:00	100	209	0	0	428	76	0	0	0	209	0	289	5	5	5	5
12:00 - 13:00	221	337	0	0	208	158	0	0	0	101	0	140	5	5	5	5
13:00 - 14:00	238	363	0	0	224	170	0	0	0	109	0	151	5	5	5	5
16:00 - 17:00	317	484	0	0	299	227	0	0	0	145	0	201	5	5	5	5
17:00 - 18:00	297	454	0	0	280	213	0	0	0	136	0	189	5	5	5	5
Total (6-hour peak)	**1,306**	**2,125**	**0**	**0**	**2,008**	**945**	**0**	**0**	**0**	**978**	**0**	**1,354**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**218**	**354**	**0**	**0**	**335**	**158**	**0**	**0**	**0**	**163**	**0**	**226**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W =	210	198	12
		Veh	*Ped*

Warranted

RESET SHEET

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Wickwire South	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Lantz 4	Comments	2053 Volumes Road Scenario 2 New North I/C	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		980	1
Wickwire South	WB								
Wickwire South	EB	1					1		
							n		
							n		

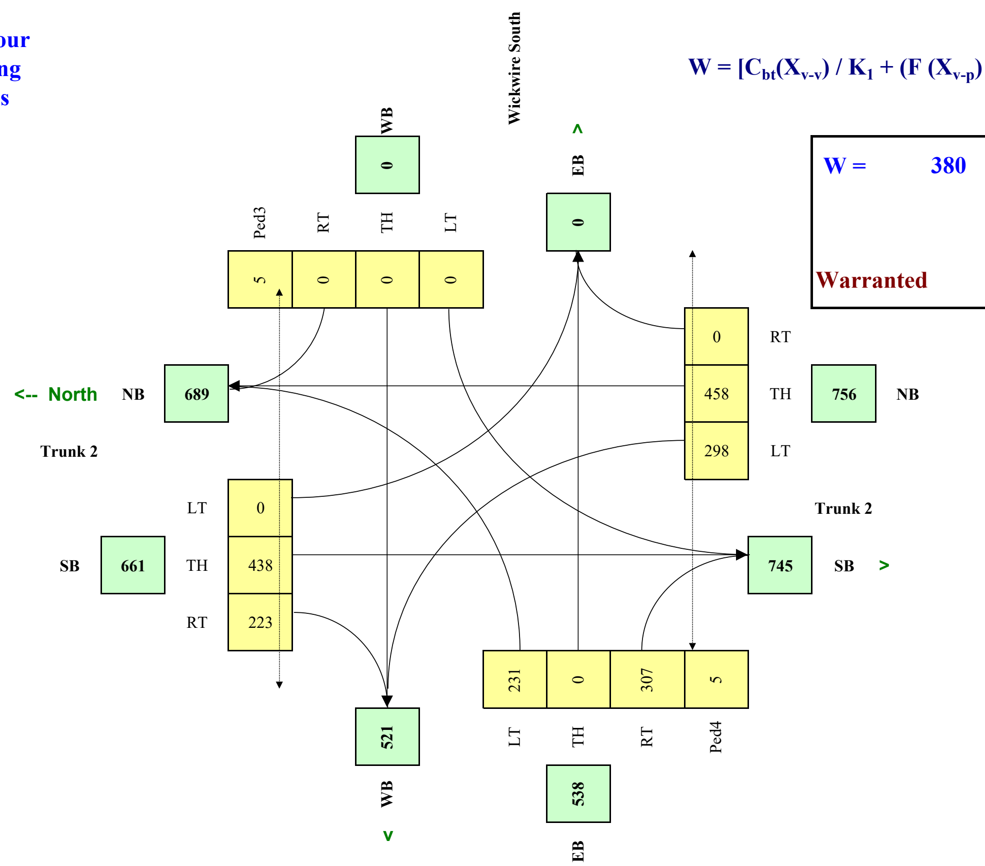
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Wickwire South	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	182	333	0	0	781	145	0	0	0	394	0	525	5	5	5	5
8:00 - 9:00	137	250	0	0	587	109	0	0	0	296	0	395	5	5	5	5
12:00 - 13:00	303	446	0	0	259	223	0	0	0	143	0	190	5	5	5	5
13:00 - 14:00	326	480	0	0	279	240	0	0	0	154	0	205	5	5	5	5
16:00 - 17:00	434	640	0	0	372	320	0	0	0	205	0	273	5	5	5	5
17:00 - 18:00	407	600	0	0	349	300	0	0	0	192	0	256	5	5	5	5
Total (6-hour peak)	**1,789**	**2,749**	**0**	**0**	**2,627**	**1,337**	**0**	**0**	**0**	**1,384**	**0**	**1,844**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**298**	**458**	**0**	**0**	**438**	**223**	**0**	**0**	**0**	**231**	**0**	**307**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W =	380	364	16
		Veh	*Ped*

Warranted

RESET SHEET

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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Frederick Allen	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Lantz 5	Comments	2043 Volumes Road Scenario 2 New North I/C	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		1,000	1
Frederick Allen	WB								
Frederick Allen	EB				1				
							n		

Are the Frederick Allen EB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Frederick Allen	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	27	388	0	0	944	9	0	0	0	23	0	102	5	5	5	5
8:00 - 9:00	20	292	0	0	710	7	0	0	0	17	0	77	5	5	5	5
12:00 - 13:00	47	548	0	0	336	12	0	0	0	10	0	33	5	5	5	5
13:00 - 14:00	50	590	0	0	362	13	0	0	0	11	0	35	5	5	5	5
16:00 - 17:00	67	786	0	0	482	17	0	0	0	15	0	47	5	5	5	5
17:00 - 18:00	63	737	0	0	452	16	0	0	0	14	0	44	5	5	5	5
Total (6-hour peak)	**274**	**3,341**	**0**	**0**	**3,286**	**74**	**0**	**0**	**0**	**90**	**0**	**338**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**46**	**557**	**0**	**0**	**548**	**12**	**0**	**0**	**0**	**15**	**0**	**56**	**5**	**5**	**5**	**5**

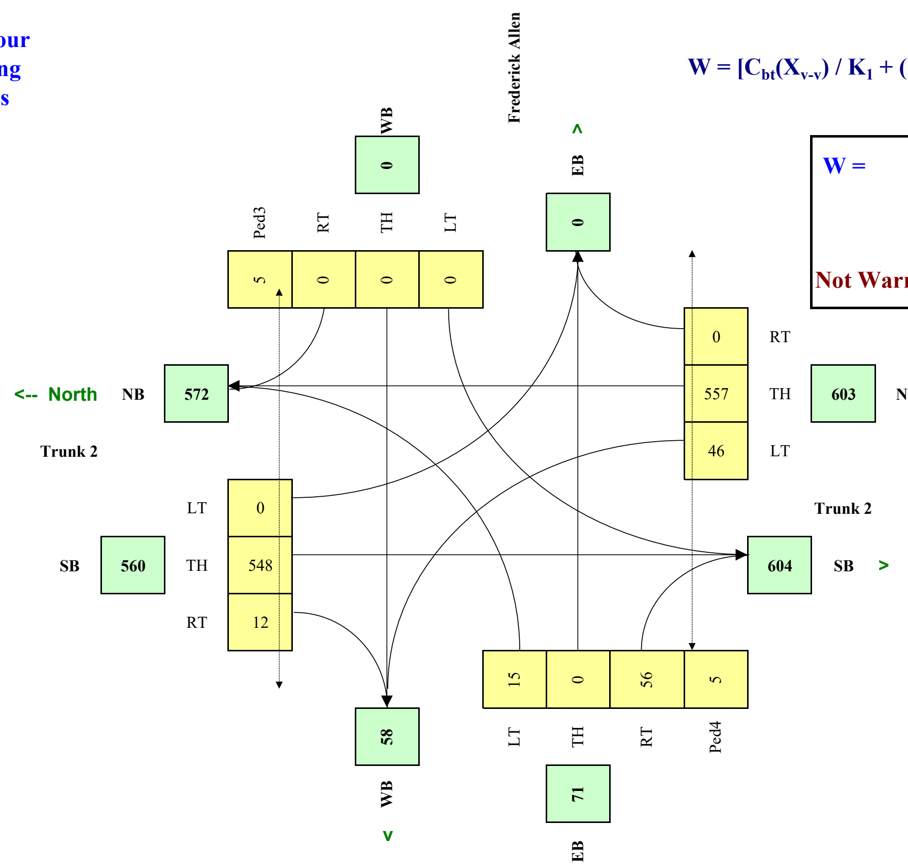
Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v-v}) / K_1 + (F\ (X_{v-p})\ L) / K_2] \times C_i$$

W =	57	44	13
		Veh	Ped

Not Warranted - Vs<75

RESET SHEET



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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS		Road Authority:	NSDPW
Side Street (name)	Frederick Allen	Direction (EW or NS)	EW		City:	Mun. of East Hants
Quadrant / Int #	Lantz 5	Comments	2053 Volumes Road Scenario 2 New North I/C		Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET				Count Date:	June 2023
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		1,000	1
Frederick Allen	WB								
Frederick Allen	EB				1				
							n		
Are the Frederick Allen EB right turns significantly impeded by through movements? (y/n)							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Frederick Allen	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	27	492	0	0	1297	9	0	0	0	23	0	102	5	5	5	5
8:00 - 9:00	20	370	0	0	975	7	0	0	0	17	0	77	5	5	5	5
12:00 - 13:00	47	738	0	0	438	12	0	0	0	10	0	33	5	5	5	5
13:00 - 14:00	50	794	0	0	471	13	0	0	0	11	0	35	5	5	5	5
16:00 - 17:00	67	1059	0	0	628	17	0	0	0	15	0	47	5	5	5	5
17:00 - 18:00	63	993	0	0	589	16	0	0	0	14	0	44	5	5	5	5
Total (6-hour peak)	**274**	**4,446**	**0**	**0**	**4,398**	**74**	**0**	**0**	**0**	**90**	**0**	**338**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**46**	**741**	**0**	**0**	**733**	**12**	**0**	**0**	**0**	**15**	**0**	**56**	**5**	**5**	**5**	**5**

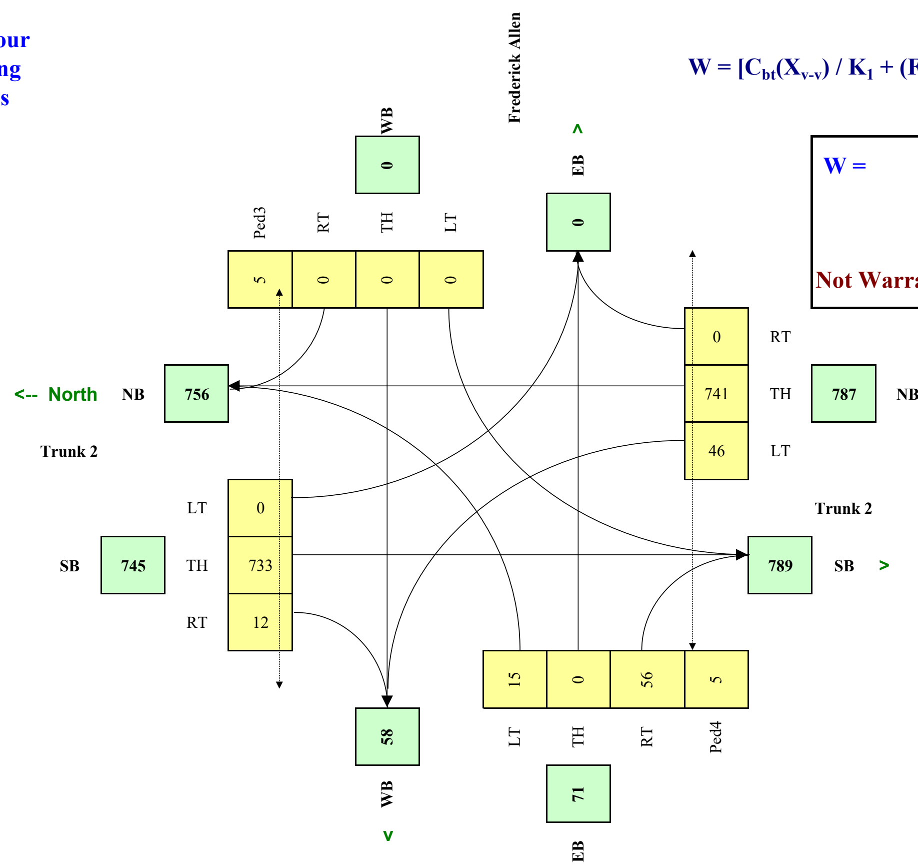
Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W =	76	59	17
		Veh	Ped

Not Warranted - Vs<75

RESET SHEET



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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Poplar	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Lantz 6	Comments	2043 Volumes Road Scenario 2 New North I/C	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				280	1
Trunk 2	SB					1		1,250	1
Poplar	WB								
Poplar	EB				1				
							n		

Are the Poplar EB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Poplar	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	47	402	0	0	1039	11	0	0	0	25	0	129	5	5	5	5
8:00 - 9:00	35	302	0	0	781	8	0	0	0	19	0	97	5	5	5	5
12:00 - 13:00	79	598	0	0	379	14	0	0	0	10	0	45	5	5	5	5
13:00 - 14:00	86	644	0	0	407	15	0	0	0	11	0	48	5	5	5	5
16:00 - 17:00	114	858	0	0	543	20	0	0	0	15	0	64	5	5	5	5
17:00 - 18:00	107	805	0	0	509	19	0	0	0	14	0	60	5	5	5	5
Total (6-hour peak)	**468**	**3,609**	**0**	**0**	**3,658**	**87**	**0**	**0**	**0**	**94**	**0**	**443**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**78**	**602**	**0**	**0**	**610**	**15**	**0**	**0**	**0**	**16**	**0**	**74**	**5**	**5**	**5**	**5**

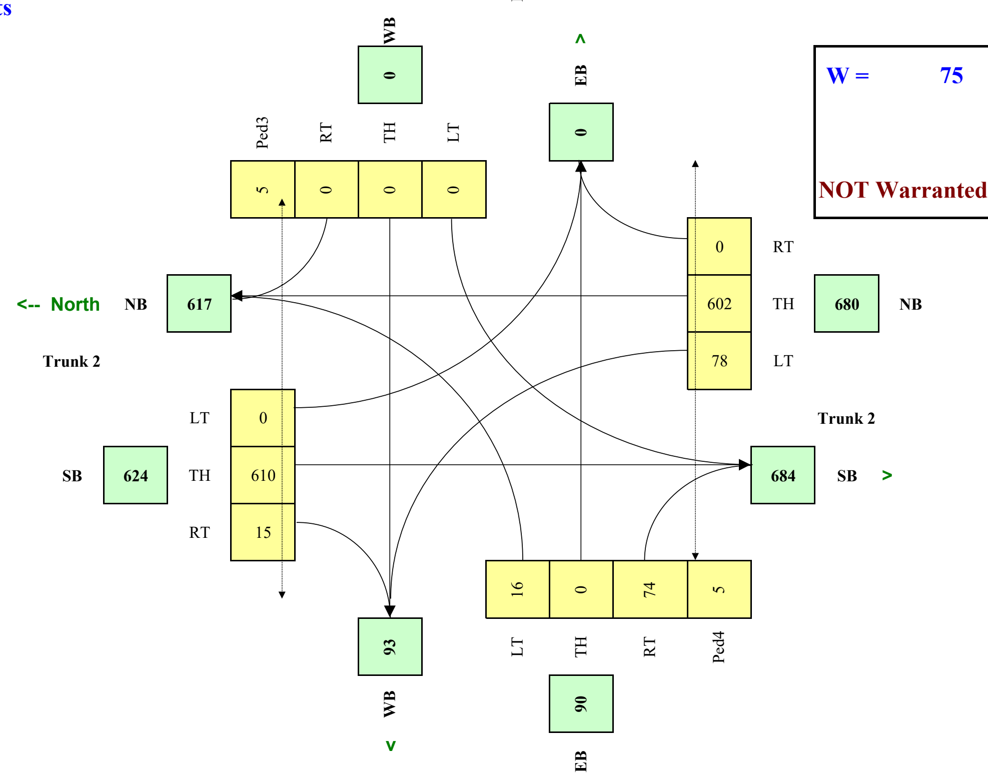
Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W =	75	61	14
		Veh	*Ped*

NOT Warranted

RESET SHEET



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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Poplar	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Lantz 6	Comments	2053 Volumes Road Scenario 2 New North I/C	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				280	1
Trunk 2	SB					1		1,250	1
Poplar	WB								
Poplar	EB				1				
							n		

Are the Poplar EB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

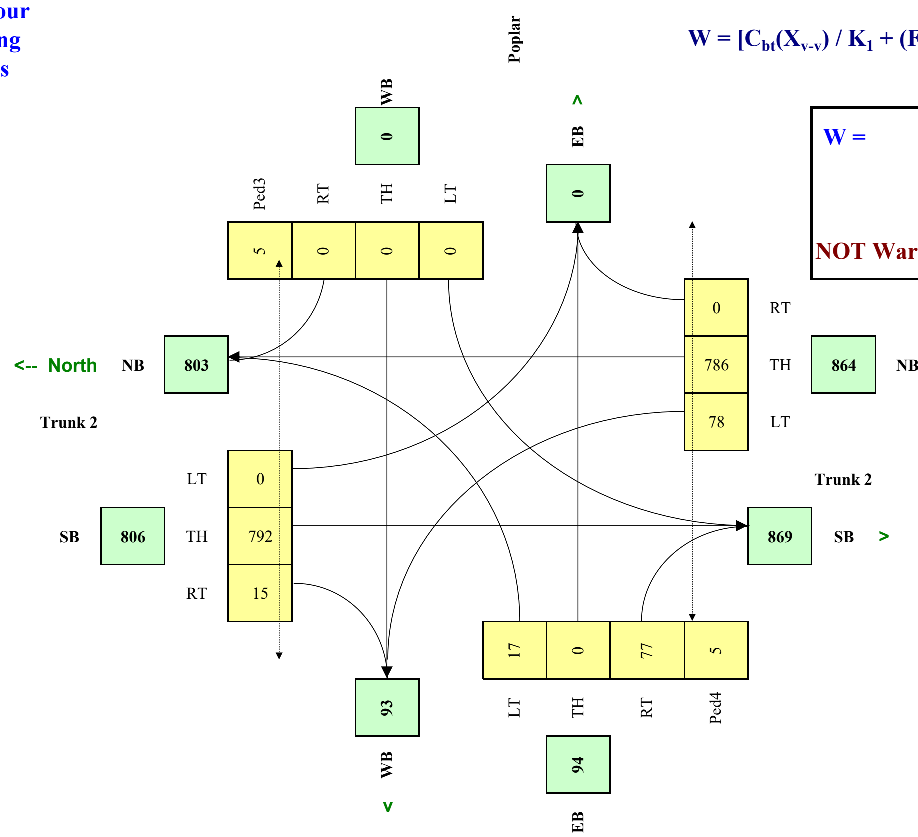
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Poplar	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	47	505	0	0	1381	11	0	0	0	31	0	140	5	5	5	5
8:00 - 9:00	35	380	0	0	1038	8	0	0	0	23	0	105	5	5	5	5
12:00 - 13:00	79	789	0	0	480	14	0	0	0	10	0	45	5	5	5	5
13:00 - 14:00	86	848	0	0	517	15	0	0	0	11	0	48	5	5	5	5
16:00 - 17:00	114	1131	0	0	689	20	0	0	0	15	0	64	5	5	5	5
17:00 - 18:00	107	1061	0	0	646	19	0	0	0	14	0	60	5	5	5	5
Total (6-hour peak)	**468**	**4,714**	**0**	**0**	**4,751**	**87**	**0**	**0**	**0**	**104**	**0**	**462**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**78**	**786**	**0**	**0**	**792**	**15**	**0**	**0**	**0**	**17**	**0**	**77**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$



W =	99	82	17
		Veh	*Ped*

NOT Warranted

RESET SHEET

Traffic Signal Warrant Spreadsheet - v3H

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS		Road Authority:	NSDPW
Side Street (name)	Rte 277 / Logan	Direction (EW or NS)	EW		City:	Mun. of East Hants
Quadrant / Int #	Lantz 7	Comments	2043 Volumes Road Scenario 2 New North I/C		Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET				Count Date:	June 2023
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1				1		2,000	1
Trunk 2	SB	1				1		1,530	1
Rte 277 / Logan	WB				1				
Rte 277 / Logan	EB				1				

Are the Rte 277 / Logan WB right turns significantly impeded by through movements? (y/n)	n
Are the Rte 277 / Logan EB right turns significantly impeded by through movements? (y/n)	n

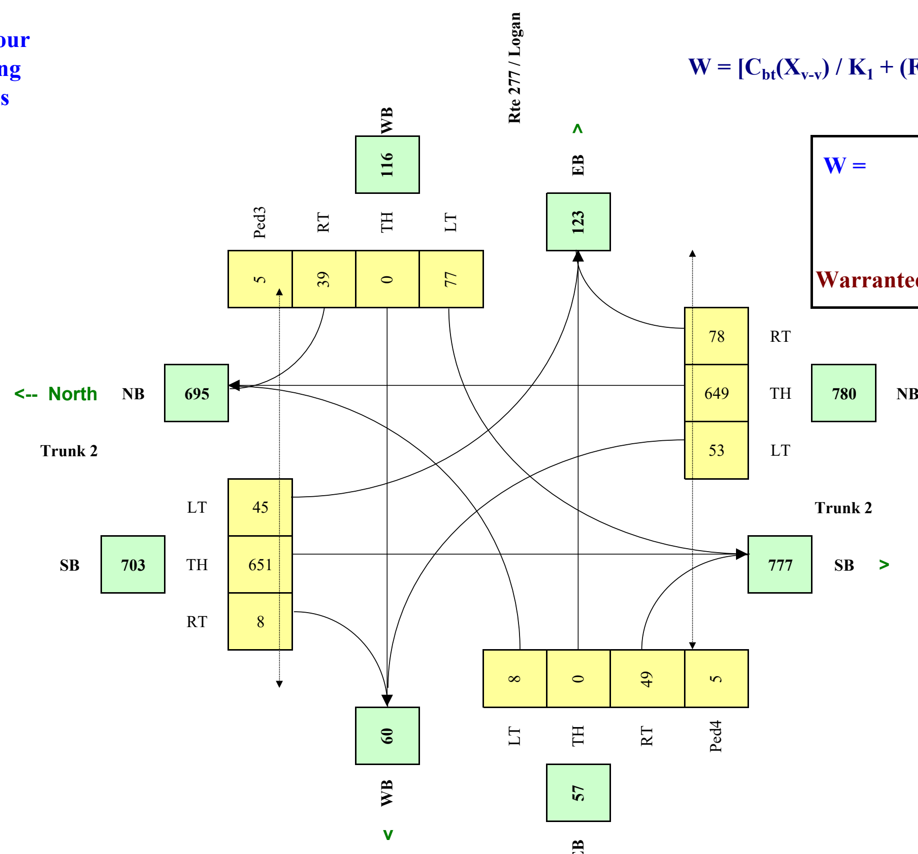
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Rte 277 / Logan	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	31	460	48	68	1138	7	133	0	20	16	0	82	5	5	5	5
8:00 - 9:00	23	346	36	51	856	5	100	0	15	12	0	62	5	5	5	5
12:00 - 13:00	54	636	79	31	393	7	47	0	40	3	0	31	5	5	5	5
13:00 - 14:00	58	684	86	33	423	8	51	0	44	4	0	34	5	5	5	5
16:00 - 17:00	77	912	114	44	564	10	68	0	58	5	0	45	5	5	5	5
17:00 - 18:00	72	855	107	41	529	9	64	0	54	5	0	42	5	5	5	5
Total (6-hour peak)	**315**	**3,893**	**470**	**268**	**3,903**	**46**	**463**	**0**	**231**	**45**	**0**	**296**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**53**	**649**	**78**	**45**	**651**	**8**	**77**	**0**	**39**	**8**	**0**	**49**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W =	153	136	17
		Veh	*Ped*
Warranted			

RESET SHEET

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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS		Road Authority:	NSDPW
Side Street (name)	Rte 277 / Logan	Direction (EW or NS)	EW		City:	Mun. of East Hants
Quadrant / Int #	Lantz 7	Comments	2053 Volumes Road Scenario 2 New North I/C		Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET				Count Date:	June 2023
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1				1		2,000	1
Trunk 2	SB	1				1		1,530	1
Rte 277 / Logan	WB				1				
Rte 277 / Logan	EB				1				

Are the Rte 277 / Logan WB right turns significantly impeded by through movements? (y/n) n

Are the Rte 277 / Logan EB right turns significantly impeded by through movements? (y/n) n

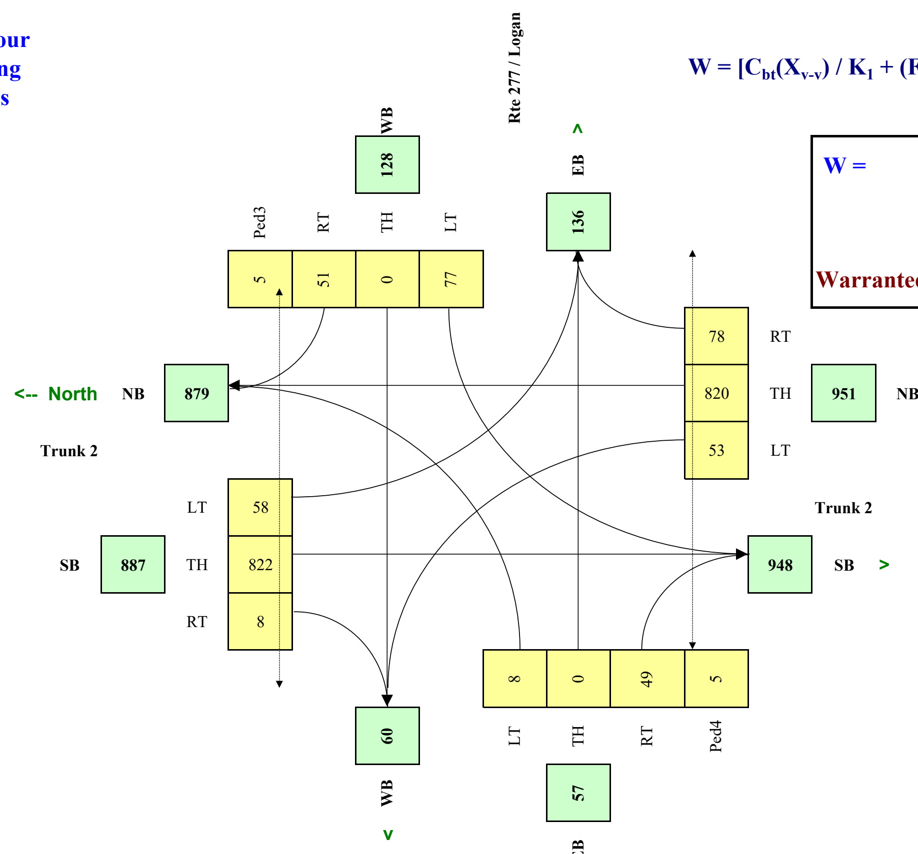
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Rte 277 / Logan	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	31	553	48	90	1467	7	133	0	31	16	0	82	5	5	5	5
8:00 - 9:00	23	416	36	68	1103	5	100	0	23	12	0	62	5	5	5	5
12:00 - 13:00	54	814	79	39	486	7	47	0	52	3	0	31	5	5	5	5
13:00 - 14:00	58	875	86	42	523	8	51	0	56	4	0	34	5	5	5	5
16:00 - 17:00	77	1167	114	56	697	10	68	0	75	5	0	45	5	5	5	5
17:00 - 18:00	72	1094	107	53	654	9	64	0	70	5	0	42	5	5	5	5
Total (6-hour peak)	**315**	**4,919**	**470**	**348**	**4,930**	**46**	**463**	**0**	**307**	**45**	**0**	**296**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**53**	**820**	**78**	**58**	**822**	**8**	**77**	**0**	**51**	**8**	**0**	**49**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F (X_{v-p}) L) / K_2] \times C_i$$

W =	**210**	**189**	**21**
		Veh	*Ped*
Warranted			

RESET SHEET

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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	**Trunk 2**	**Direction (EW or NS)**	**NS**		**Road Authority:**	**NSDPW**
Side Street (name)	**Church**	**Direction (EW or NS)**	**EW**		**City:**	**Mun. of East Hants**
Quadrant / Int #	**Lantz 8**	**Comments**	**2043 Volumes Road Scenario 2 New North I/C**		**Analysis Date:**	**Dec 2023**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**				**Count Date:**	**June 2023**
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB					1		2,000	1
Trunk 2	SB		1					155	1
Church	WB				1				
Church	EB								

Are the Church WB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Church	EW		5.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1 NS**	**Ped2 NS**	**Ped3 EW**	**Ped4 EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	0	509	12	3	1367	0	13	0	1	0	0	0	5	5	5	5
8:00 - 9:00	0	383	9	2	1028	0	10	0	1	0	0	0	5	5	5	5
12:00 - 13:00	0	763	14	1	465	0	8	0	6	0	0	0	5	5	5	5
13:00 - 14:00	0	821	15	1	500	0	8	0	6	0	0	0	5	5	5	5
16:00 - 17:00	0	1094	20	1	667	0	11	0	8	0	0	0	5	5	5	5
17:00 - 18:00	0	1026	19	1	626	0	10	0	8	0	0	0	5	5	5	5
Total (6-hour peak)	**0**	**4,596**	**89**	**9**	**4,653**	**0**	**60**	**0**	**30**	**0**	**0**	**0**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**0**	**766**	**15**	**2**	**776**	**0**	**10**	**0**	**5**	**0**	**0**	**0**	**5**	**5**	**5**	**5**

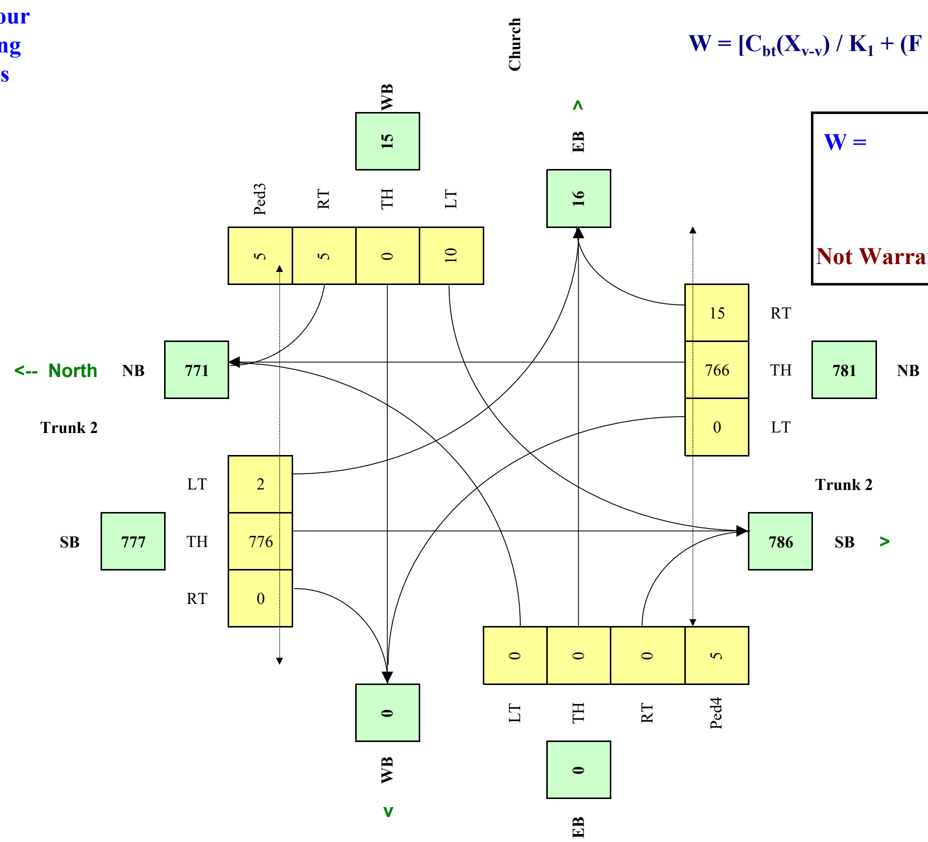
Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v-v}) / K_1 + (F\ (X_{v-p})\ L) / K_2] \times C_i$$

W =	**27**	**11**	**16**
		Veh	***Ped***

Not Warranted - Vs<75

RESET SHEET



NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Church	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Lantz 8	Comments	2053 Volumes Road Scenario 2 New North I/C	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB					1		2,000	1
Trunk 2	SB		1					155	1
Church	WB				1				
Church	EB								

Are the Church WB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Church	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	0	602	12	3	1696	0	13	0	1	0	0	0	5	5	5	5
8:00 - 9:00	0	453	9	2	1275	0	10	0	1	0	0	0	5	5	5	5
12:00 - 13:00	0	941	14	1	558	0	8	0	6	0	0	0	5	5	5	5
13:00 - 14:00	0	1012	15	1	600	0	8	0	6	0	0	0	5	5	5	5
16:00 - 17:00	0	1349	20	1	800	0	11	0	8	0	0	0	5	5	5	5
17:00 - 18:00	0	1265	19	1	750	0	10	0	8	0	0	0	5	5	5	5
Total (6-hour peak)	**0**	**5,622**	**89**	**9**	**5,679**	**0**	**60**	**0**	**30**	**0**	**0**	**0**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**0**	**937**	**15**	**2**	**947**	**0**	**10**	**0**	**5**	**0**	**0**	**0**	**5**	**5**	**5**	**5**

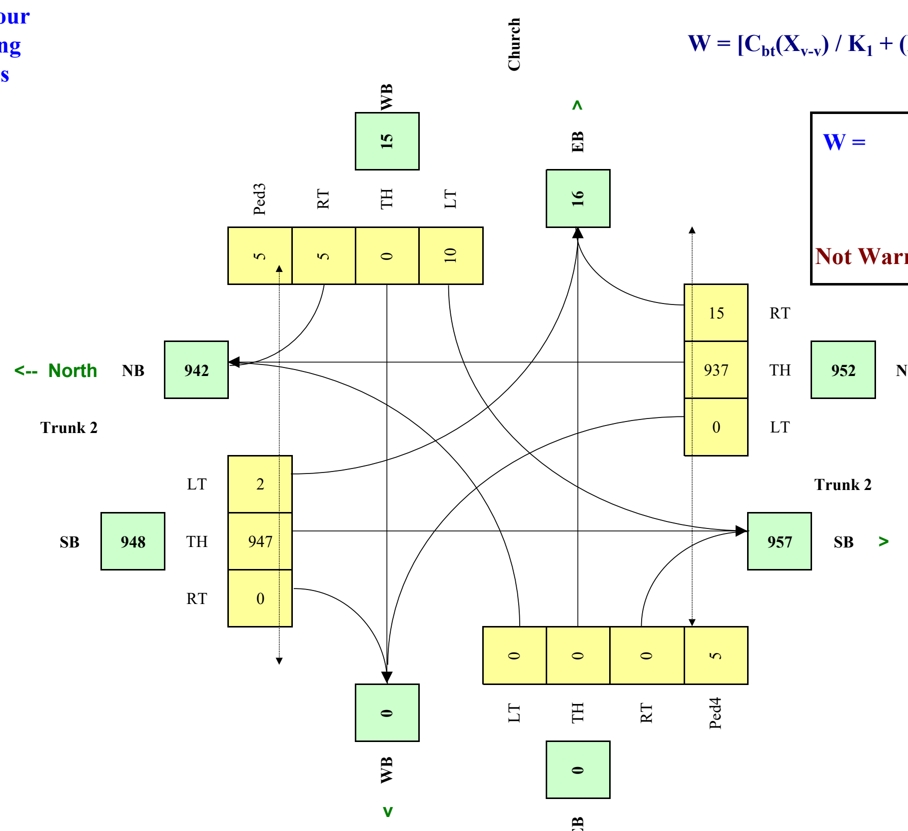
Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v-v}) / K_1 + (F\,(X_{v-p})\,L) / K_2] \times C_i$$

W =	33	14	19
		Veh	*Ped*

Not Warranted - Vs<75

RESET SHEET



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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	**Route 214**	**Direction (EW or NS)**	**EW**	**Road Authority:**	**NSDPW**
Side Street (name)	**Hwy 102 SB Ramps**	**Direction (EW or NS)**	**NS**	**City:**	**Mun. of East Hants**
Quadrant / Int #	**Elm 16**	**Comments**	**2043 Volumes Road Scenario 2 New North I/C**	**Analysis Date:**	**Dec 2023**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**			**Count Date:**	**June 2023**
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Route 214	WB	1		1				220	1
Route 214	EB					1		230	1
Hwy 102 SB Ramps	NB								
Hwy 102 SB Ramps	SB				1				
							n		

Are the Hwy 102 SB Ramps SB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Route 214	EW	60	5.0%	n	0.0
Hwy 102 SB Ramps	NS		5.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1 NS**	**Ped2 NS**	**Ped3 EW**	**Ped4 EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	0	0	0	110	0	388	479	743	0	0	492	375	5	5	5	5
8:00 - 9:00	0	0	0	83	0	292	360	559	0	0	370	282	5	5	5	5
12:00 - 13:00	0	0	0	107	1	127	137	517	0	0	524	220	5	5	5	5
13:00 - 14:00	0	0	0	115	2	137	148	557	0	0	563	237	5	5	5	5
16:00 - 17:00	0	0	0	153	2	182	197	742	0	0	751	316	5	5	5	5
17:00 - 18:00	0	0	0	143	2	171	185	696	0	0	704	296	5	5	5	5
Total (6-hour peak)	**0**	**0**	**0**	**711**	**7**	**1,297**	**1,506**	**3,814**	**0**	**0**	**3,404**	**1,726**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**0**	**0**	**0**	**119**	**1**	**216**	**251**	**636**	**0**	**0**	**567**	**288**	**5**	**5**	**5**	**5**

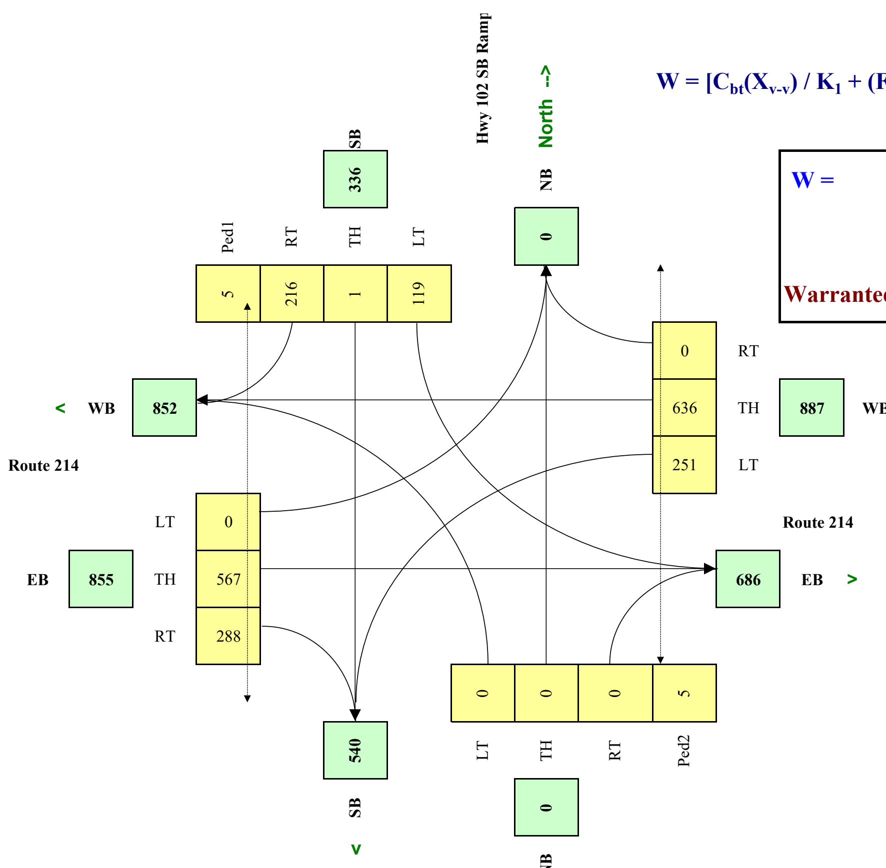
Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F (X_{v\text{-}p}) L) / K_2] \times C_i$$

W =	**266**	**250**	**16**
		Veh	***Ped***

Warranted

RESET SHEET



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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Route 214	Direction (EW or NS)	EW	Road Authority:	NSDPW
Side Street (name)	Hwy 102 SB Ramps	Direction (EW or NS)	NS	City:	Mun. of East Hants
Quadrant / Int #	Elm 16	Comments	2053 Volumes Road Scenario 2 New North I/C	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Route 214	WB	1		1				220	1
Route 214	EB					1		230	1
Hwy 102 SB Ramps	NB								
Hwy 102 SB Ramps	SB				1				
							n		
Are the Hwy 102 SB Ramps SB right turns significantly impeded by through movements? (y/n)							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Route 214	EW	60	5.0%	n	0.0
Hwy 102 SB Ramps	NS		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	0	0	0	112	0	392	599	797	0	0	557	416	5	5	5	5
8:00 - 9:00	0	0	0	84	0	295	450	599	0	0	419	313	5	5	5	5
12:00 - 13:00	0	0	0	110	1	136	179	551	0	0	595	236	5	5	5	5
13:00 - 14:00	0	0	0	119	2	146	193	593	0	0	640	254	5	5	5	5
16:00 - 17:00	0	0	0	158	2	195	257	790	0	0	853	338	5	5	5	5
17:00 - 18:00	0	0	0	148	2	183	241	741	0	0	800	317	5	5	5	5
Total (6-hour peak)	**0**	**0**	**0**	**731**	**7**	**1,347**	**1,919**	**4,071**	**0**	**0**	**3,864**	**1,874**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**0**	**0**	**0**	**122**	**1**	**225**	**320**	**679**	**0**	**0**	**644**	**312**	**5**	**5**	**5**	**5**

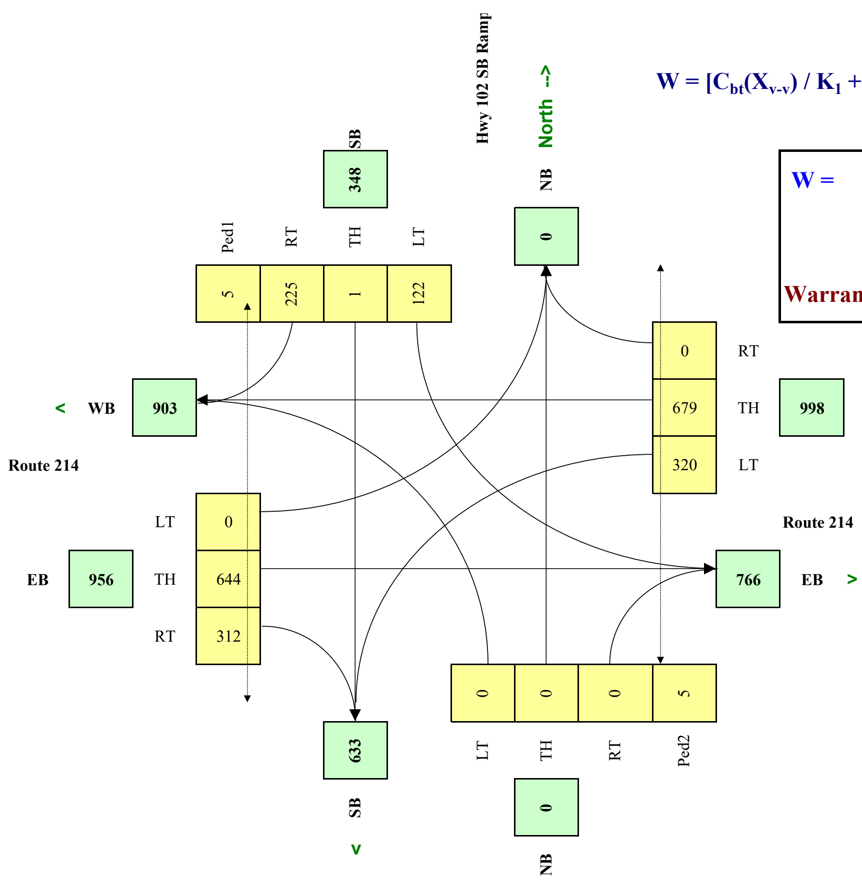
Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$

W =	338	320	18
		Veh	*Ped*

Warranted

RESET SHEET



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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	**Direction (EW or NS)**	NS	**Road Authority:**	NSDPW
Side Street (name)	Elmwood	**Direction (EW or NS)**	EW	**City:**	Mun. of East Hants
Quadrant / Int #	Enfield 18	**Comments**	2043 Volumes Road Scenario 2 New North I/C	**Analysis Date:**	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			**Count Date:**	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		1,200	1
Elmwood	WB								
Elmwood	EB				1				
							n		

Are the Elmwood EB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

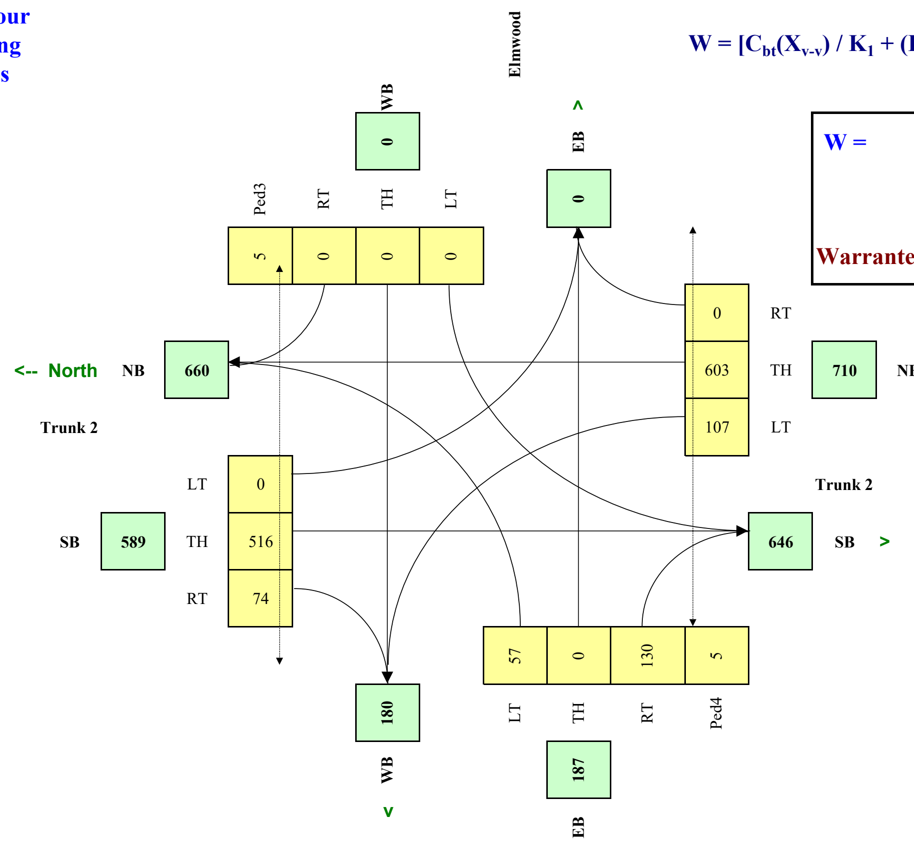
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Elmwood	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	56	600	0	0	661	51	0	0	0	90	0	242	5	5	5	5
8:00 - 9:00	42	451	0	0	497	38	0	0	0	68	0	182	5	5	5	5
12:00 - 13:00	112	529	0	0	399	73	0	0	0	38	0	73	5	5	5	5
13:00 - 14:00	120	569	0	0	429	78	0	0	0	41	0	79	5	5	5	5
16:00 - 17:00	160	759	0	0	572	104	0	0	0	54	0	105	5	5	5	5
17:00 - 18:00	150	712	0	0	536	98	0	0	0	51	0	98	5	5	5	5
Total (6-hour peak)	**640**	**3,620**	**0**	**0**	**3,094**	**442**	**0**	**0**	**0**	**342**	**0**	**779**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**107**	**603**	**0**	**0**	**516**	**74**	**0**	**0**	**0**	**57**	**0**	**130**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$



W =	**135**	**120**	**15**
		Veh	*Ped*
Warranted			

RESET SHEET

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS	Road Authority:	NSDPW
Side Street (name)	Elmwood	Direction (EW or NS)	EW	City:	Mun. of East Hants
Quadrant / Int #	Enfield 18	Comments	2053 Volumes Road Scenario 2 New North I/C	Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	June 2023
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		1,200	1
Elmwood	WB								
Elmwood	EB				1				
							n		
Are the Elmwood EB right turns significantly impeded by through movements? (y/n)							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Elmwood	EW		5.0%	n	

Set Peak Hours

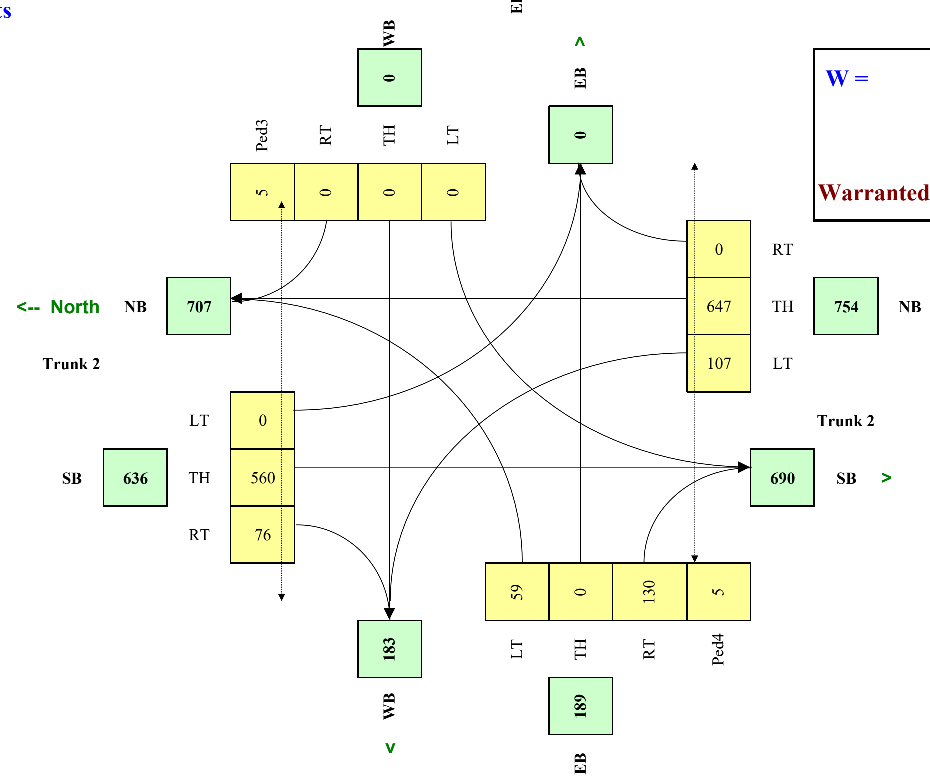
Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	56	630	0	0	735	55	0	0	0	93	0	242	5	5	5	5
8:00 - 9:00	42	474	0	0	553	41	0	0	0	70	0	182	5	5	5	5
12:00 - 13:00	112	572	0	0	427	75	0	0	0	40	0	73	5	5	5	5
13:00 - 14:00	120	616	0	0	459	80	0	0	0	43	0	79	5	5	5	5
16:00 - 17:00	160	821	0	0	612	107	0	0	0	57	0	105	5	5	5	5
17:00 - 18:00	150	770	0	0	574	100	0	0	0	53	0	98	5	5	5	5
Total (6-hour peak)	**640**	**3,883**	**0**	**0**	**3,360**	**458**	**0**	**0**	**0**	**356**	**0**	**779**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**107**	**647**	**0**	**0**	**560**	**76**	**0**	**0**	**0**	**59**	**0**	**130**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W =	147	132	15
		Veh	*Ped*
Warranted			

RESET SHEET



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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	**Trunk 2**	**Direction (EW or NS)**	**NS**	**Road Authority:**	**NSDPW**
Side Street (name)	**Alderney**	**Direction (EW or NS)**	**EW**	**City:**	**Mun. of East Hants**
Quadrant / Int #	**Enfield 19**	**Comments**	**2043 Volumes Road Scenario 2 New North I/C**	**Analysis Date:**	**Dec 2023**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**			**Count Date:**	**June 2023**
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		2,000	1
Alderney	WB								
Alderney	EB				1				
							n		

Are the Alderney EB right turns significantly impeded by through movements? (y/n) n

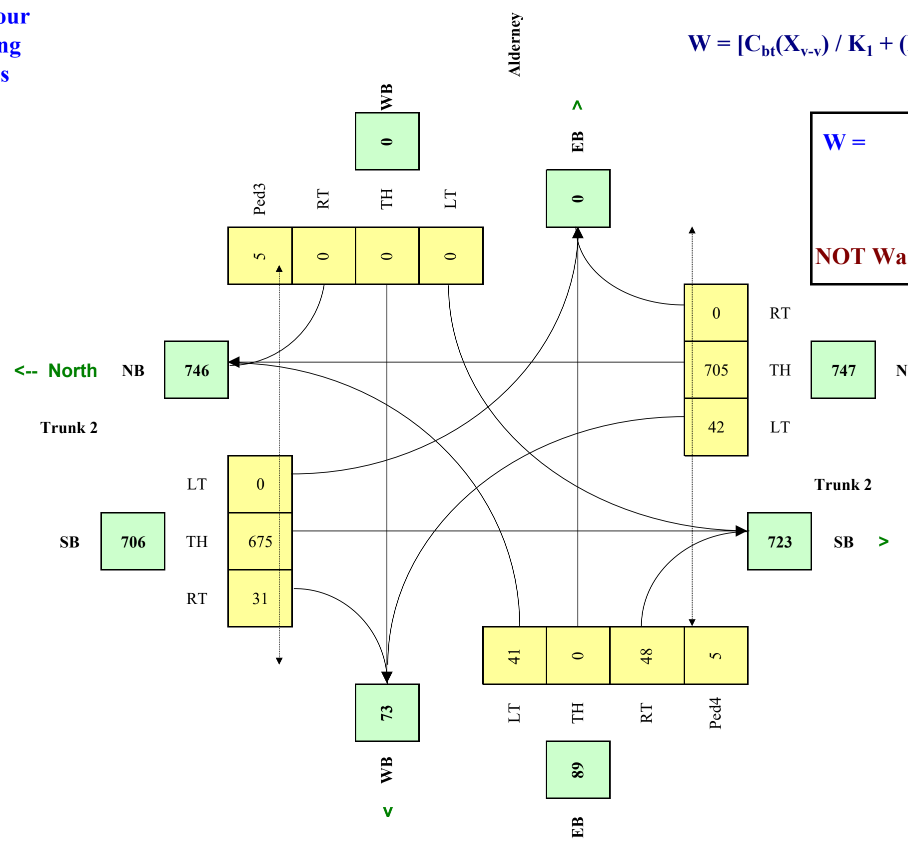
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Alderney	EW		5.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1 NS**	**Ped2 NS**	**Ped3 EW**	**Ped4 EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	24	563	0	0	999	29	0	0	0	51	0	88	5	5	5	5
8:00 - 9:00	18	423	0	0	751	22	0	0	0	38	0	66	5	5	5	5
12:00 - 13:00	43	668	0	0	473	28	0	0	0	32	0	28	5	5	5	5
13:00 - 14:00	47	719	0	0	509	30	0	0	0	35	0	30	5	5	5	5
16:00 - 17:00	62	958	0	0	679	40	0	0	0	46	0	40	5	5	5	5
17:00 - 18:00	58	898	0	0	637	38	0	0	0	43	0	38	5	5	5	5
Total (6-hour peak)	**252**	**4,229**	**0**	**0**	**4,048**	**187**	**0**	**0**	**0**	**245**	**0**	**290**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**42**	**705**	**0**	**0**	**675**	**31**	**0**	**0**	**0**	**41**	**0**	**48**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W =	**89**	**73**	**16**
		Veh	***Ped***

NOT Warranted

RESET SHEET

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS		Road Authority:	NSDPW
Side Street (name)	Alderney	Direction (EW or NS)	EW		City:	Mun. of East Hants
Quadrant / Int #	Enfield 19	Comments	2053 Volumes Road Scenario 2 New North I/C		Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET				Count Date:	June 2023
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		2,000	1
Alderney	WB								
Alderney	EB				1				
							n		

Are the Alderney EB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Alderney	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	24	591	0	0	1069	33	0	0	0	53	0	88	5	5	5	5
8:00 - 9:00	18	444	0	0	804	25	0	0	0	40	0	66	5	5	5	5
12:00 - 13:00	43	708	0	0	499	30	0	0	0	34	0	28	5	5	5	5
13:00 - 14:00	47	761	0	0	537	32	0	0	0	37	0	30	5	5	5	5
16:00 - 17:00	62	1015	0	0	716	43	0	0	0	49	0	40	5	5	5	5
17:00 - 18:00	58	952	0	0	672	40	0	0	0	46	0	38	5	5	5	5
Total (6-hour peak)	**252**	**4,471**	**0**	**0**	**4,297**	**203**	**0**	**0**	**0**	**259**	**0**	**290**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**42**	**745**	**0**	**0**	**716**	**34**	**0**	**0**	**0**	**43**	**0**	**48**	**5**	**5**	**5**	**5**

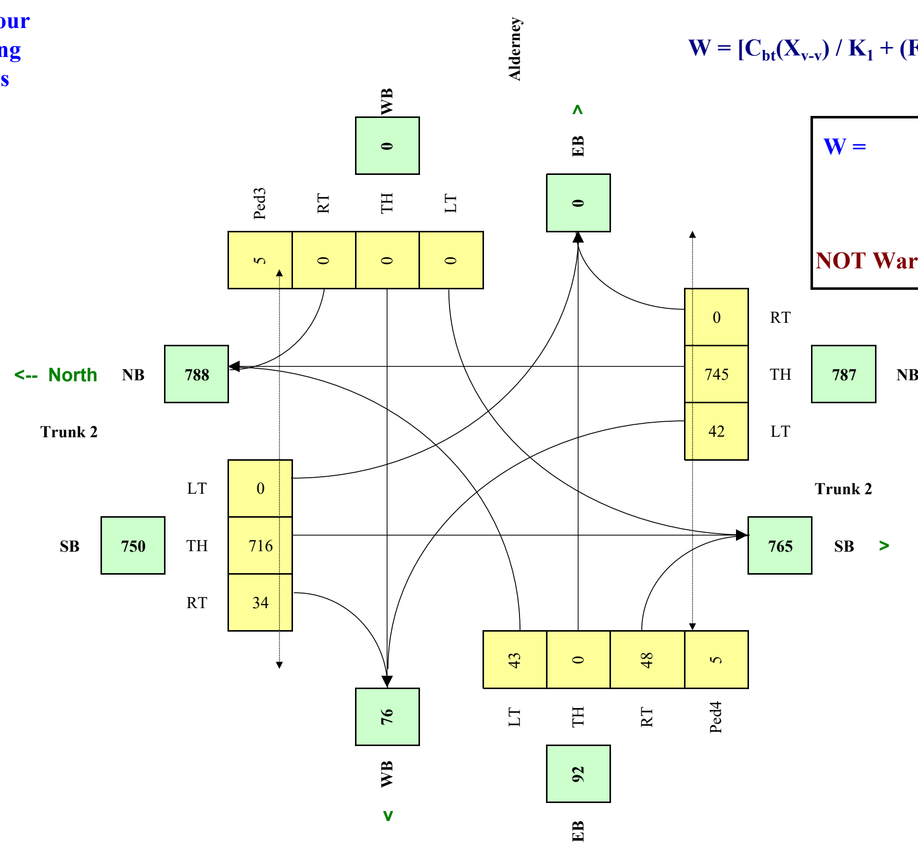
Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$

W =	97	79	18
		Veh	*Ped*

NOT Warranted

RESET SHEET



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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	**Trunk 2**		**Direction (EW or NS)**	**NS**	**Road Authority:**	**NSDPW**
Side Street (name)	**Shamrock**		**Direction (EW or NS)**	**EW**	**City:**	**Mun. of East Hants**
Quadrant / Int #	**Enfield 20**	**Comments**	**2043 Volumes Road Scenario 2 New North I/C**		**Analysis Date:**	**Dec 2023**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**				**Count Date:**	**June 2023**
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB		1					2,000	1
Trunk 2	SB					1		2,000	1
Shamrock	WB								
Shamrock	EB				1				
							n		
Are the Shamrock EB right turns significantly impeded by through movements? (y/n)							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Shamrock	EW		5.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1 NS**	**Ped2 NS**	**Ped3 EW**	**Ped4 EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	5	579	0	0	1079	11	0	0	0	9	0	32	5	5	5	5
8:00 - 9:00	4	435	0	0	811	8	0	0	0	7	0	24	5	5	5	5
12:00 - 13:00	10	703	0	0	494	9	0	0	0	8	0	6	5	5	5	5
13:00 - 14:00	11	756	0	0	531	10	0	0	0	9	0	6	5	5	5	5
16:00 - 17:00	15	1008	0	0	708	13	0	0	0	12	0	8	5	5	5	5
17:00 - 18:00	14	945	0	0	664	12	0	0	0	11	0	8	5	5	5	5
Total (6-hour peak)	**59**	**4,426**	**0**	**0**	**4,287**	**63**	**0**	**0**	**0**	**56**	**0**	**84**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**10**	**738**	**0**	**0**	**715**	**11**	**0**	**0**	**0**	**9**	**0**	**14**	**5**	**5**	**5**	**5**

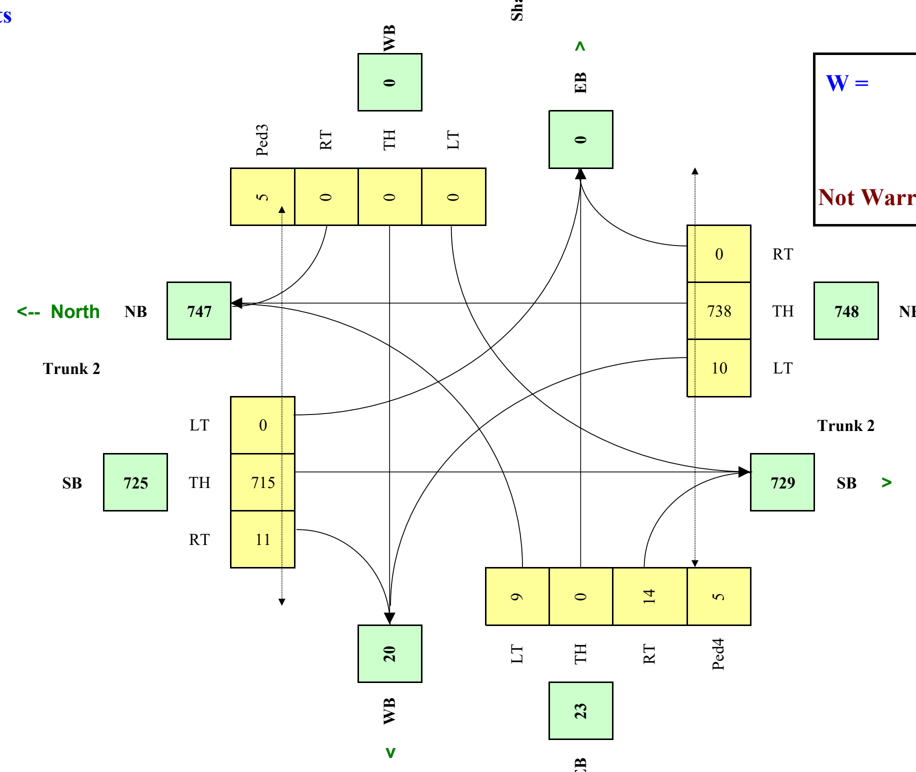
Average 6-hour Peak Turning Movements

Shamrock

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W = 37	20	17
	Veh	*Ped*
Not Warranted - Vs<75		

RESET SHEET



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NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	**Trunk 2**	**Direction (EW or NS)**	**NS**		**Road Authority:**	**NSDPW**
Side Street (name)	**Shamrock**	**Direction (EW or NS)**	**EW**		**City:**	**Mun. of East Hants**
Quadrant / Int #	**Enfield 20**	**Comments**	**2053 Volumes** **Road Scenario 2** **New North I/C**		**Analysis Date:**	**Dec 2023**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**				**Count Date:**	**June 2023**
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB		1					2,000	1
Trunk 2	SB					1		2,000	1
Shamrock	WB								
Shamrock	EB				1				
							n		
Are the Shamrock EB right turns significantly impeded by through movements? (y/n)							n		

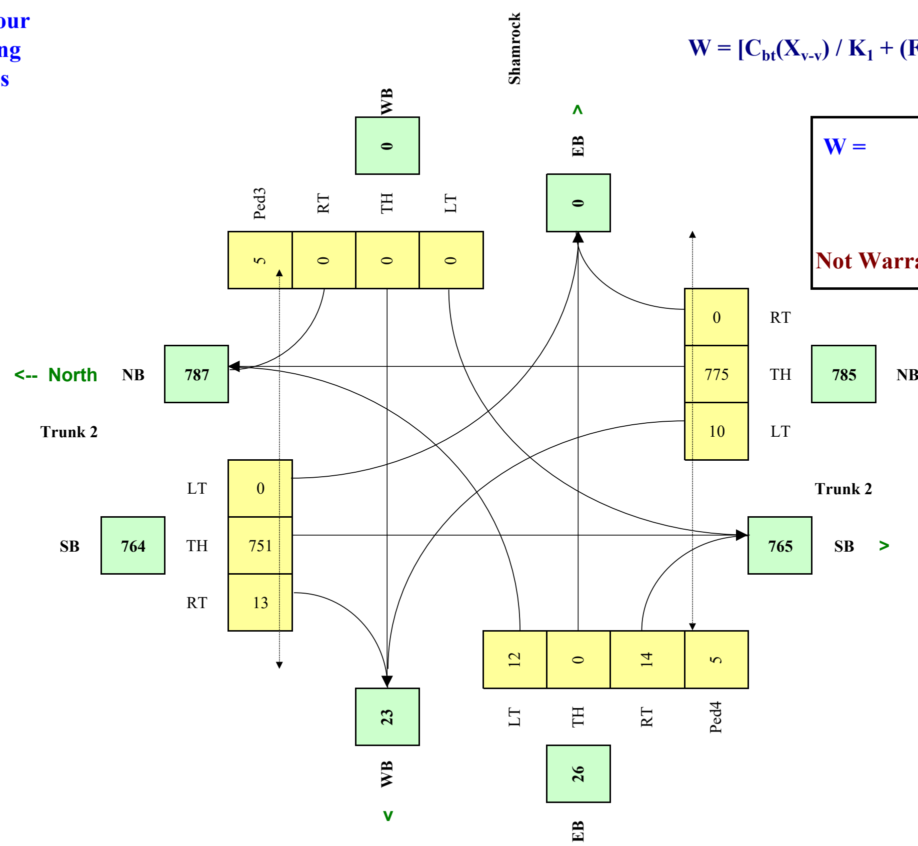
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Shamrock	EW		5.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1 NS**	**Ped2 NS**	**Ped3 EW**	**Ped4 EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	5	602	0	0	1142	15	0	0	0	12	0	32	5	5	5	5
8:00 - 9:00	4	453	0	0	859	11	0	0	0	9	0	24	5	5	5	5
12:00 - 13:00	10	740	0	0	516	11	0	0	0	10	0	6	5	5	5	5
13:00 - 14:00	11	797	0	0	555	12	0	0	0	11	0	6	5	5	5	5
16:00 - 17:00	15	1062	0	0	740	16	0	0	0	15	0	8	5	5	5	5
17:00 - 18:00	14	996	0	0	694	15	0	0	0	14	0	8	5	5	5	5
Total (6-hour peak)	**59**	**4,650**	**0**	**0**	**4,506**	**80**	**0**	**0**	**0**	**71**	**0**	**84**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**10**	**775**	**0**	**0**	**751**	**13**	**0**	**0**	**0**	**12**	**0**	**14**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F (X_{v-p}) L) / K_2] \times C_i$$

W =	**41**	**24**	**17**
		Veh	***Ped***

Not Warranted - Vs<75

RESET SHEET

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	Trunk 2	Direction (EW or NS)	NS		Road Authority:	NSDPW
Side Street (name)	Old Enfield	Direction (EW or NS)	EW		City:	Mun. of East Hants
Quadrant / Int #	Enfield 21	Comments	2043 Volumes Road Scenario 2 New North I/C		Analysis Date:	Dec 2023
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET				Count Date:	June 2023
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		2,000	1
Old Enfield	WB								
Old Enfield	EB	1					1		
							n		
							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Old Enfield	EW		5.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	118	363	0	0	1033	109	0	0	0	198	0	454	5	5	5	5
8:00 - 9:00	89	273	0	0	777	82	0	0	0	149	0	341	5	5	5	5
12:00 - 13:00	259	633	0	0	338	128	0	0	0	98	0	126	5	5	5	5
13:00 - 14:00	279	681	0	0	364	137	0	0	0	105	0	136	5	5	5	5
16:00 - 17:00	372	908	0	0	485	183	0	0	0	140	0	181	5	5	5	5
17:00 - 18:00	349	852	0	0	455	172	0	0	0	131	0	170	5	5	5	5
Total (6-hour peak)	**1,466**	**3,710**	**0**	**0**	**3,452**	**811**	**0**	**0**	**0**	**821**	**0**	**1,408**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**244**	**618**	**0**	**0**	**575**	**135**	**0**	**0**	**0**	**137**	**0**	**235**	**5**	**5**	**5**	**5**

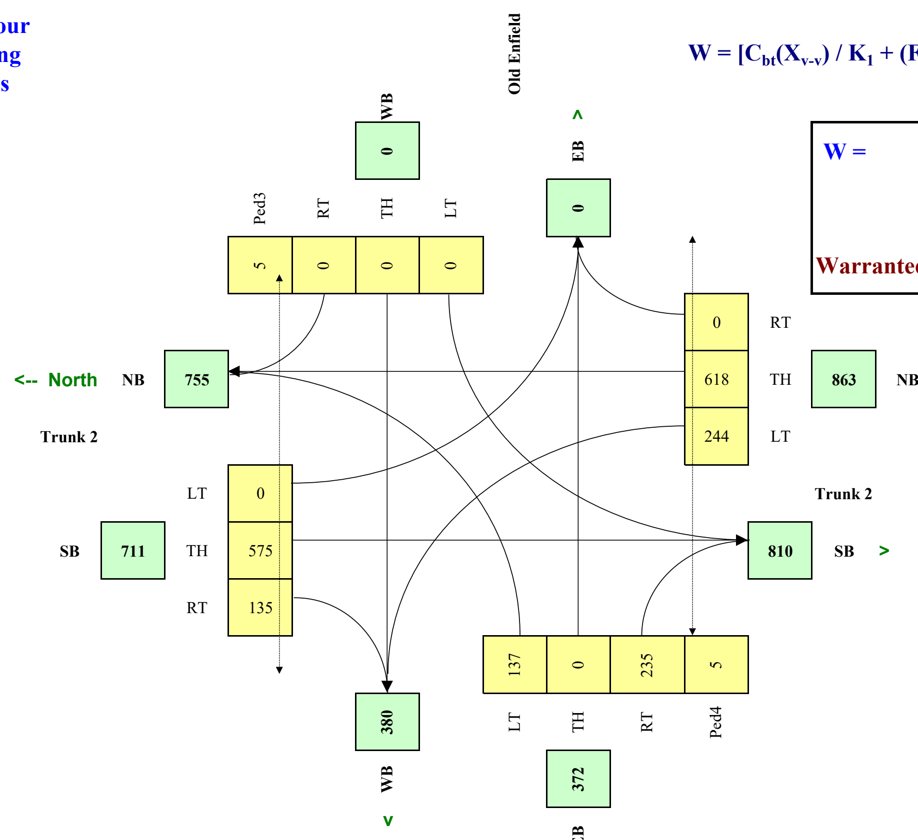
Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\ (X_{v\text{-}p})\ L) / K_2] \times C_i$$

W =	323	306	17
		Veh	*Ped*

Warranted

RESET SHEET



Traffic Signal Warrant Spreadsheet - v3H © 2007 Transportation Association of Canada

NSDPW - Traffic Signal Warrant Analysis

Main Street (name)	**Trunk 2**		**Direction (EW or NS)**	**NS**	**Road Authority:**	**NSDPW**
Side Street (name)	**Old Enfield**		**Direction (EW or NS)**	**EW**	**City:**	**Mun. of East Hants**
Quadrant / Int #	**Enfield 21**	**Comments**	**2053 Volumes Road Scenario 2 New North I/C**		**Analysis Date:**	**Dec 2023**
for Warrant Calculation Results, please hit 'Page Down'	**CHECK SHEET**				**Count Date:**	**June 2023**
					Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Trunk 2	NB	1		1				2,000	1
Trunk 2	SB					1		2,000	1
Old Enfield	WB								
Old Enfield	EB	1					1		
							n		
							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,000
Central Business District	(y/n)	n

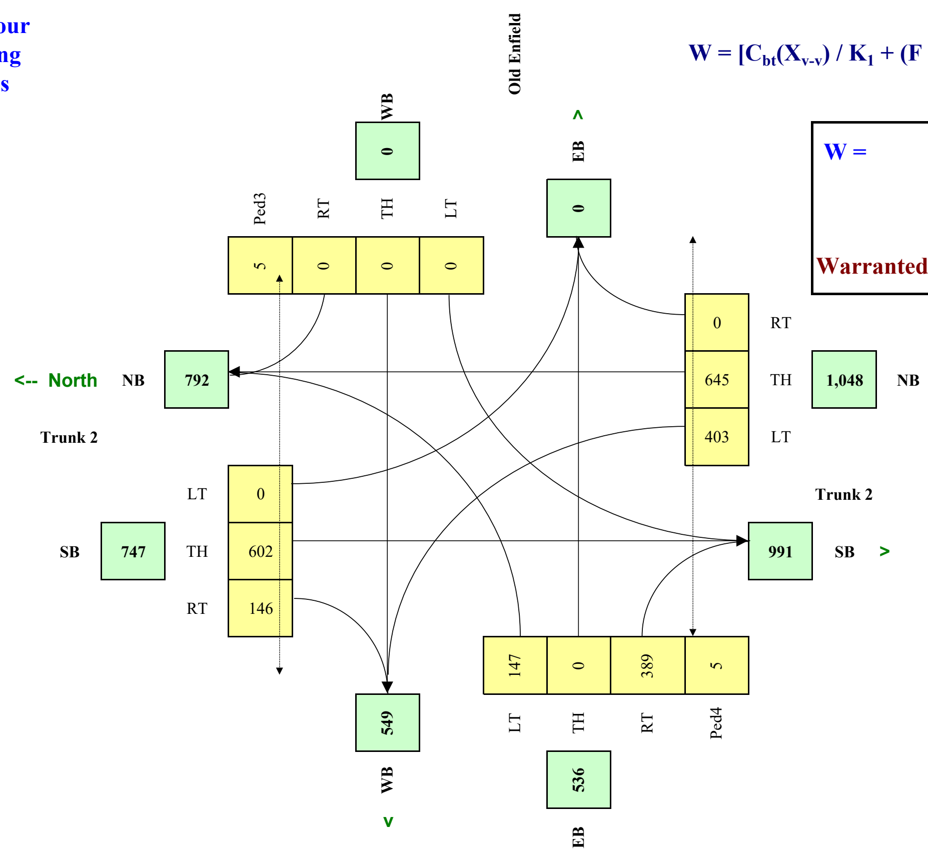
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Trunk 2	NS	60	5.0%	n	0.0
Old Enfield	EW		5.0%	n	

Set Peak Hours

Traffic Input	**NB**			**SB**			**WB**			**EB**			**Ped1**	**Ped2**	**Ped3**	**Ped4**
													NS	**NS**	**EW**	**EW**
	LT	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**LT**	**Th**	**RT**	**W Side**	**E Side**	**N Side**	**S Side**
7:00 - 8:00	203	374	0	0	1087	120	0	0	0	210	0	714	5	5	5	5
8:00 - 9:00	153	281	0	0	817	90	0	0	0	158	0	537	5	5	5	5
12:00 - 13:00	425	662	0	0	351	137	0	0	0	106	0	223	5	5	5	5
13:00 - 14:00	457	713	0	0	378	147	0	0	0	114	0	240	5	5	5	5
16:00 - 17:00	609	950	0	0	504	196	0	0	0	152	0	320	5	5	5	5
17:00 - 18:00	571	891	0	0	473	184	0	0	0	143	0	300	5	5	5	5
Total (6-hour peak)	**2,418**	**3,871**	**0**	**0**	**3,610**	**874**	**0**	**0**	**0**	**883**	**0**	**2,334**	**30**	**30**	**30**	**30**
Average (6-hour peak)	**403**	**645**	**0**	**0**	**602**	**146**	**0**	**0**	**0**	**147**	**0**	**389**	**5**	**5**	**5**	**5**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$



W =	**491**	**470**	**21**
		Veh	***Ped***

Warranted

RESET SHEET

Traffic Signal Warrant Spreadsheet - v3H © 2007 Transportation Association of Canada

Appendix V

Auxiliary Turn Lane Assessment Results

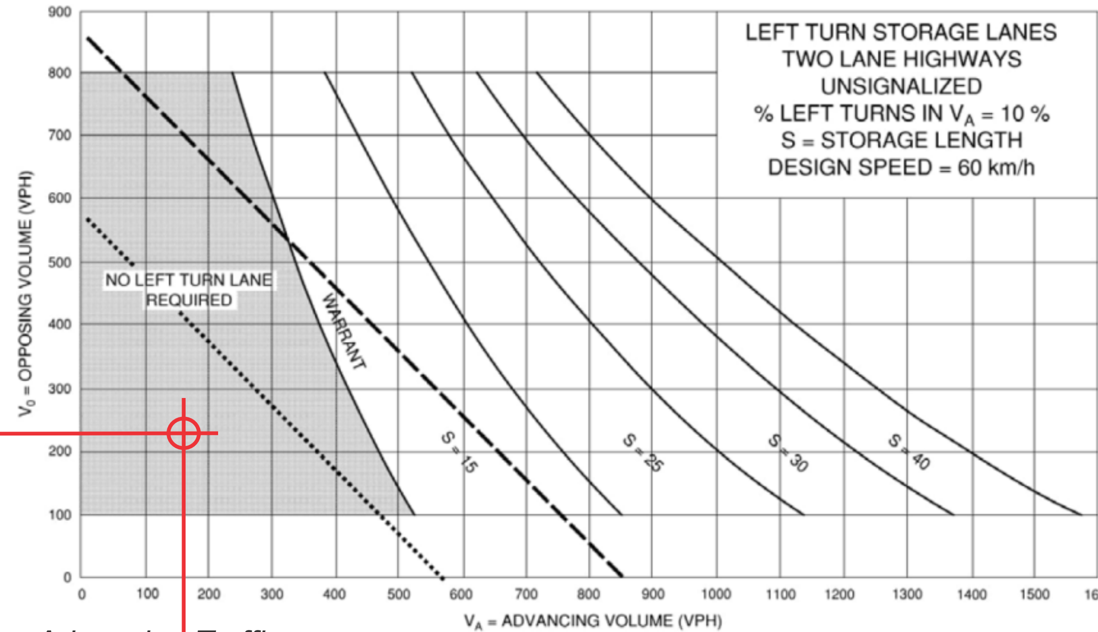
Left Turn Lane Warrant Analysis

2033 Traffic Volumes - Option 1 Network

#1 - Trunk 2/Milford Rd - Southbound Left Turn

Weekday AM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-6:

V_O = 222 vph

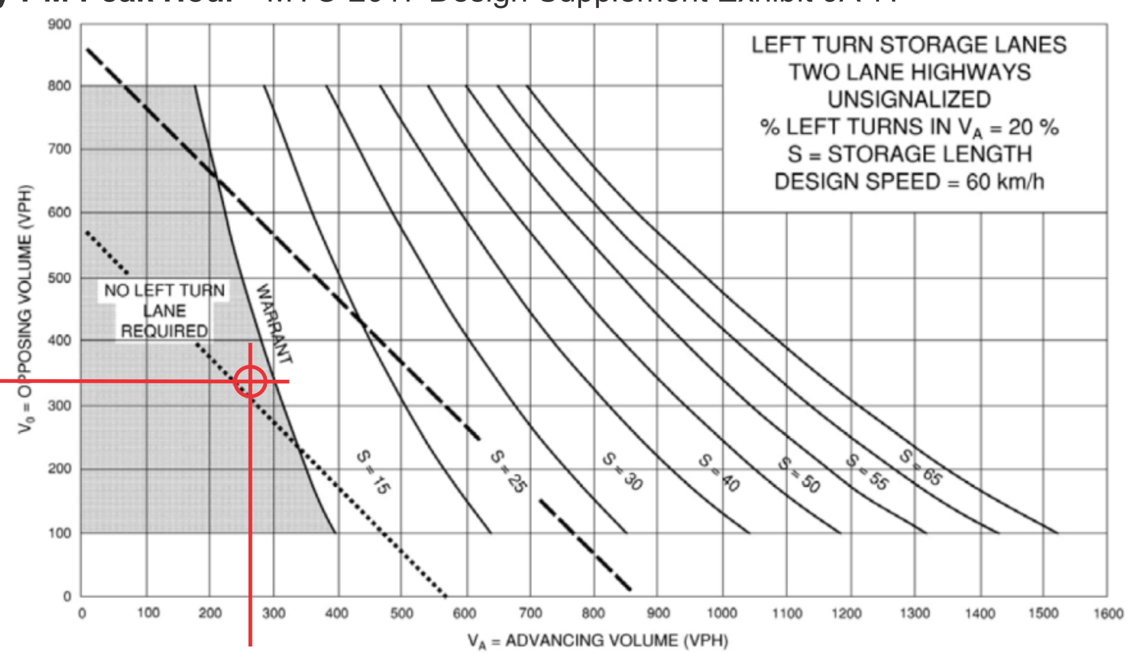


Advancing Traffic:
V_A = 164 vph
V_L = 18 vph
Left turns = 11.0%

Warrant Not Met

Weekday PM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-7:

V_O = 333 vph



Advancing Traffic:
V_A = 261 vph
V_L = 52 vph
Left turns = 19.9%

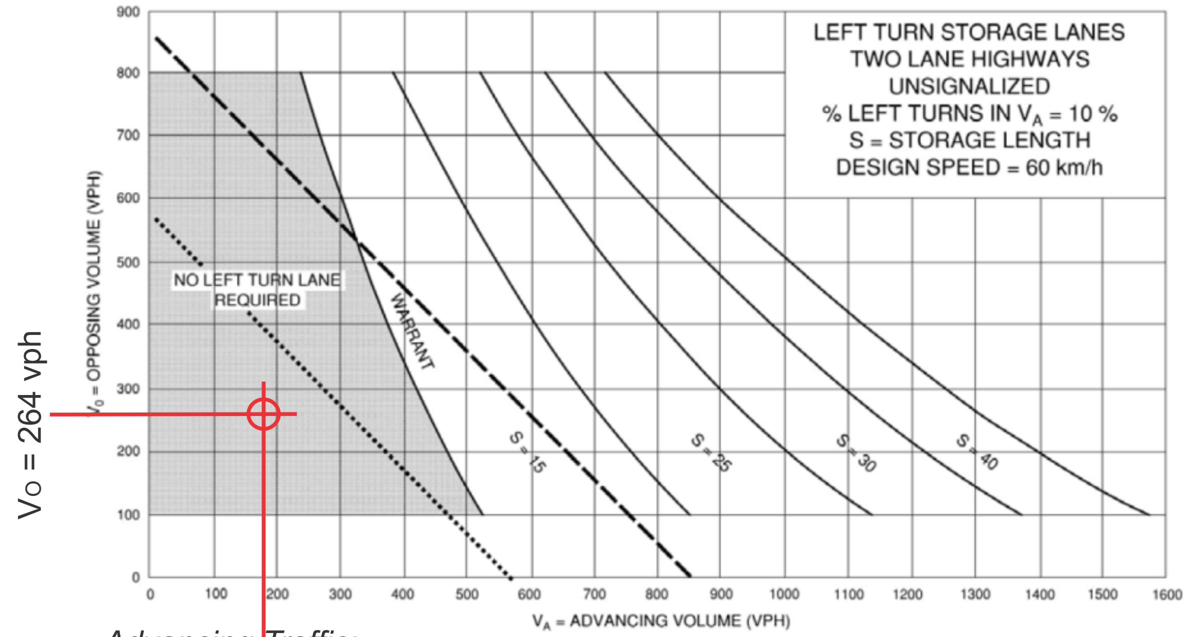
Warrant Not Met

Left Turn Lane Warrant Analysis

2043 Traffic Volumes - Option 1 Network

#1 - Trunk 2/Milford Rd - Southbound Left Turn

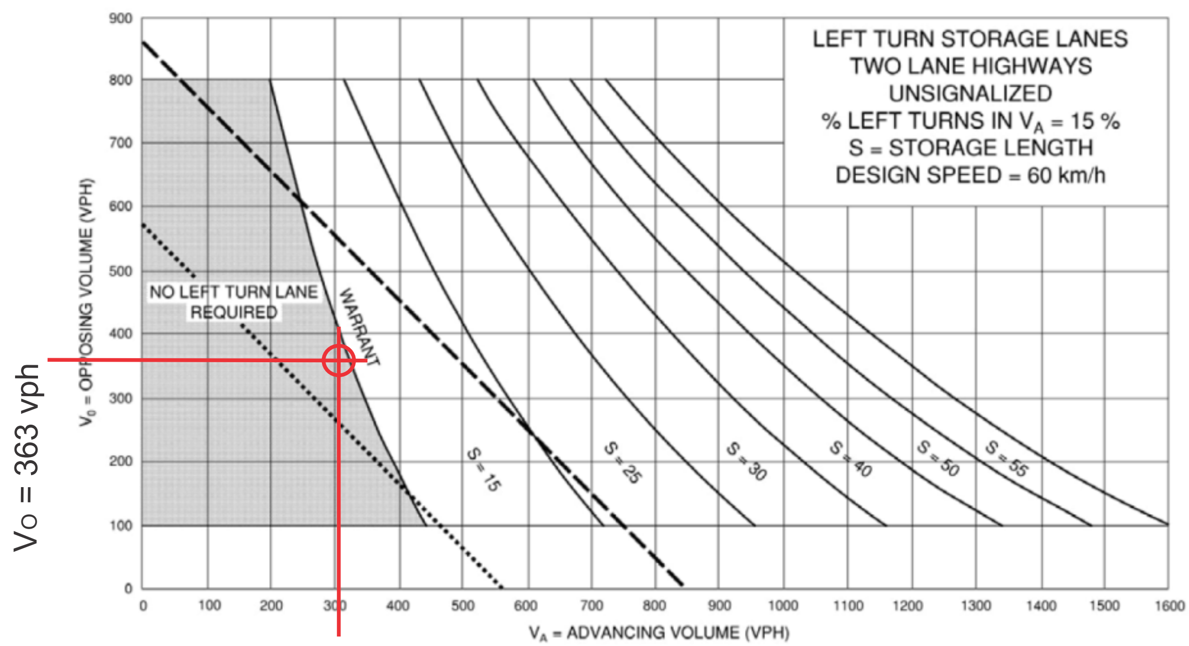
Weekday AM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-6:



Advancing Traffic:
V_A = 184 vph
V_L = 18 vph
Left turns = 9.8%

Warrant Not Met

Weekday PM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-7:



Advancing Traffic:
V_A = 303 vph
V_L = 52 vph
Left turns = 17.2%

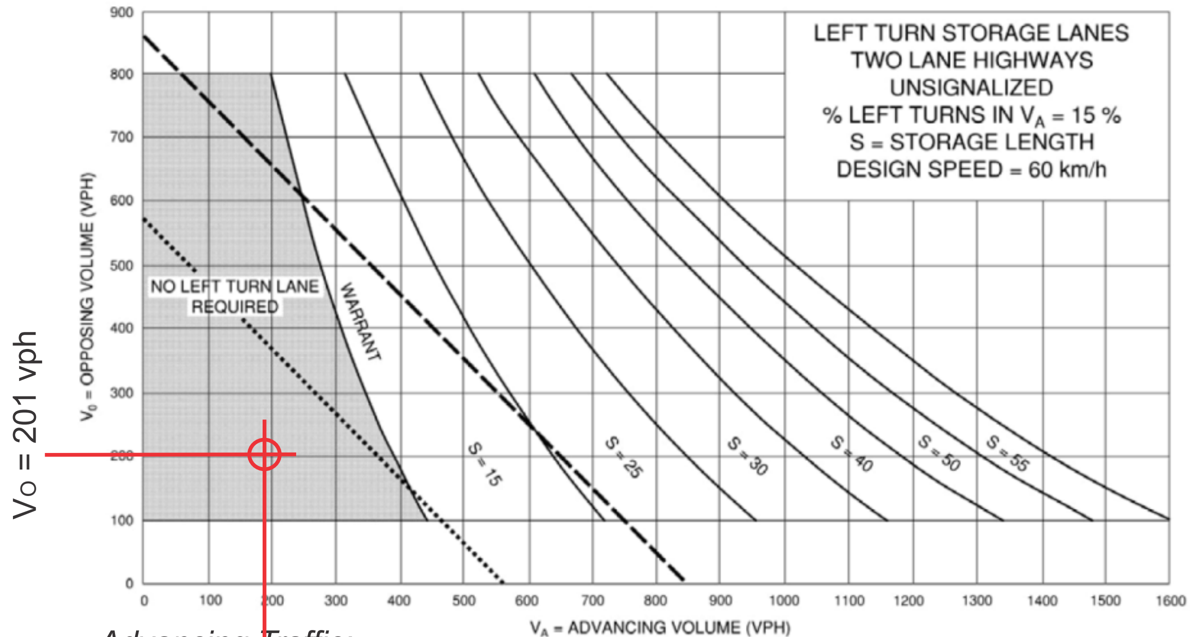
Warrant Not Met

Left Turn Lane Warrant Analysis

2033 Traffic Volumes - Option 1 Network

#2 - Trunk 2/FH Street A - Northbound Left Turn

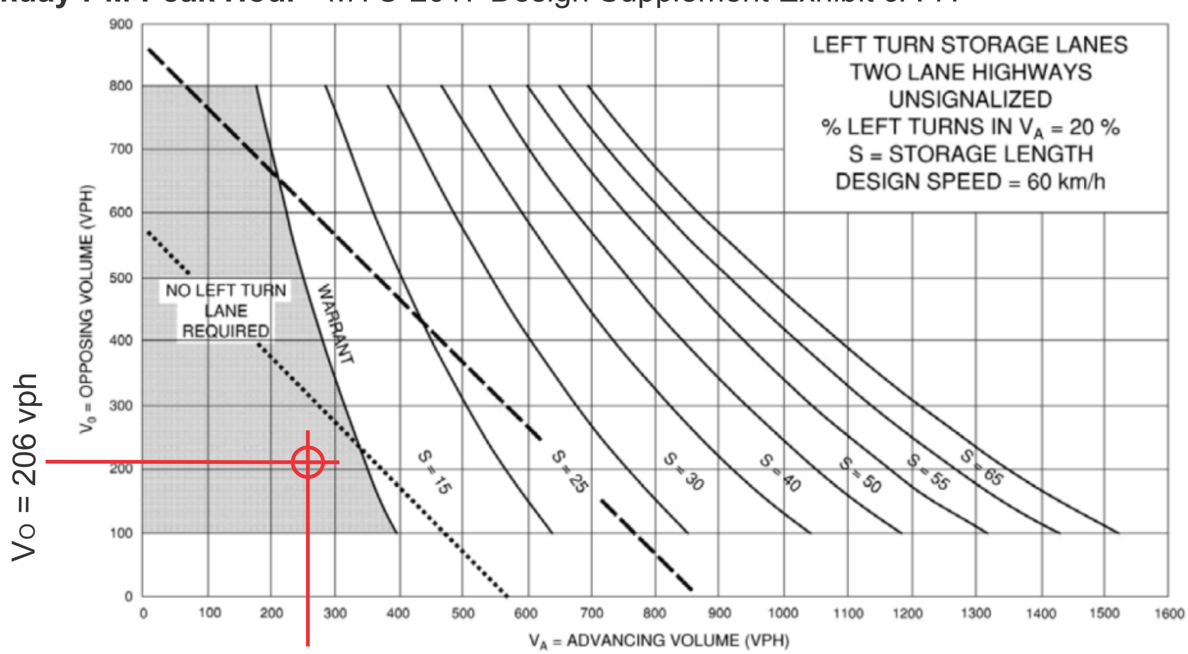
Weekday AM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-7:



Advancing Traffic:
V_A = 193 vph
V_L = 29 vph
Left turns = 15.0%

Warrant Not Met

Weekday PM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-7:



Advancing Traffic:
V_A = 258 vph
V_L = 58 vph
Left turns = 22.4%

Warrant Not Met

Left Turn Lane Warrant Analysis

2043 Traffic Volumes - Option 1 Network

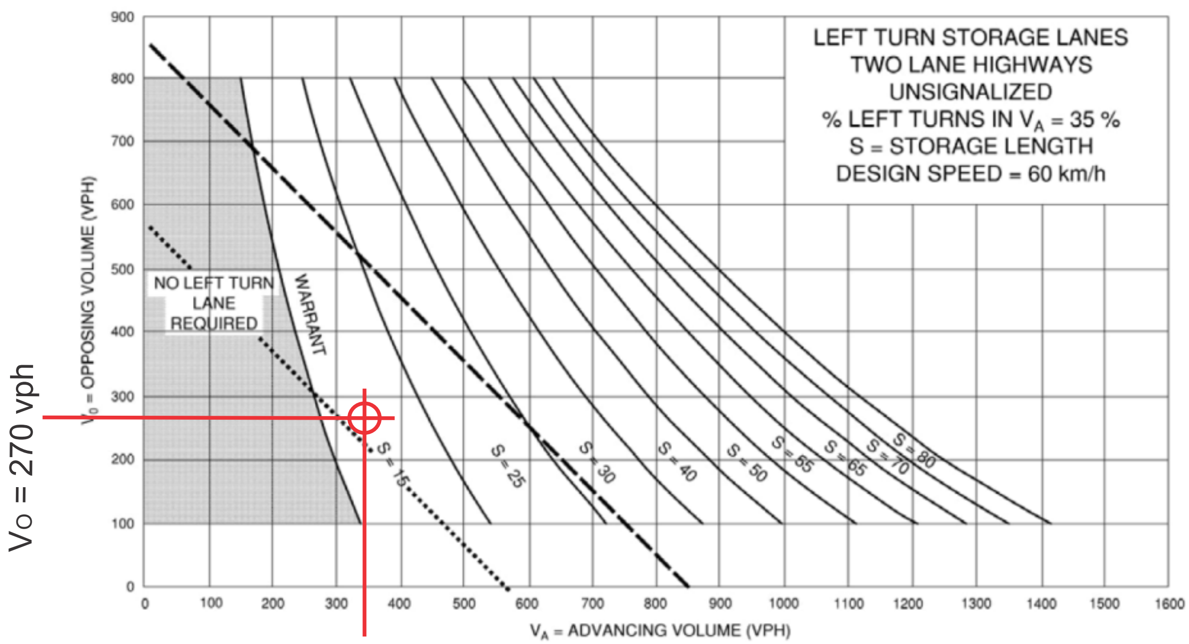
#2 - Trunk 2/FH Street A - Northbound Left Turn

Weekday AM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-7:

n/a

(warrant met in PM Peak Hour)

Weekday PM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-9:



Advancing Traffic:
V_A = 340 vph
V_L = 114 vph
Left turns = 33.5%

Warrant Met

Left Turn Lane Warrant Analysis

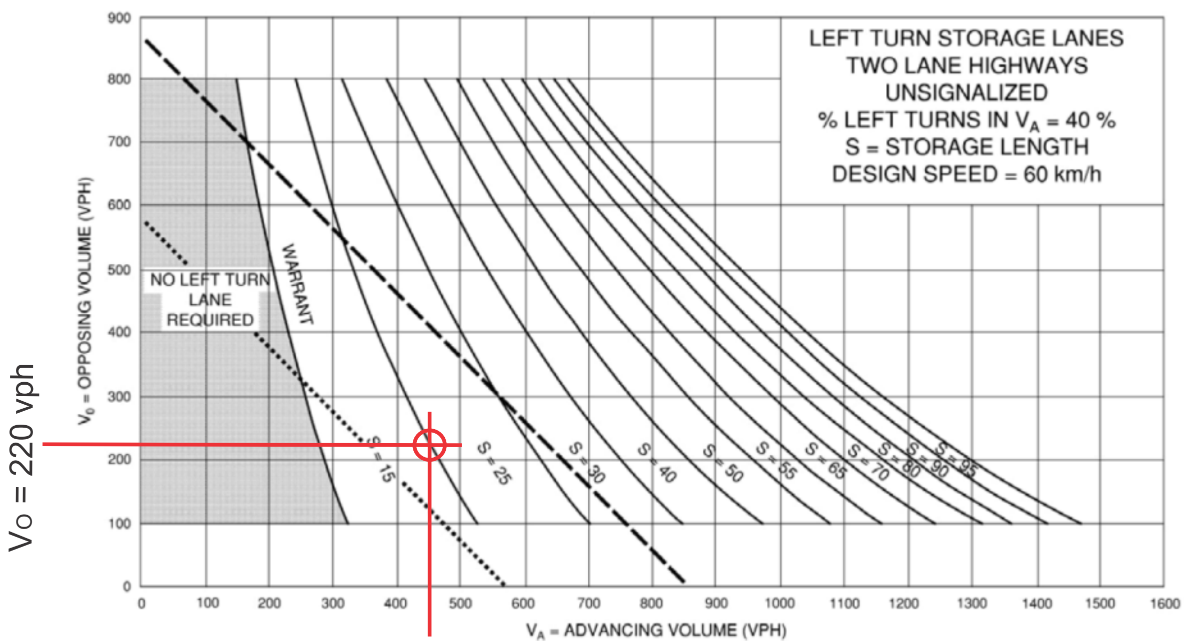
2033 Traffic Volumes - Option 1 Network
#3 - Trunk 2/Robert Scott - Northbound Left Turn

Weekday AM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-7:

n/a

(warrant met in PM Peak Hour)

Weekday PM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-9:



Advancing Traffic:
V_A = 445 vph
V_L = 177 vph
Left turns = 39.8%

Warrant Met

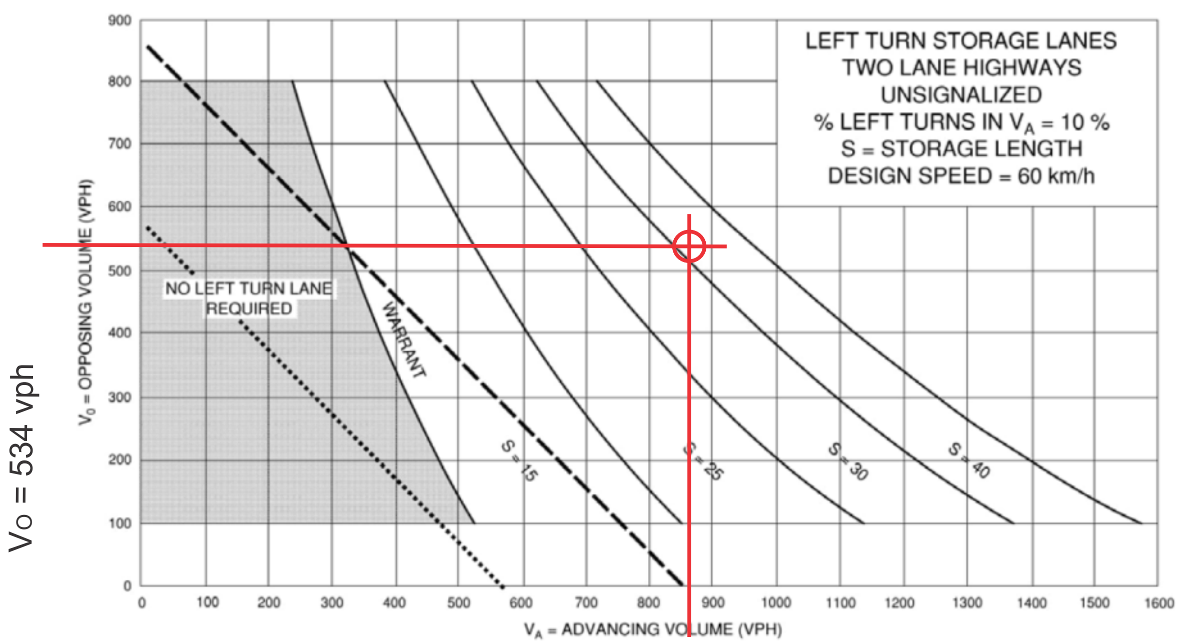
Left Turn Lane Warrant Analysis
2033 Traffic Volumes - Option 1 Network
#5 - Trunk 2/Frederick Allen - Northbound Left Turn

Weekday AM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-7:

n/a

(warrant met in PM Peak Hour)

Weekday PM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-6:



Advancing Traffic:
V_A = 868 vph
V_L = 68 vph
Left turns = 7.8%

Warrant Met

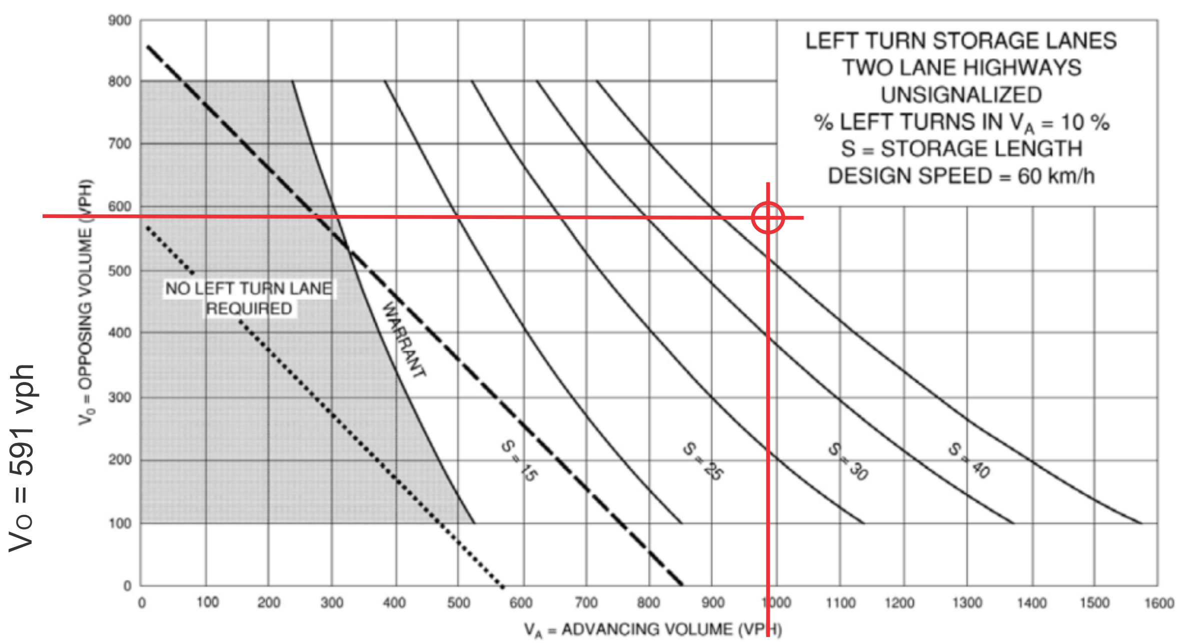
Left Turn Lane Warrant Analysis
2033 Traffic Volumes - Option 1 Network
#6 - Trunk 2/Poplar Dr - Northbound Left Turn

Weekday AM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-7:

n/a

(warrant met in PM Peak Hour)

Weekday PM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-6:



Advancing Traffic:

V_A = 990 vph

V_L = 113 vph

Left turns = 11.4%

Warrant Met

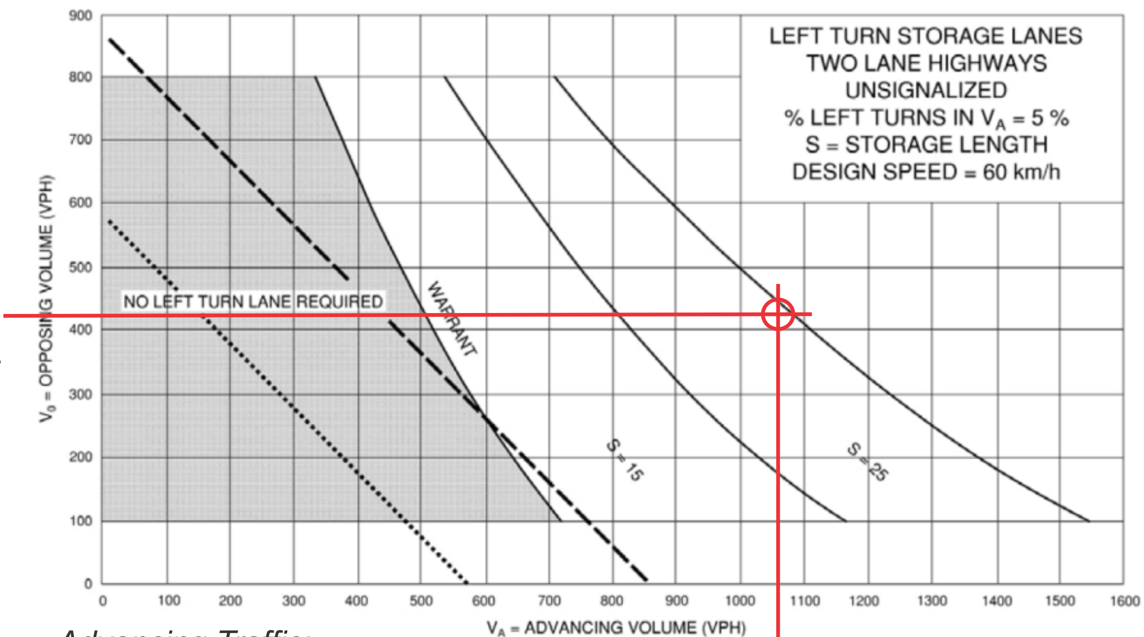
Left Turn Lane Warrant Analysis

2033 Traffic Volumes - Option 1 Network

#8 - Trunk 2/Church St - Southbound Left Turn

Weekday AM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-6:

V_O = 417 vph

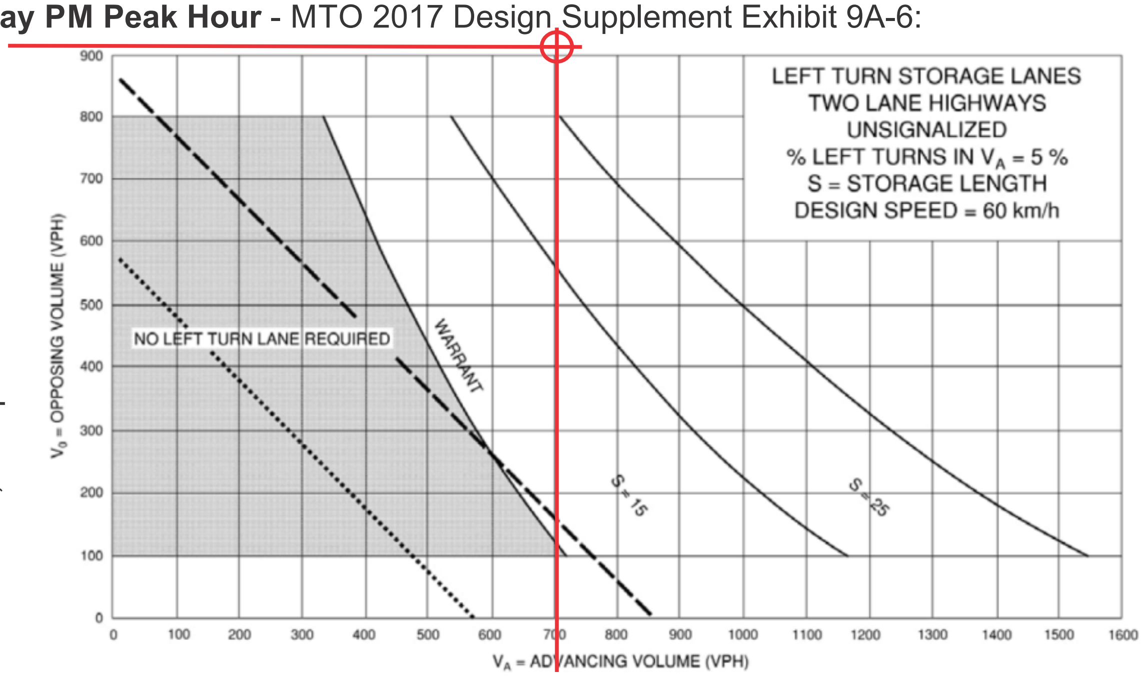


Advancing Traffic:
V_A = 1,064 vph
V_L = 2 vph
Left turns = 0.2%

Warrant Not Met
left turns less than 2.5%

Weekday PM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-6:

V_O = 1,134 vph



Advancing Traffic:
V_A = 702 vph
V_L = 1 vph
Left turns = 0.1%

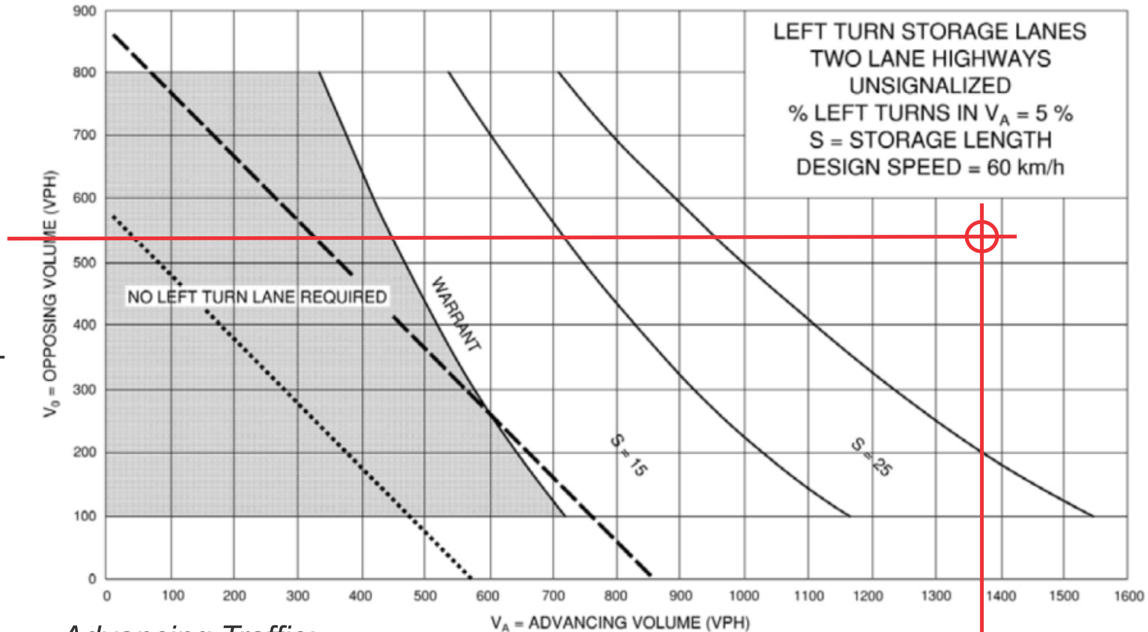
Warrant Not Met
left turns less than 2.5%

Left Turn Lane Warrant Analysis

2043 Traffic Volumes - Option 1 Network

#8 - Trunk 2/Church St - Southbound Left Turn

Weekday AM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-6:

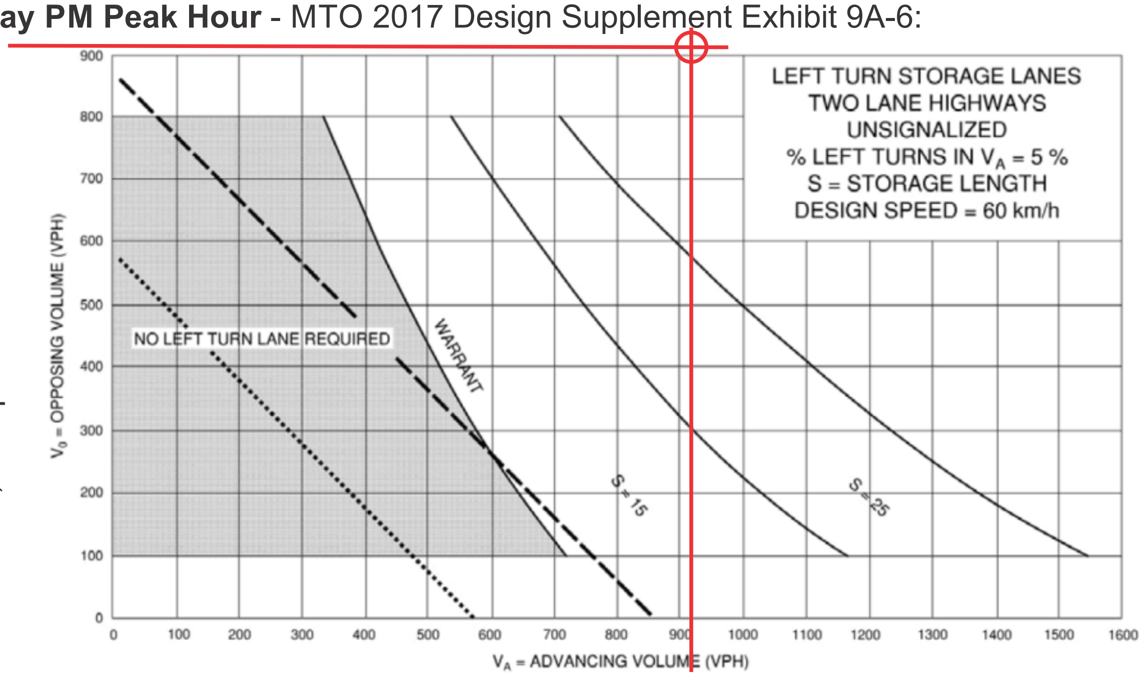


V_O = 538 vph

Advancing Traffic:
V_A = 1,384 vph
V_L = 2 vph
Left turns = 0.1%

Warrant Not Met
left turns less than 2.5%

Weekday PM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-6:



V_O = 1,463 vph

Advancing Traffic:
V_A = 914 vph
V_L = 1 vph
Left turns = 0.1%

Warrant Not Met
left turns less than 2.5%

Left Turn Lane Warrant Analysis

2033 Traffic Volumes - Option 1 Network
#19 - Trunk 2/Alderney Dr - Northbound Left Turn

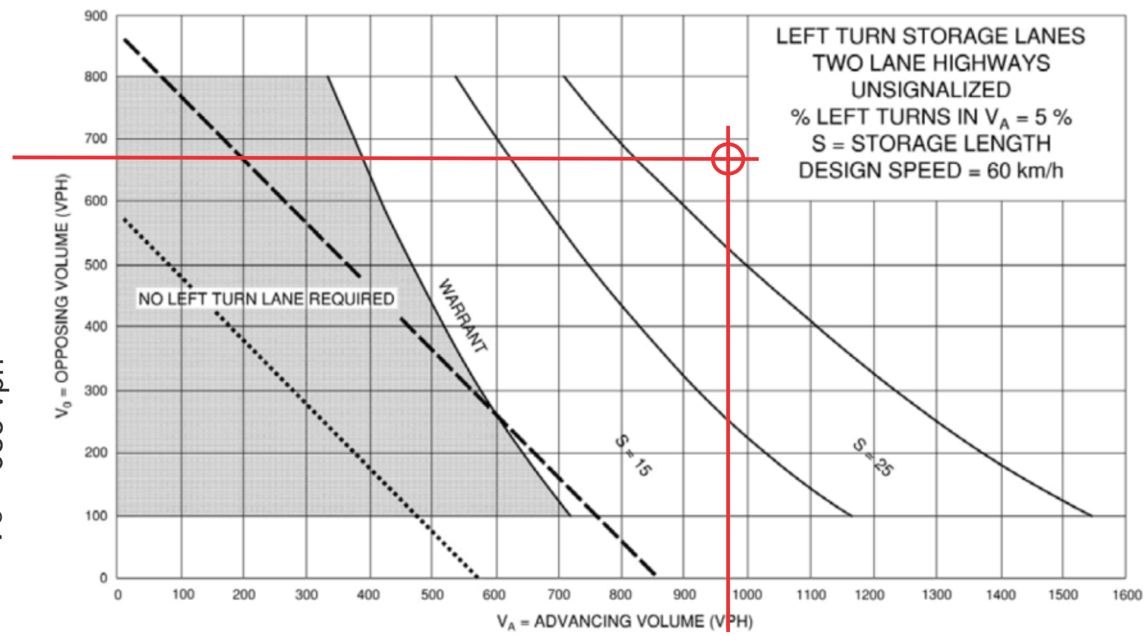
Weekday AM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-7:

n/a

(warrant met in PM Peak Hour)

Weekday PM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-6:

Vo = 685 vph



Advancing Traffic:

V_A = 970 vph

V_L = 62 vph

Left turns = 6.4%

Warrant Met

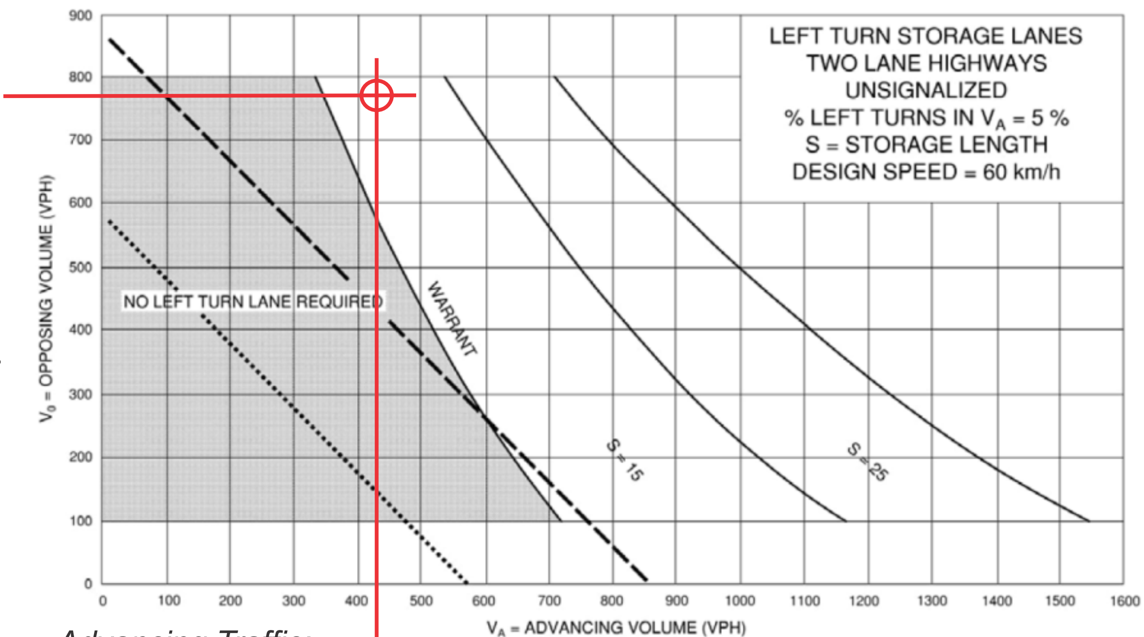
Left Turn Lane Warrant Analysis

2033 Traffic Volumes - Option 1 Network

#20 - Trunk 2/Shamrock - Northbound Left Turn

Weekday AM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-6:

V_O = 777 vph

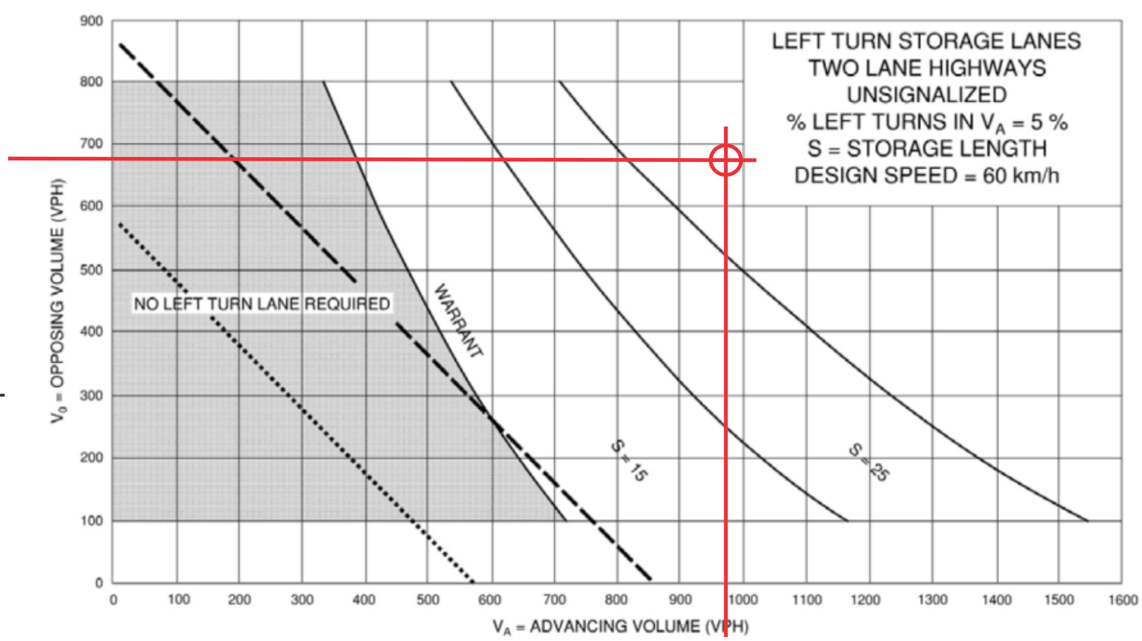


Advancing Traffic:
V_A = 419 vph
V_L = 4 vph
Left turns = 1.0%

Warrant Not Met
left turns less than 2.5%

Weekday PM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-6:

V_O = 687 vph



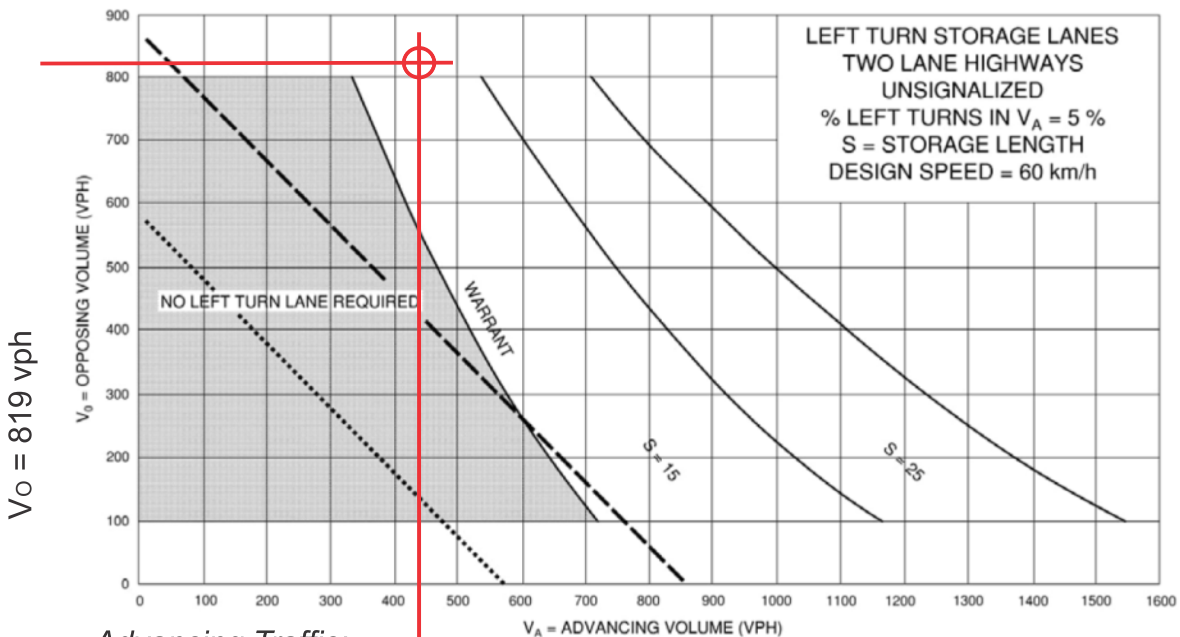
Advancing Traffic:
V_A = 977 vph
V_L = 15 vph
Left turns = 1.5%

Warrant Not Met
left turns less than 2.5%

Left Turn Lane Warrant Analysis

2043 Traffic Volumes - Option 1 Network
#20 - Trunk 2/Shamrock - Northbound Left Turn

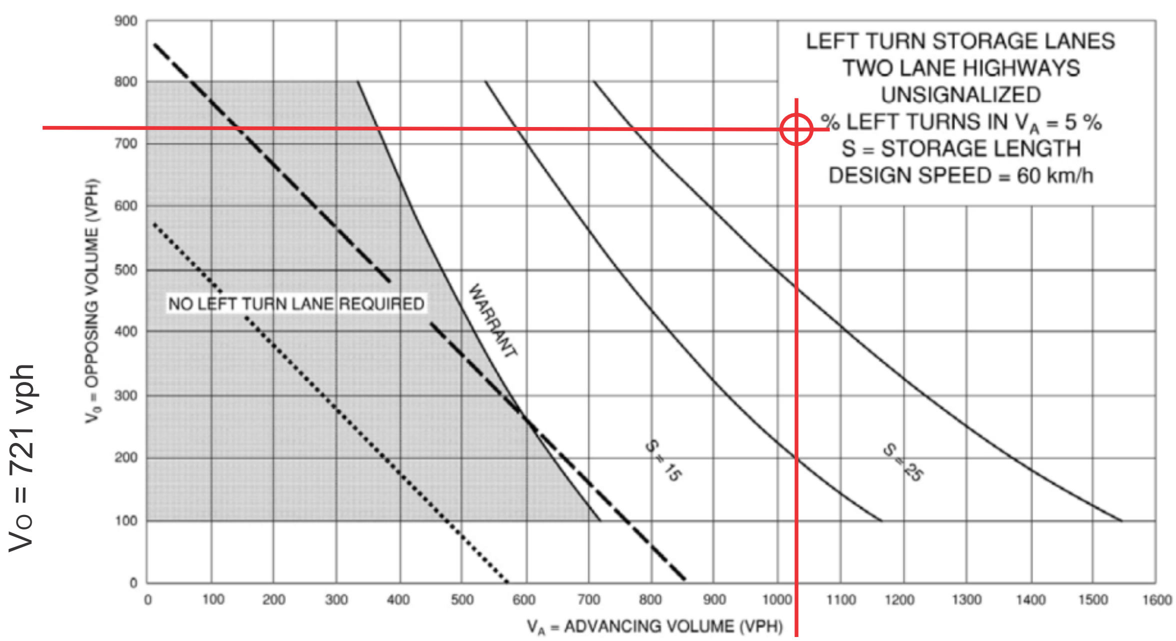
Weekday AM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-6:



Advancing Traffic:
V_A = 439 vph
V_L = 4 vph
Left turns = 0.9%

Warrant Not Met
left turns less than 2.5%

Weekday PM Peak Hour - MTO 2017 Design Supplement Exhibit 9A-6:

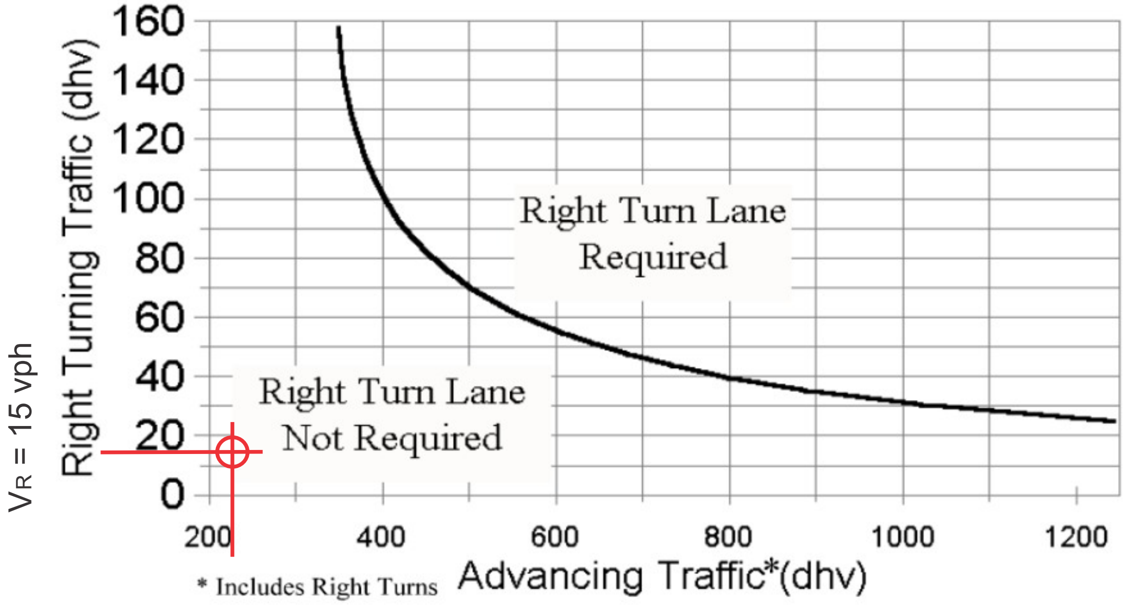


Advancing Traffic:
V_A = 1,023 vph
V_L = 15 vph
Left turns = 1.5%

Warrant Not Met
left turns less than 2.5%

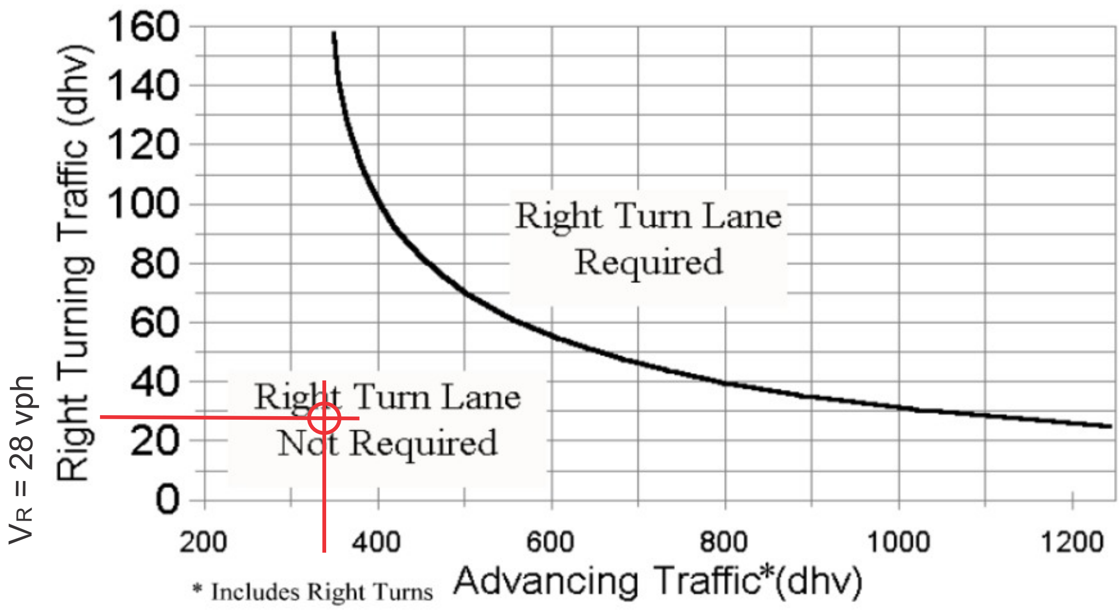
Right Turn Lane Warrant Analysis
2033 Traffic Volumes - Option 1 Road Network
#1 - Trunk 2 / Milford Rd - Northbound Right Turn

Weekday AM Peak Hour - 70 km/h or less**:**



Advancing Traffic:
V_A = 222 vph

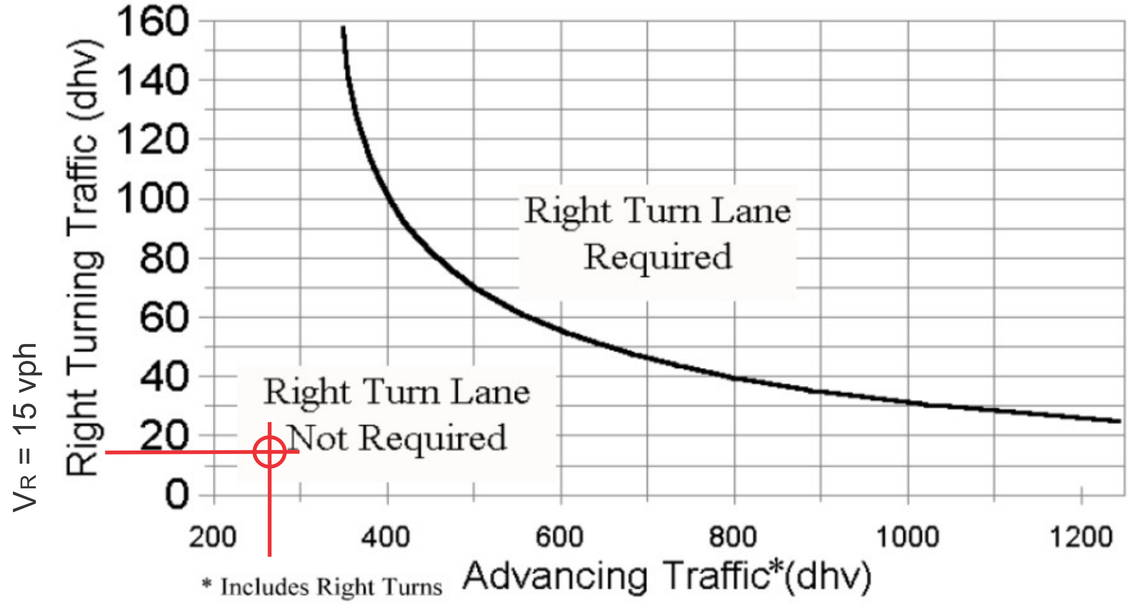
Weekday PM Peak Hour - 70 km/h or less**:**



Advancing Traffic:
V_A = 333 vph

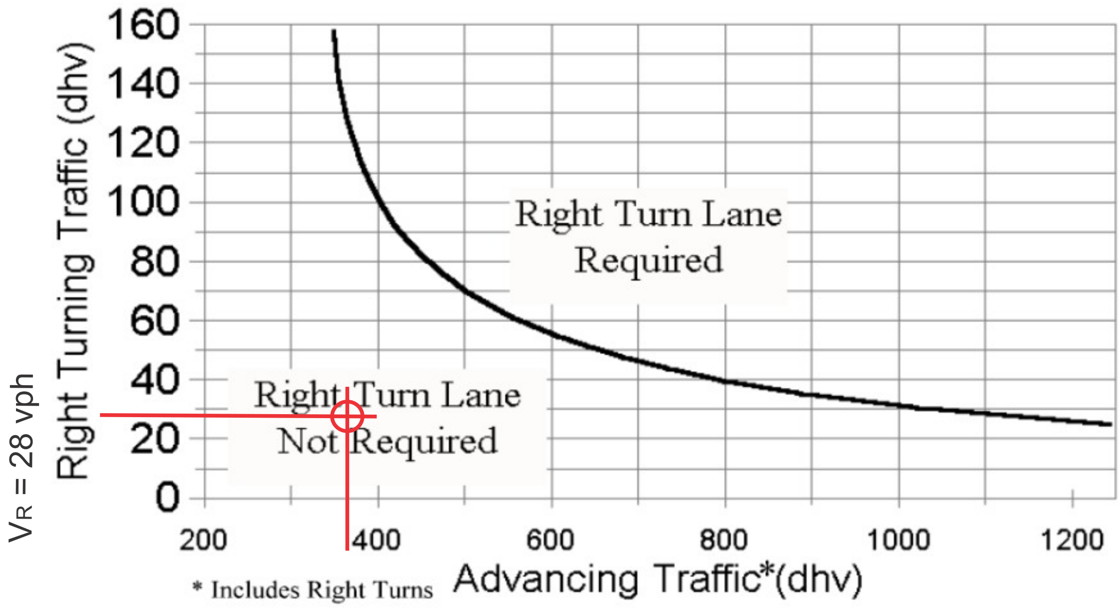
Right Turn Lane Warrant Analysis
2043 Traffic Volumes - Option 1 Road Network
#1 - Trunk 2 / Milford Rd - Northbound Right Turn

Weekday AM Peak Hour - 70 km/h or less**:**



Advancing Traffic:
V_A = 264 vph

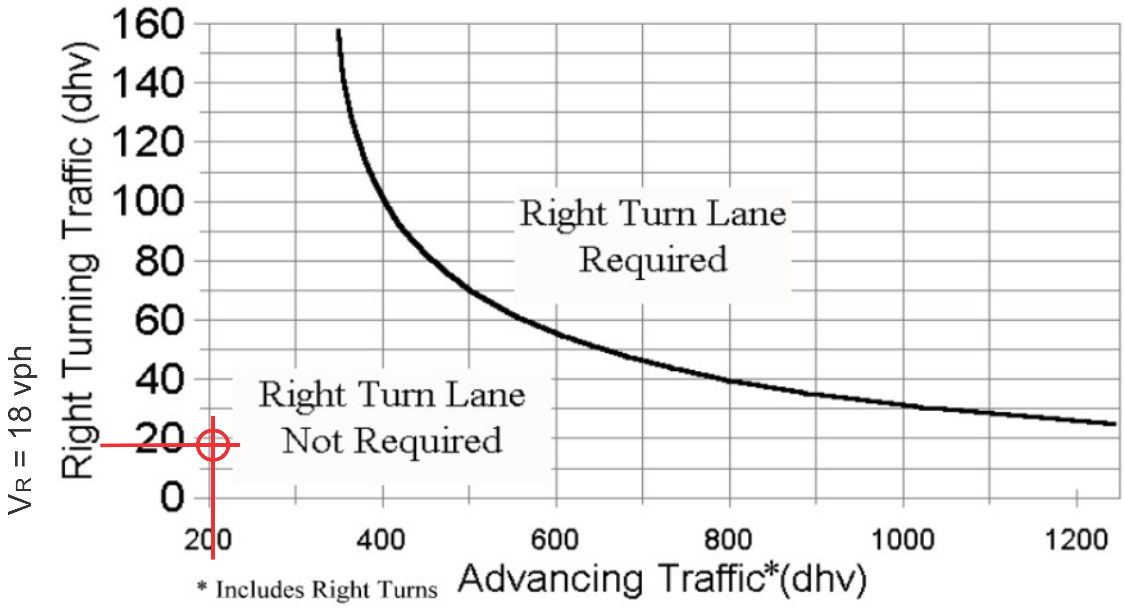
Weekday PM Peak Hour - 70 km/h or less**:**



Advancing Traffic:
V_A = 363 vph

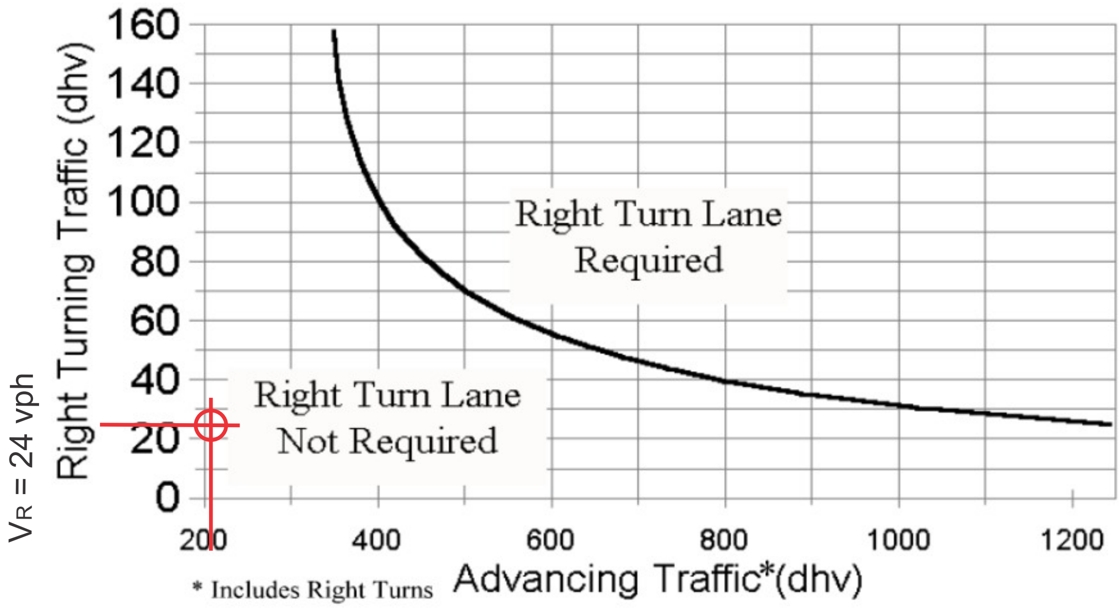
Right Turn Lane Warrant Analysis
2033 Traffic Volumes - Option 1 Road Network
#2 - Trunk 2 / FH Street A - Southbound Right Turn

Weekday AM Peak Hour - 70 km/h or less**:**



Advancing Traffic:
V_A = 201 vph

Weekday PM Peak Hour - 70 km/h or less**:**

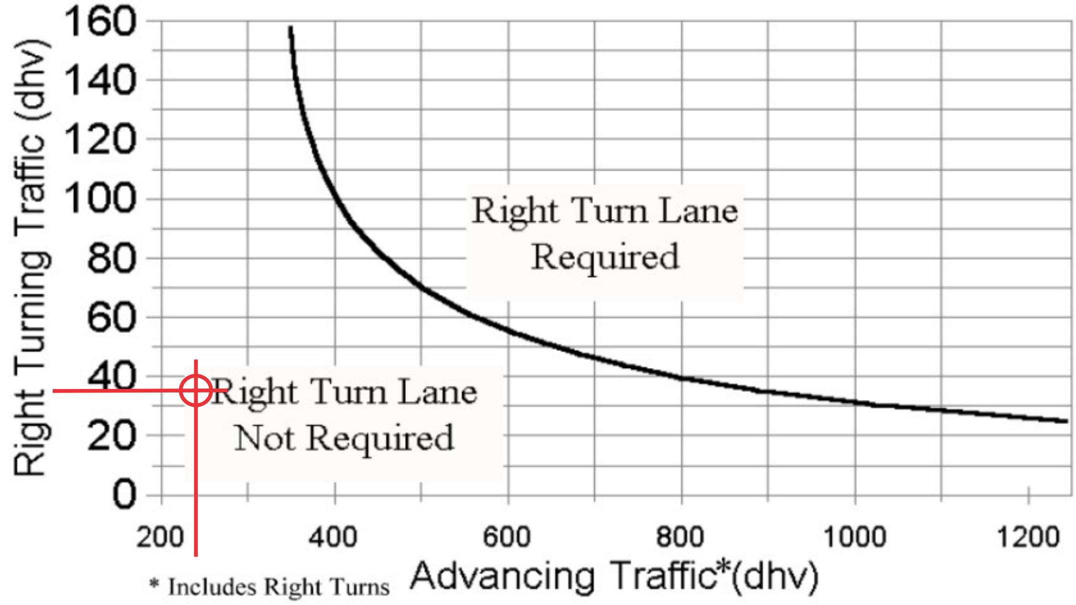


Advancing Traffic:
V_A = 206 vph

Right Turn Lane Warrant Analysis
2043 Traffic Volumes - Option 1 Road Network
#2 - Trunk 2 / FH Street A - Southbound Right Turn

Weekday AM Peak Hour - 70 km/h or less**:**

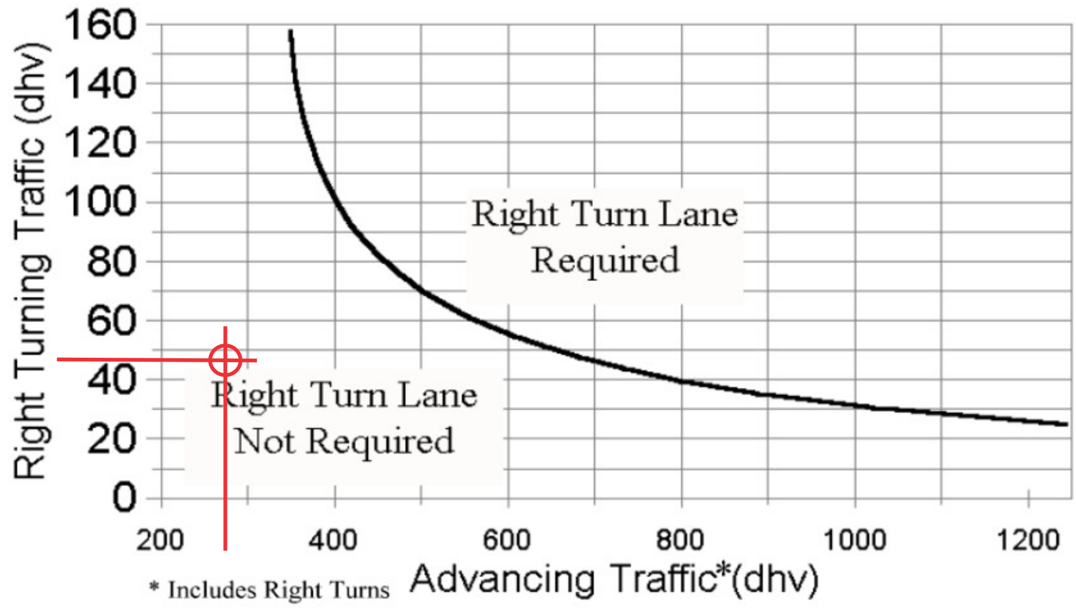
VR = 36 vph



Advancing Traffic:
VA = 238 vph

Weekday PM Peak Hour - 70 km/h or less**:**

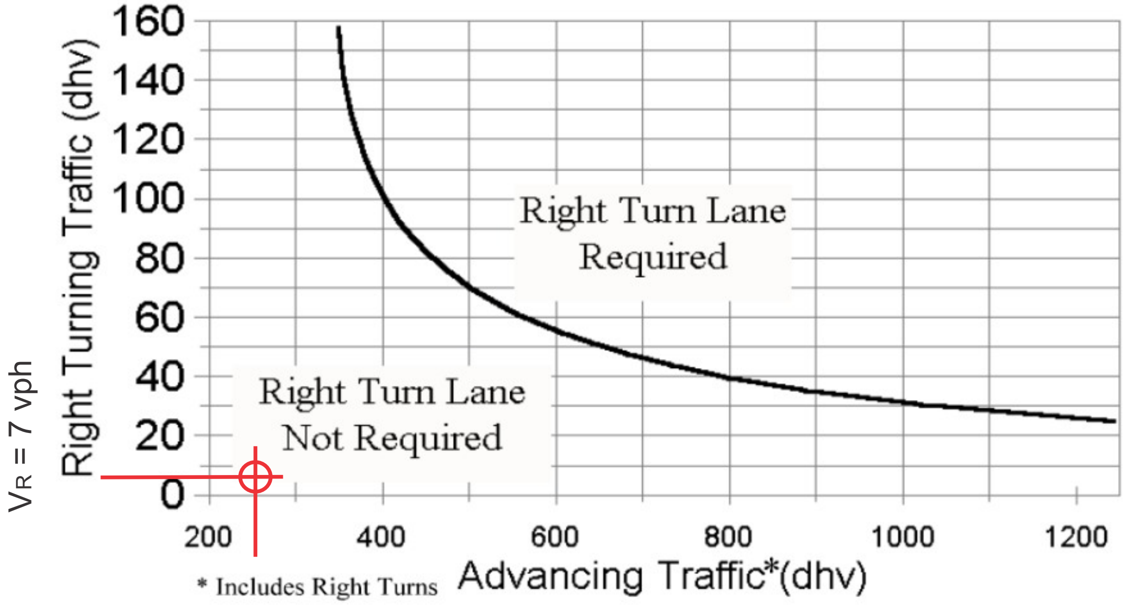
VR = 47 vph



Advancing Traffic:
VA = 270 vph

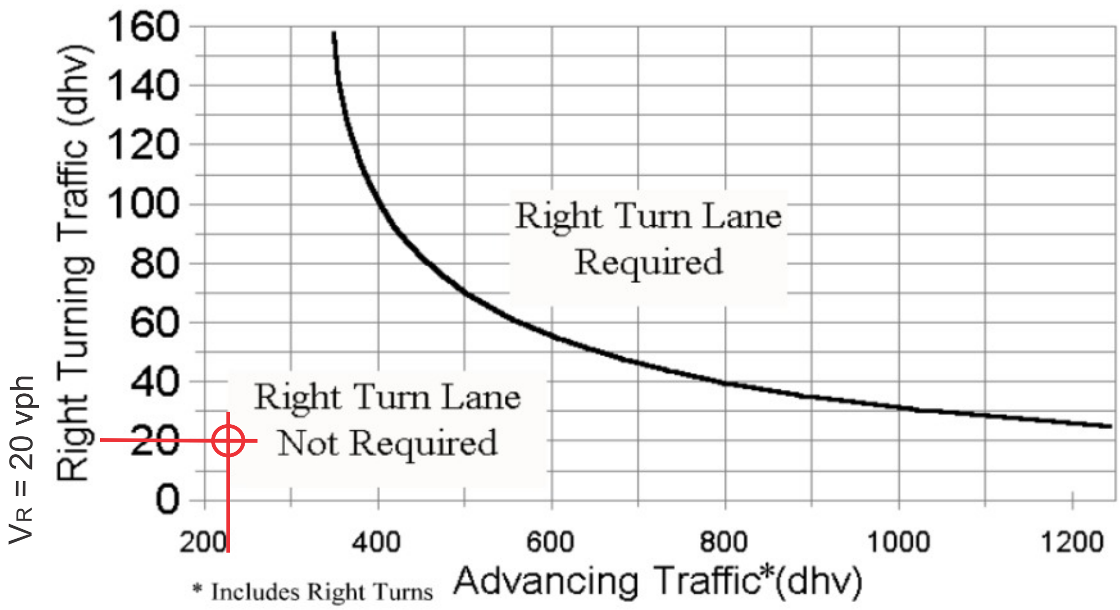
Right Turn Lane Warrant Analysis
2033 Traffic Volumes - Option 1 Road Network
#3 - Trunk 2 / Robert Scott - Southbound Right Turn

Weekday AM Peak Hour - 70 km/h or less**:**



Advancing Traffic:
V_A = 251 vph

Weekday PM Peak Hour - 70 km/h or less**:**

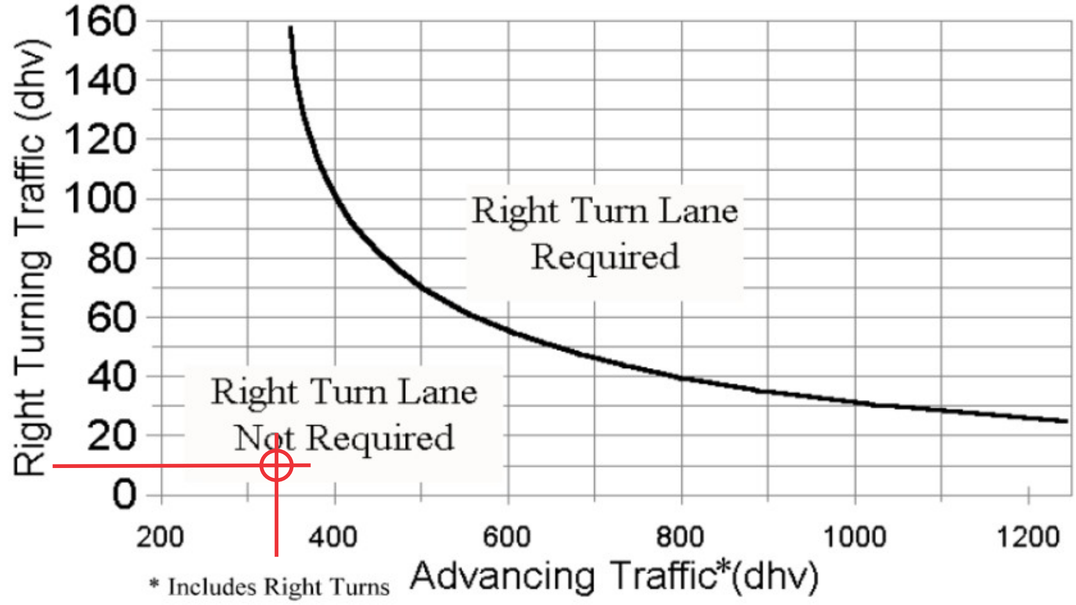


Advancing Traffic:
V_A = 220 vph

Right Turn Lane Warrant Analysis
2043 Traffic Volumes - Option 1 Road Network
#3 - Trunk 2 / Robert Scott - Southbound Right Turn

Weekday AM Peak Hour - 70 km/h or less**:**

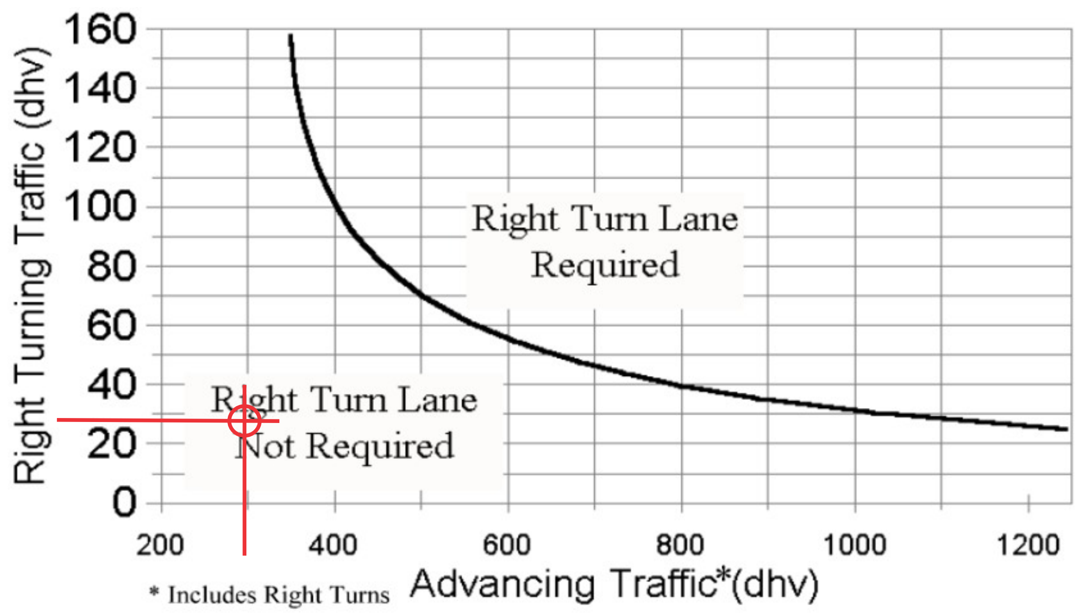
V_R = 10 vph



Advancing Traffic:
V_A = 335 vph

Weekday PM Peak Hour - 70 km/h or less**:**

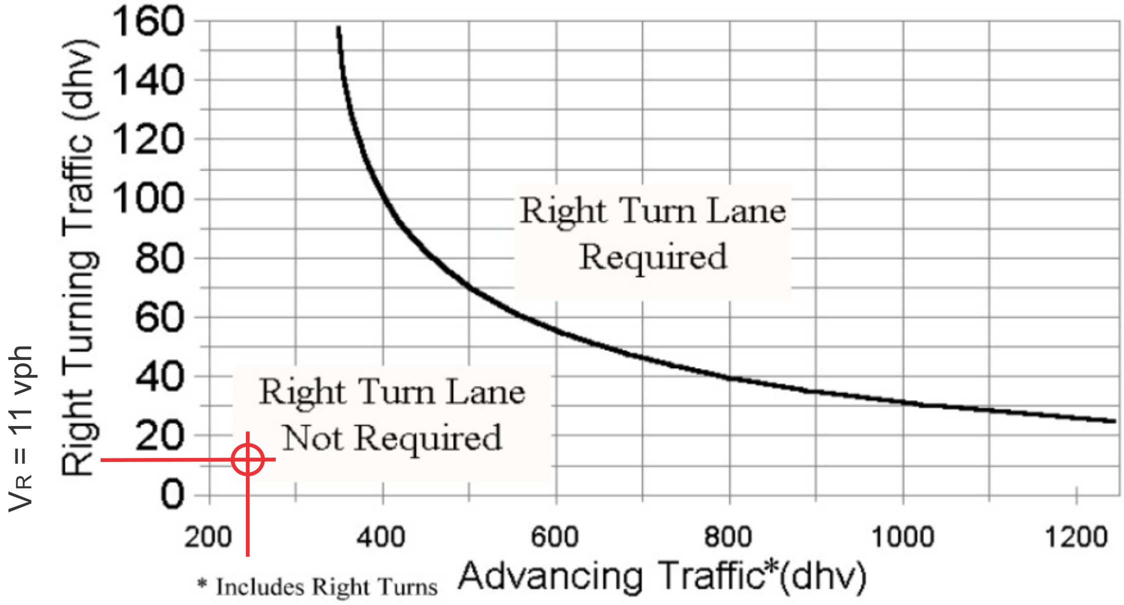
V_R = 29 vph



Advancing Traffic:
V_A = 298 vph

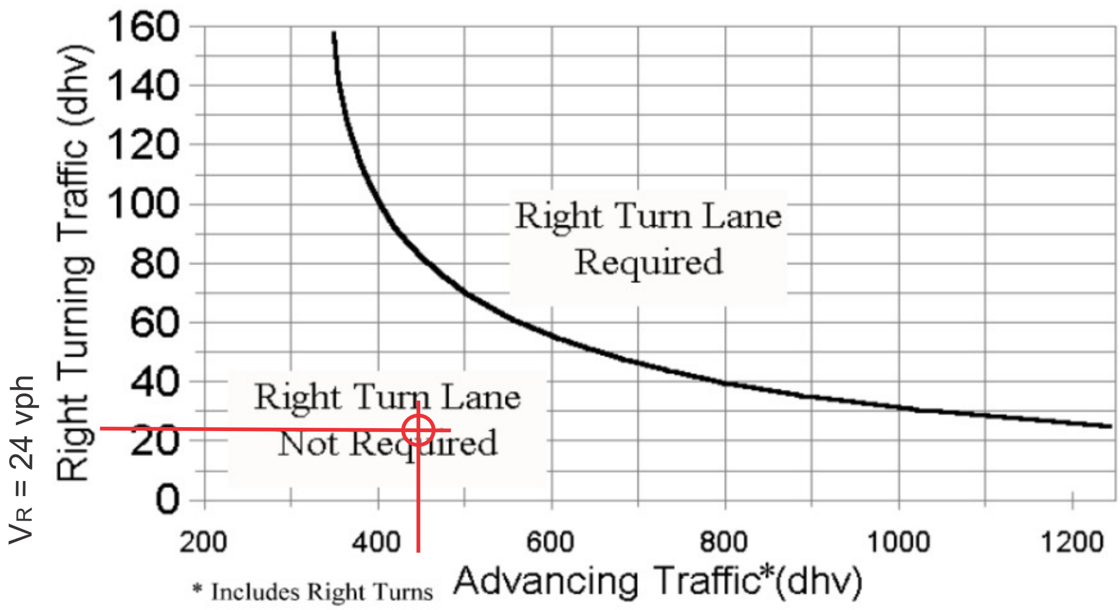
Right Turn Lane Warrant Analysis
2033 Traffic Volumes - Option 1 Road Network
#3 - Trunk 2 / Robert Scott - Northbound Right Turn

Weekday AM Peak Hour - 70 km/h or less**:**



Advancing Traffic:
V_A = 242 vph

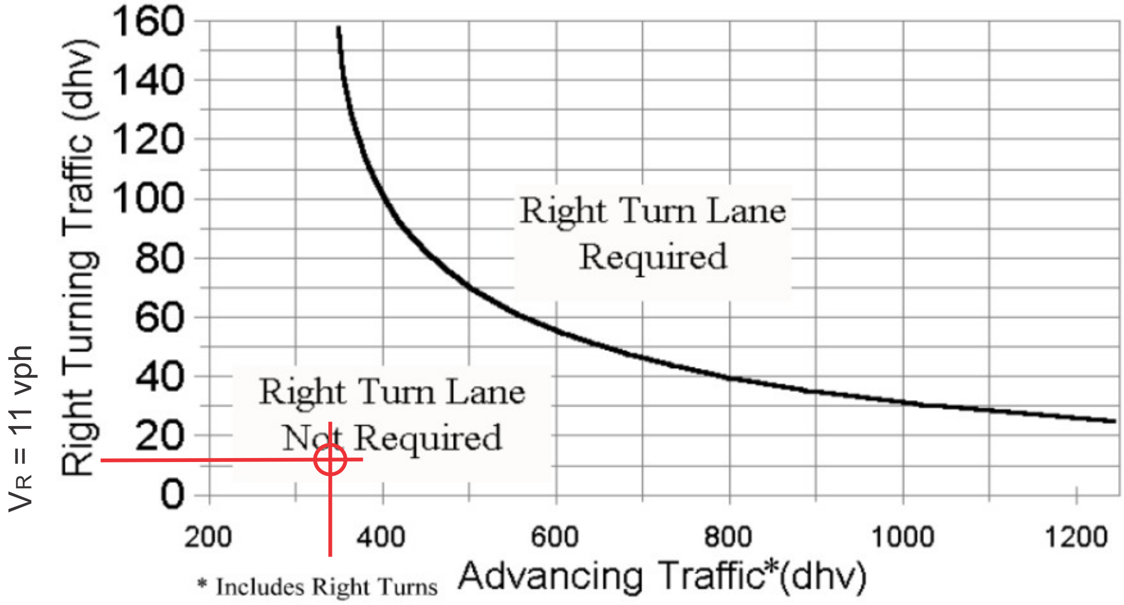
Weekday PM Peak Hour - 70 km/h or less**:**



Advancing Traffic:
V_A = 445 vph

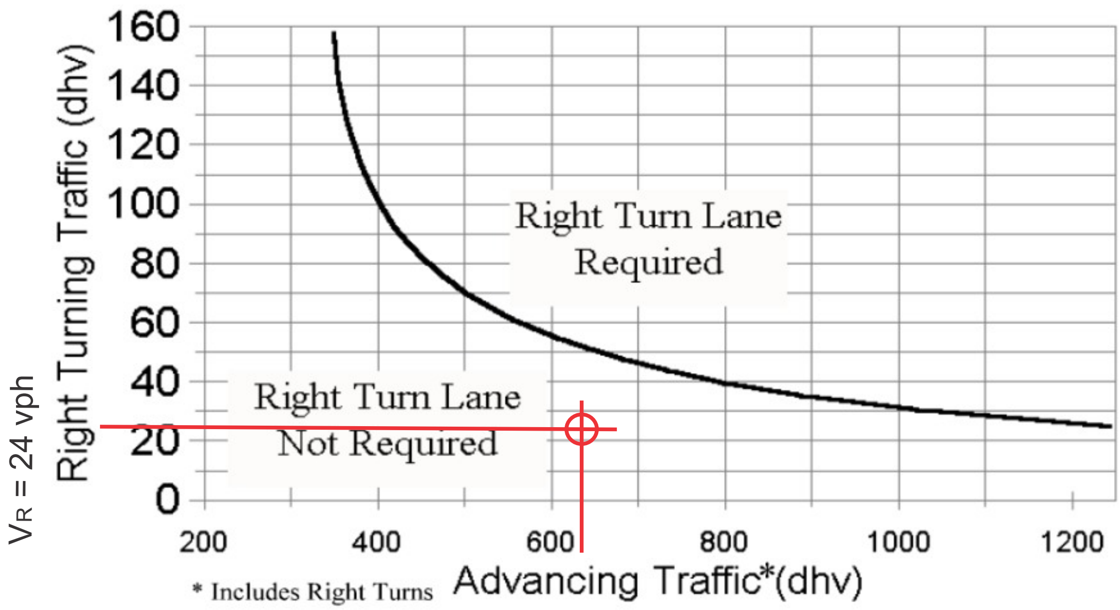
Right Turn Lane Warrant Analysis
2043 Traffic Volumes - Option 1 Road Network
#3 - Trunk 2 / Robert Scott - Northbound Right Turn

Weekday AM Peak Hour - 70 km/h or less:



Advancing Traffic:
V_A = 329 vph

Weekday PM Peak Hour - 70 km/h or less:

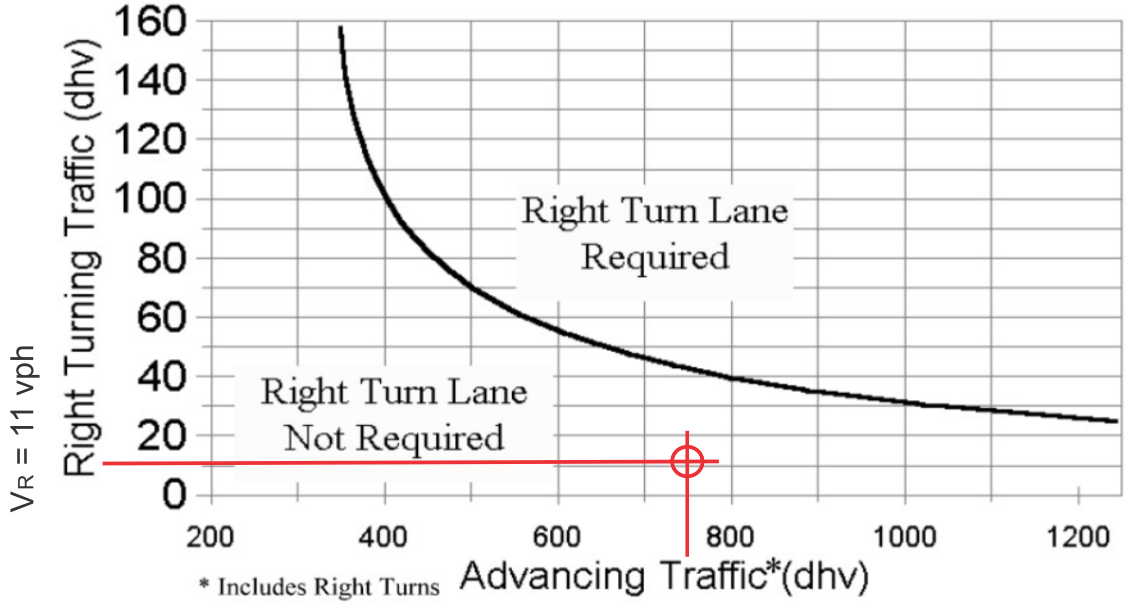


Advancing Traffic:
V_A = 632 vph

Right Turn Lane Warrant Analysis

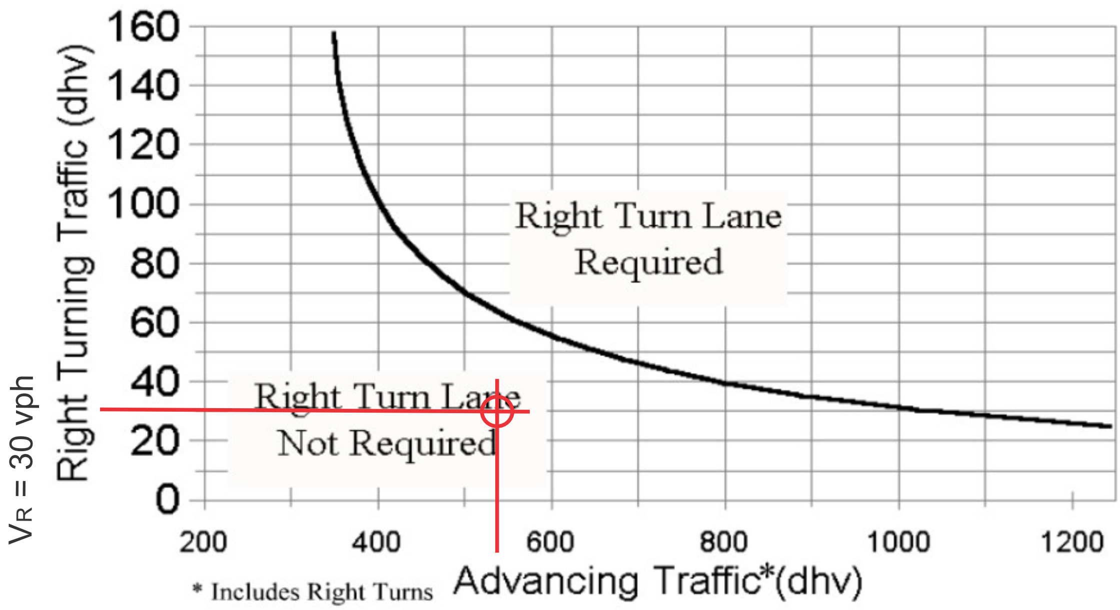
2033 Traffic Volumes - Option 1 Road Network
#5 - Trunk 2 / Frederick Allen - Southbound Right Turn

Weekday AM Peak Hour - 70 km/h or less:



Advancing Traffic:
V_A = 747 vph

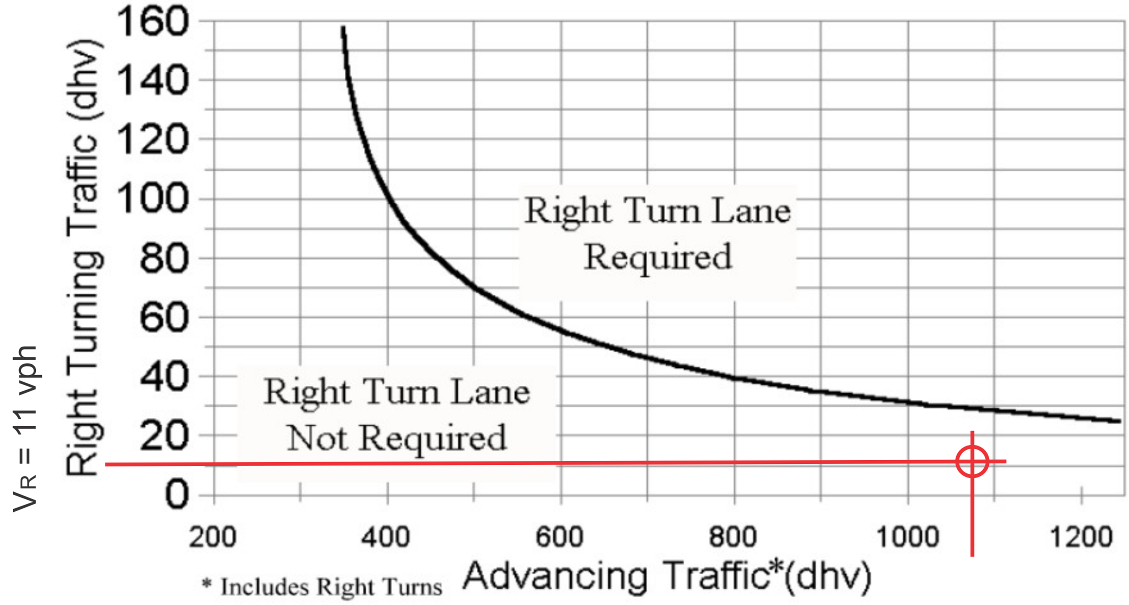
Weekday PM Peak Hour - 70 km/h or less:



Advancing Traffic:
V_A = 534 vph

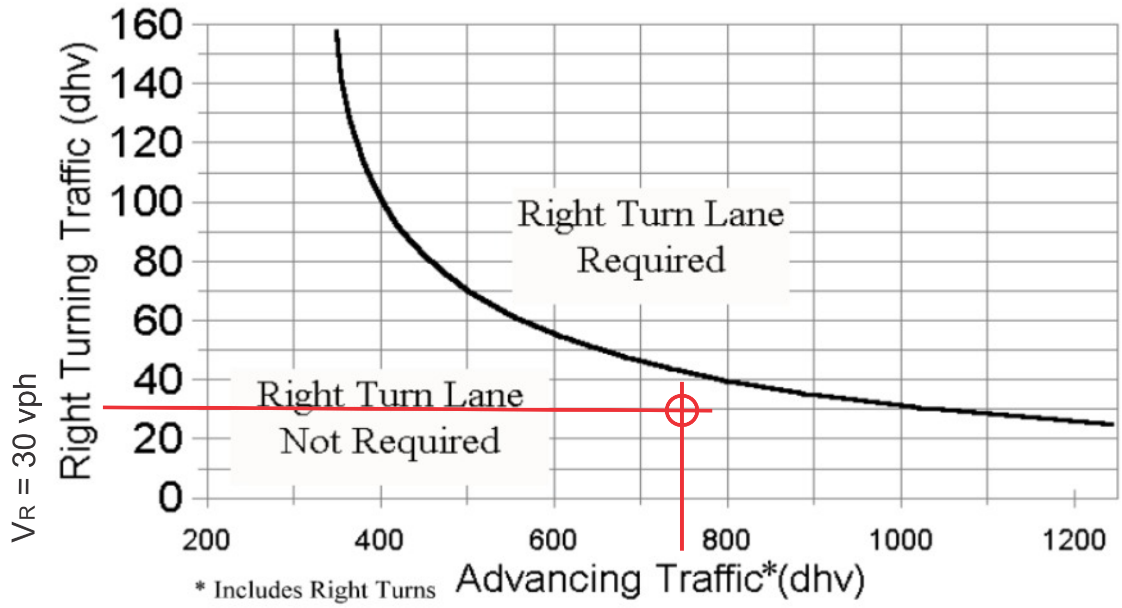
Right Turn Lane Warrant Analysis
2043 Traffic Volumes - Option 1 Road Network
#5 - Trunk 2 / Frederick Allen - Southbound Right Turn

Weekday AM Peak Hour - 70 km/h or less:



Advancing Traffic:
VA = 1,072 vph

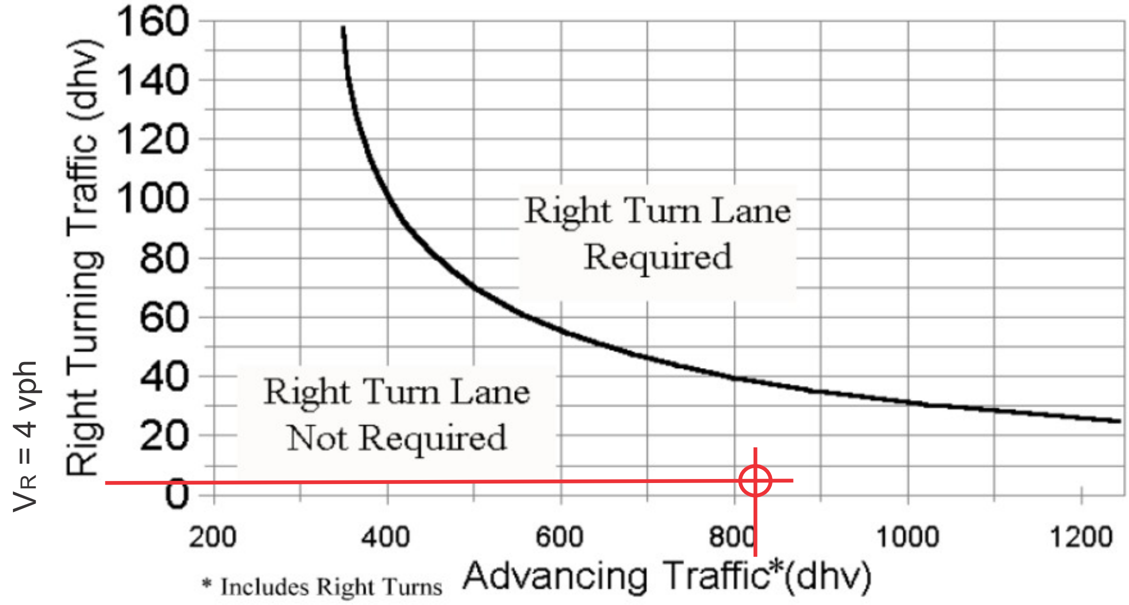
Weekday PM Peak Hour - 70 km/h or less:



Advancing Traffic:
VA = 745 vph

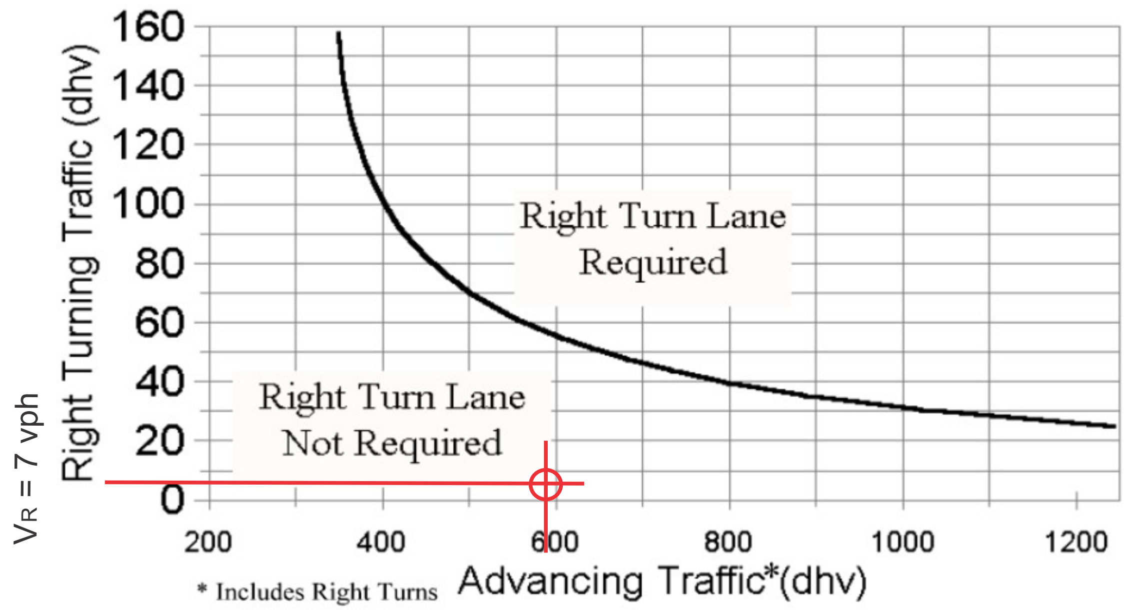
Right Turn Lane Warrant Analysis
2033 Traffic Volumes - Option 1 Road Network
#6 - Trunk 2 / Poplar Dr - Southbound Right Turn

Weekday AM Peak Hour - 70 km/h or less:



Advancing Traffic:
V_A = 825 vph

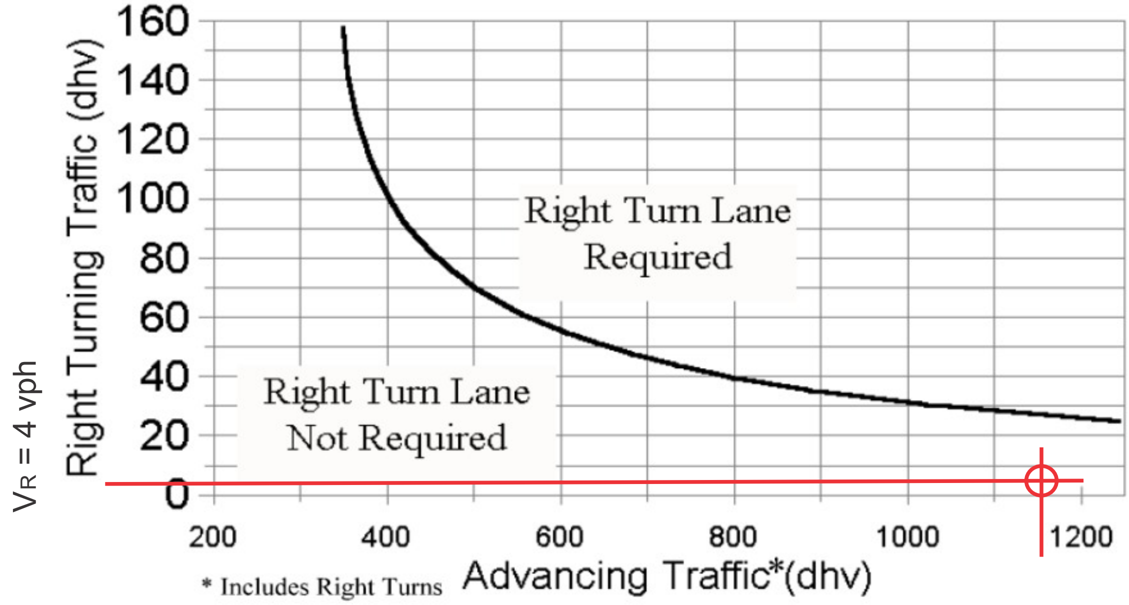
Weekday PM Peak Hour - 70 km/h or less:



Advancing Traffic:
V_A = 591 vph

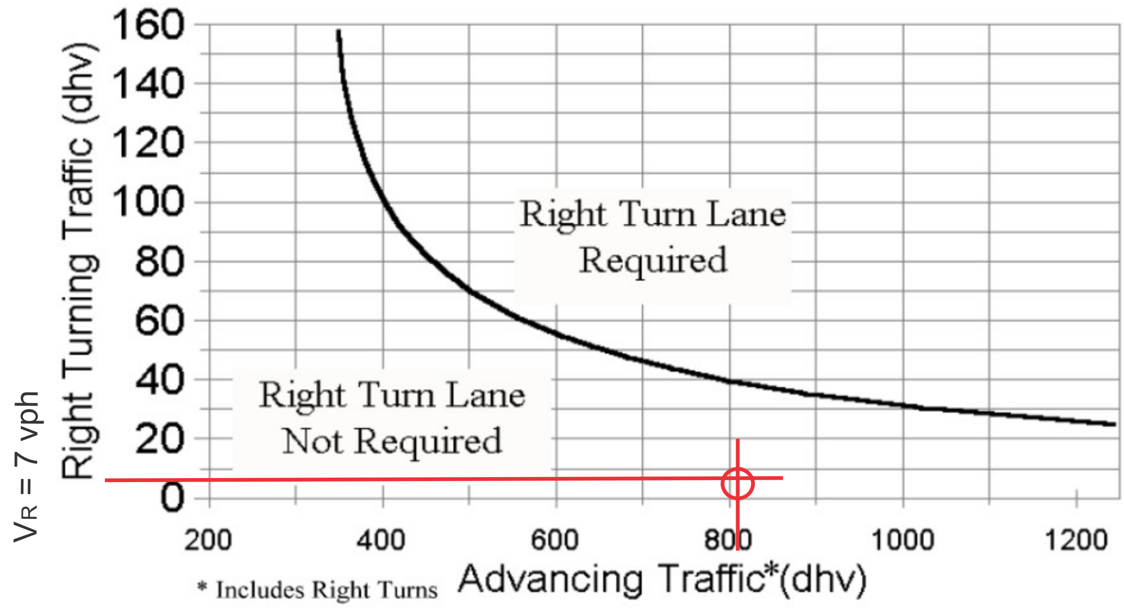
Right Turn Lane Warrant Analysis
2043 Traffic Volumes - Option 1 Road Network
#6 - Trunk 2 / Poplar Dr - Southbound Right Turn

Weekday AM Peak Hour - 70 km/h or less**:**



Advancing Traffic:
V_A = 1,150 vph

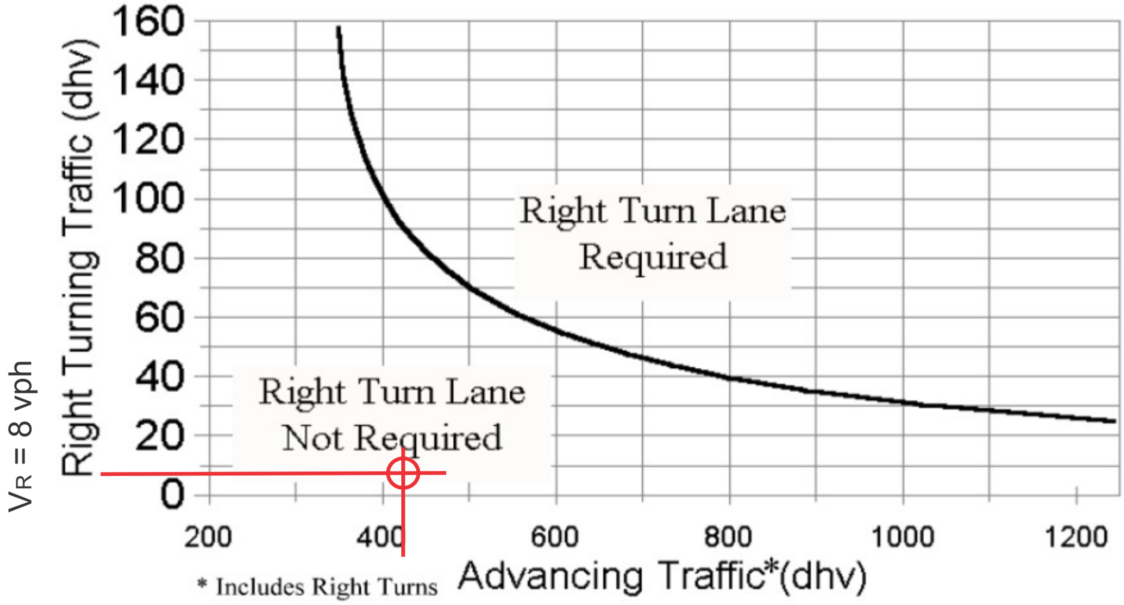
Weekday PM Peak Hour - 70 km/h or less**:**



Advancing Traffic:
V_A = 803 vph

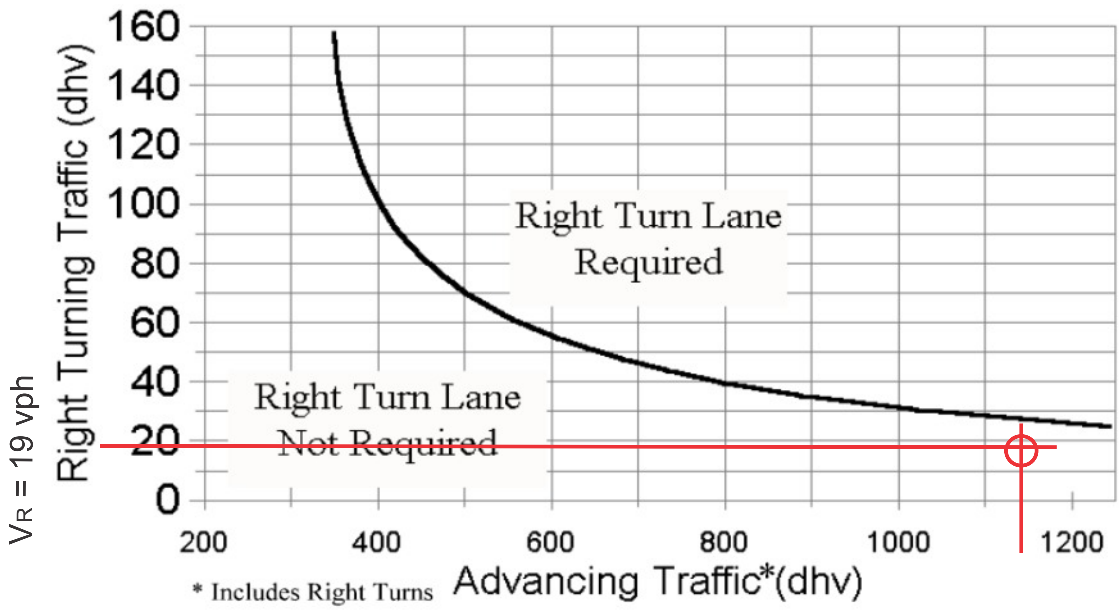
Right Turn Lane Warrant Analysis
2033 Traffic Volumes - Option 1 Road Network
#8 - Trunk 2 / Church - Northbound Right Turn

Weekday AM Peak Hour - 70 km/h or less:



Advancing Traffic:
V_A = 417 vph

Weekday PM Peak Hour - 70 km/h or less:

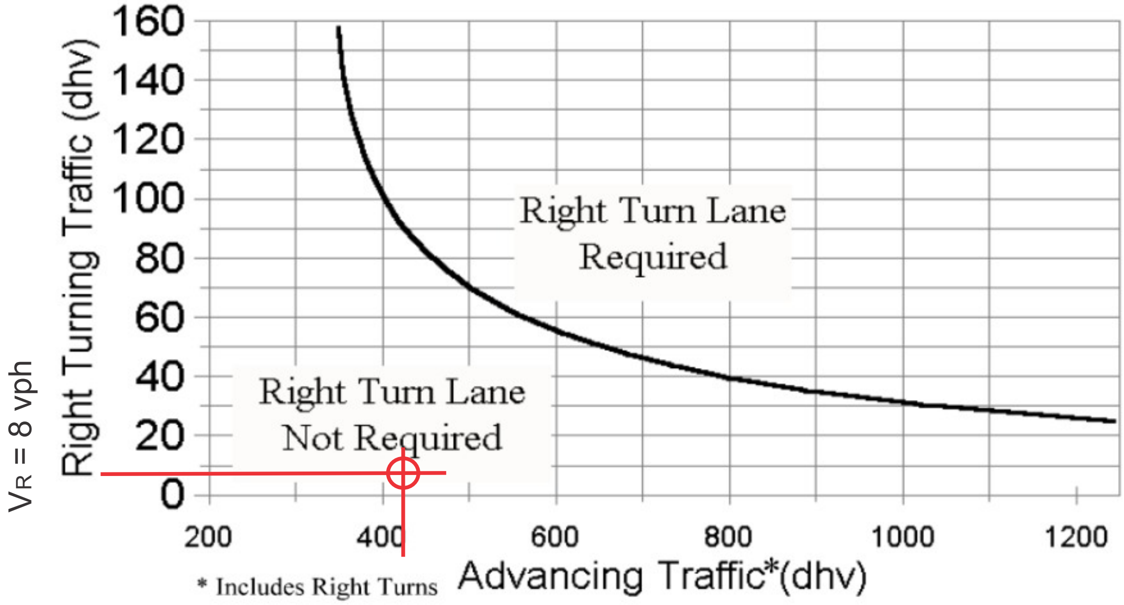


Advancing Traffic:
V_A = 1,134 vph

Right Turn Lane Warrant Analysis

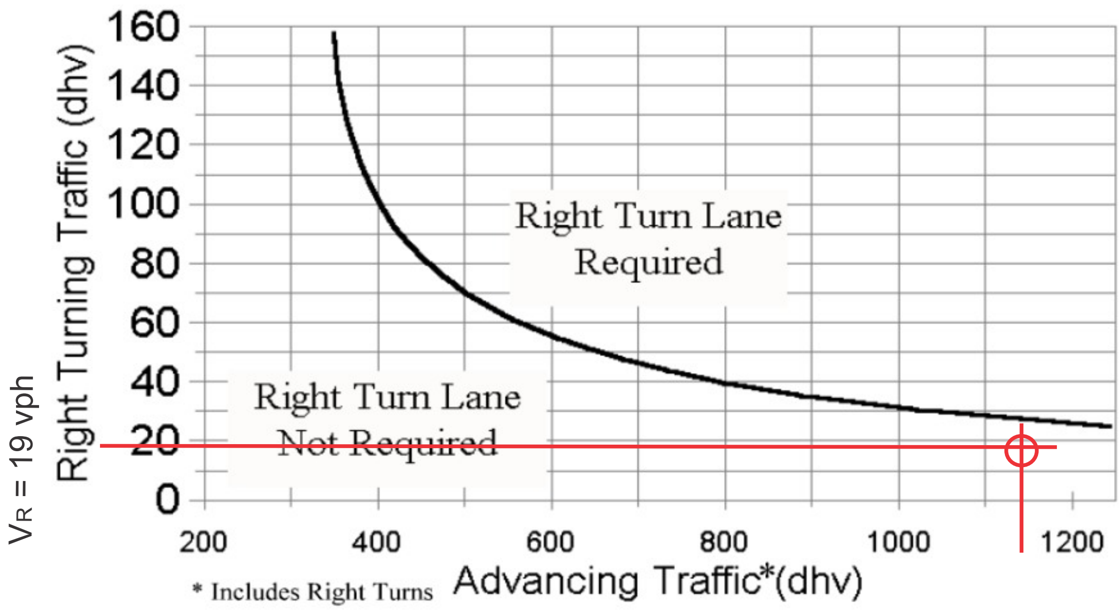
2043 Traffic Volumes - Option 1 Road Network
#8 - Trunk 2 / Church - Northbound Right Turn

Weekday AM Peak Hour - 70 km/h or less**:**



Advancing Traffic:
V_A = 417 vph

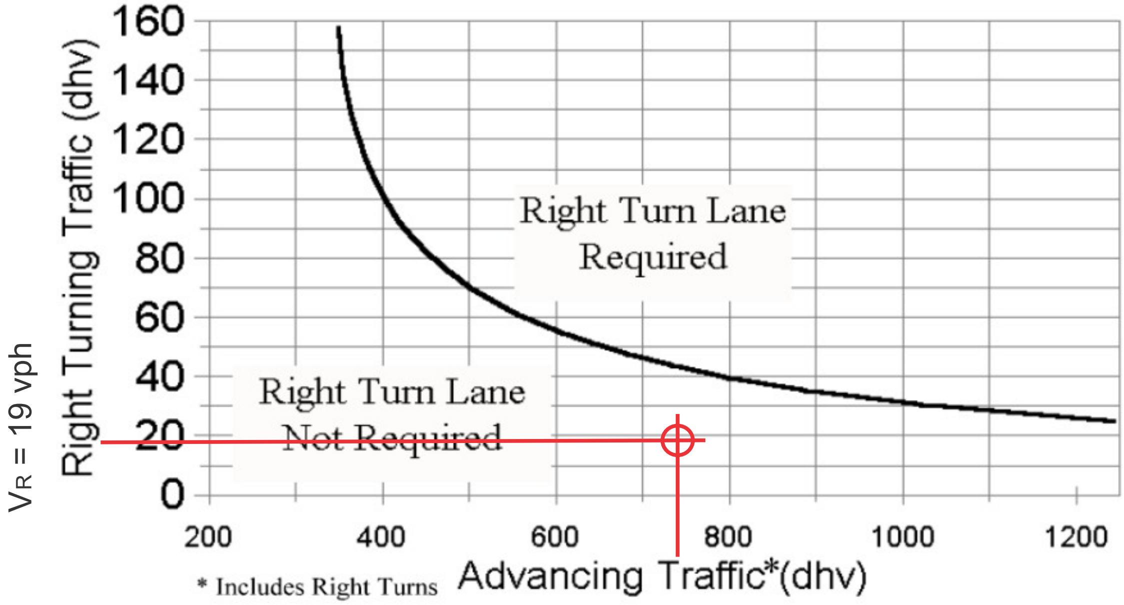
Weekday PM Peak Hour - 70 km/h or less**:**



Advancing Traffic:
V_A = 1,134 vph

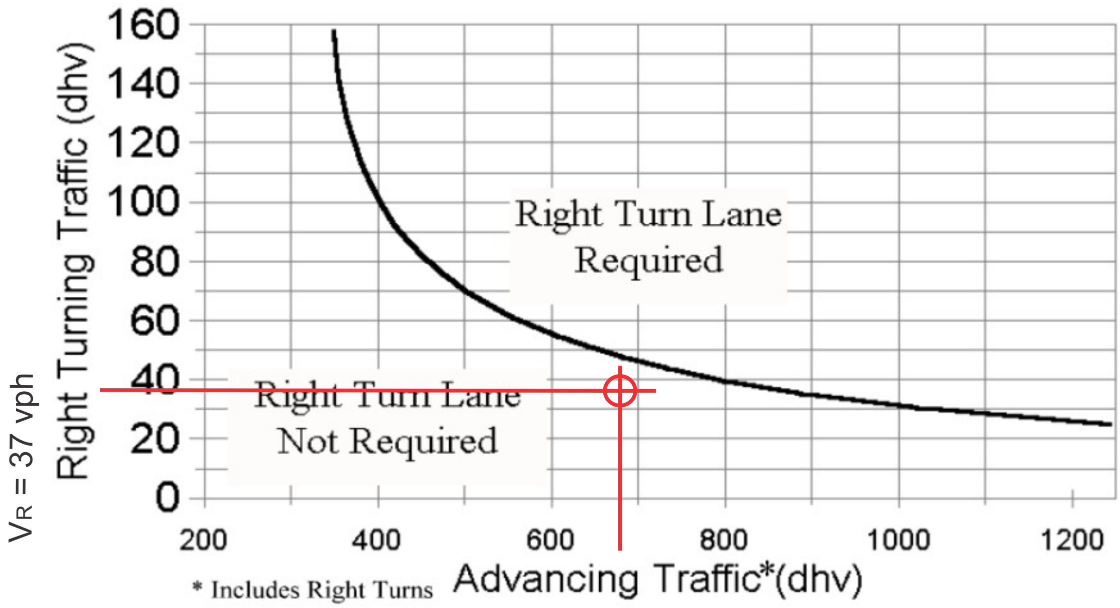
Right Turn Lane Warrant Analysis
2033 Traffic Volumes - Option 1 Road Network
#19 - Trunk 2 / Alderney - Southbound Right Turn

Weekday AM Peak Hour - 70 km/h or less**:**



Advancing Traffic:
V_A = 730 vph

Weekday PM Peak Hour - 70 km/h or less**:**



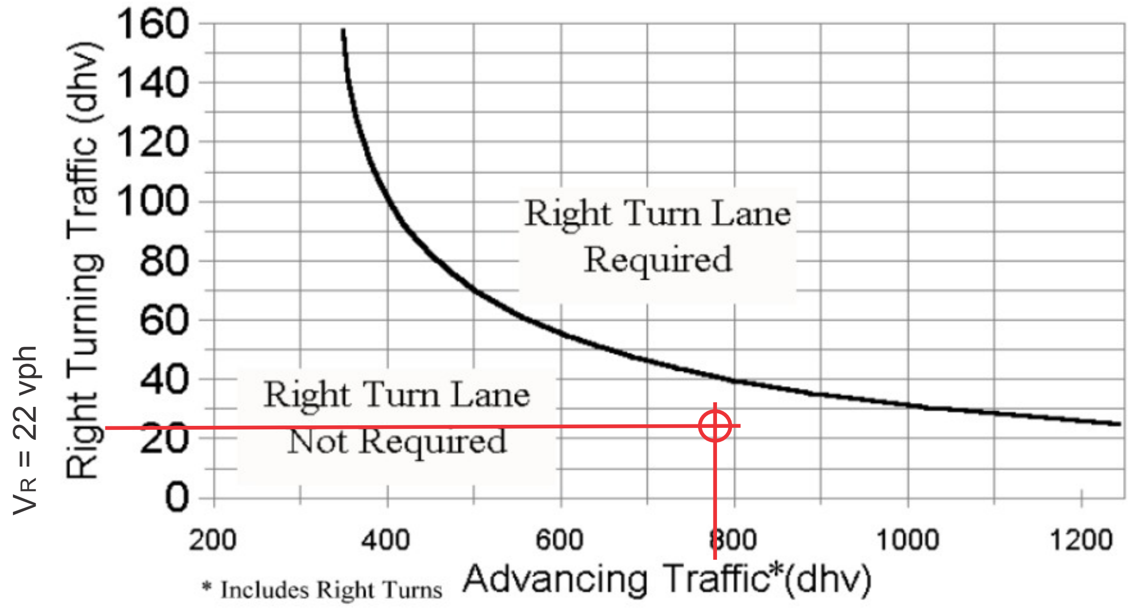
Advancing Traffic:
V_A = 685 vph

Right Turn Lane Warrant Analysis

2043 Traffic Volumes - Option 1 Road Network

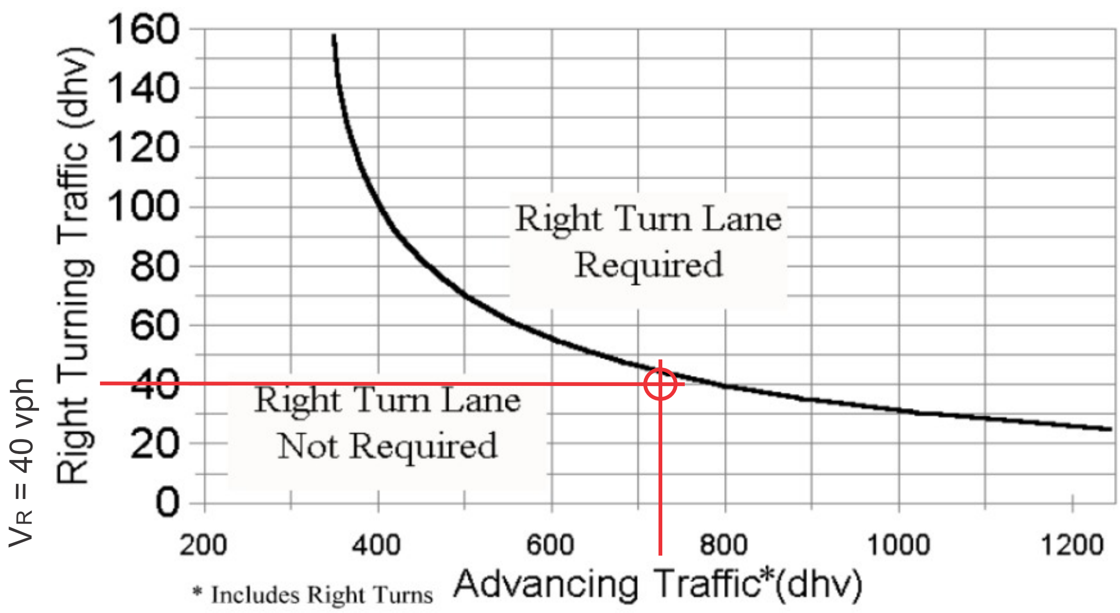
#19 - Trunk 2 / Alderney - Southbound Right Turn

Weekday AM Peak Hour - 70 km/h or less**:**



Advancing Traffic:
V_A = 773 vph

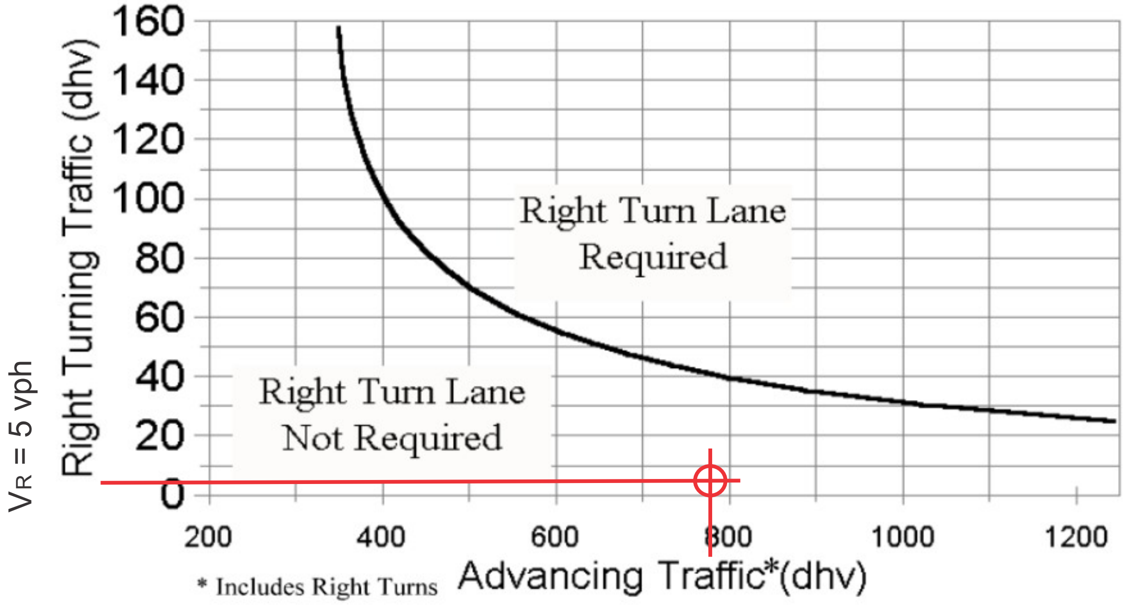
Weekday PM Peak Hour - 70 km/h or less**:**



Advancing Traffic:
V_A = 719 vph

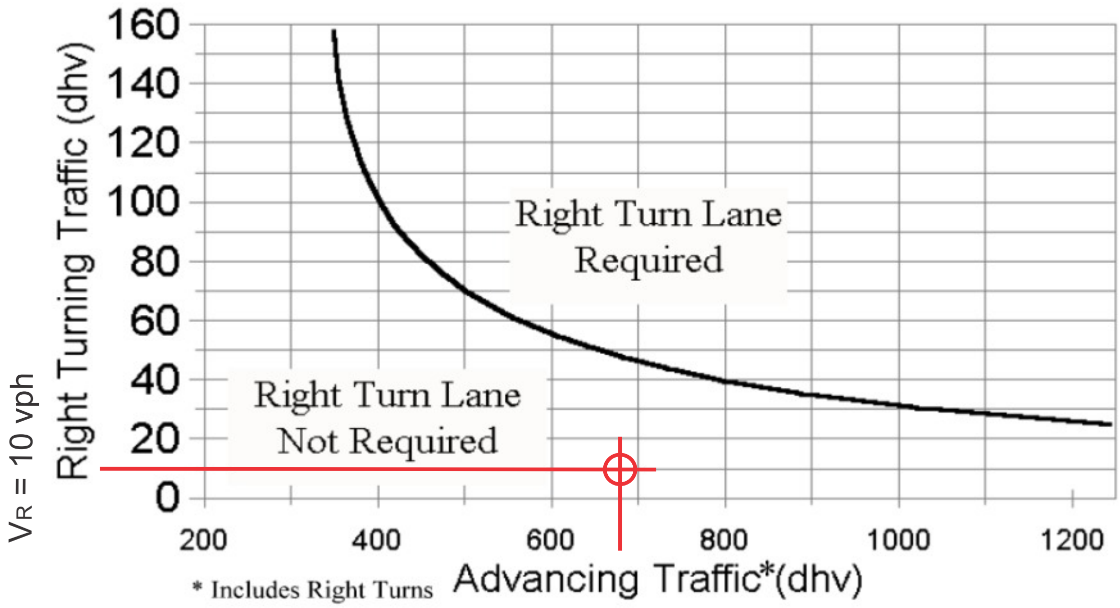
Right Turn Lane Warrant Analysis
2033 Traffic Volumes - Option 1 Road Network
#20 - Trunk 2 / Shamrock - Southbound Right Turn

Weekday AM Peak Hour - 70 km/h or less:



Advancing Traffic:
V_A = 777 vph

Weekday PM Peak Hour - 70 km/h or less:

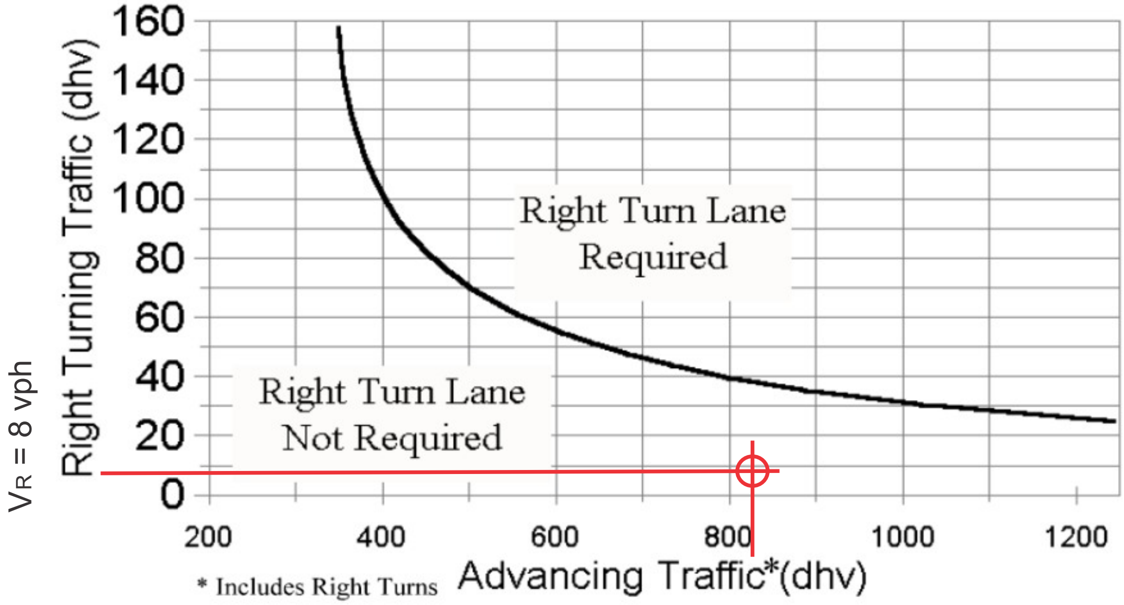


Advancing Traffic:
V_A = 687 vph

Right Turn Lane Warrant Analysis

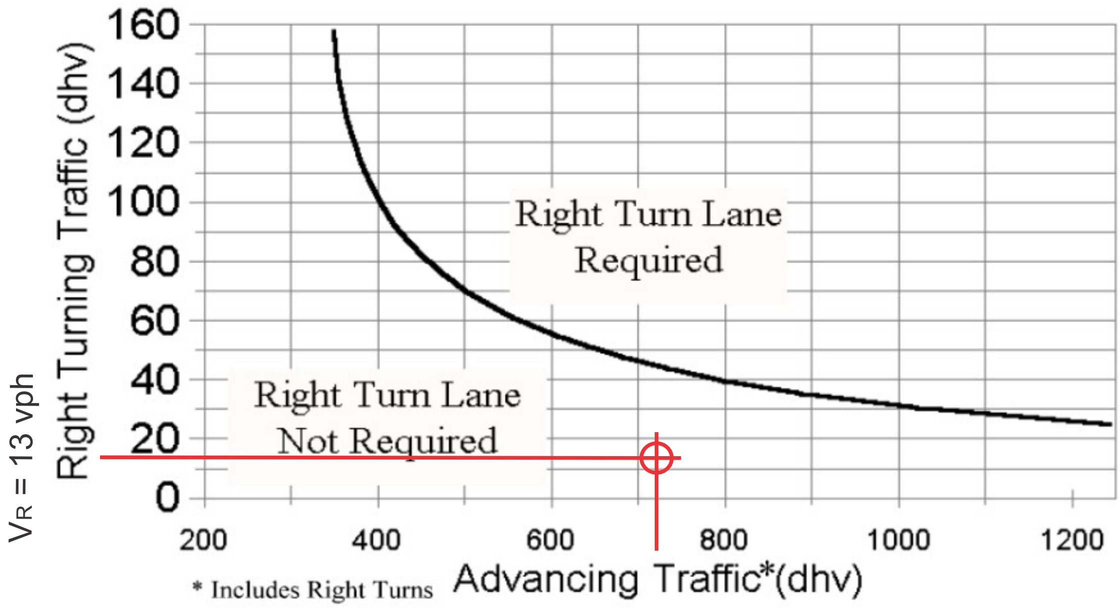
2043 Traffic Volumes - Option 1 Road Network
#20 - Trunk 2 / Shamrock - Southbound Right Turn

Weekday AM Peak Hour - 70 km/h or less**:**



Advancing Traffic:
V_A = 819 vph

Weekday PM Peak Hour - 70 km/h or less**:**



Advancing Traffic:
V_A = 721 vph

Appendix VI

Peak Hour Intersection Capacity Reports

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	39	207	15	18	146
Future Vol, veh/h	9	39	207	15	18	146
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	42	225	16	20	159

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	442	243	0	0	246	0
Stage 1	238	-	-	-	-	-
Stage 2	204	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	573	796	-	-	1320	-
Stage 1	802	-	-	-	-	-
Stage 2	830	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	558	788	-	-	1313	-
Mov Cap-2 Maneuver	558	-	-	-	-	-
Stage 1	798	-	-	-	-	-
Stage 2	812	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	731	1313	-
HCM Lane V/C Ratio	-	-	0.071	0.015	-
HCM Control Delay (s)	-	-	10.3	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection						
Int Delay, s/veh	1.9					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	50	305	28	52	209
Future Vol, veh/h	20	50	305	28	52	209
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	54	332	30	57	227

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	698	357	0	0	367	0
Stage 1	352	-	-	-	-	-
Stage 2	346	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	407	687	-	-	1192	-
Stage 1	712	-	-	-	-	-
Stage 2	716	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	381	680	-	-	1186	-
Mov Cap-2 Maneuver	381	-	-	-	-	-
Stage 1	708	-	-	-	-	-
Stage 2	673	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.5	0	1.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	555	1186	-
HCM Lane V/C Ratio	-	-	0.137	0.048	-
HCM Control Delay (s)	-	-	12.5	8.2	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

Intersection						
Int Delay, s/veh	1.3					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	39	249	15	18	166
Future Vol, veh/h	9	39	249	15	18	166
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	42	271	16	20	180

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	509	289	0	0	292	0
Stage 1	284	-	-	-	-	-
Stage 2	225	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	524	750	-	-	1270	-
Stage 1	764	-	-	-	-	-
Stage 2	812	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	509	742	-	-	1264	-
Mov Cap-2 Maneuver	509	-	-	-	-	-
Stage 1	760	-	-	-	-	-
Stage 2	793	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	683	1264	-
HCM Lane V/C Ratio	-	-	0.076	0.015	-
HCM Control Delay (s)	-	-	10.7	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	50	335	28	52	251
Future Vol, veh/h	20	50	335	28	52	251
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	54	364	30	57	273

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	776	389	0	0	399	0
Stage 1	384	-	-	-	-	-
Stage 2	392	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	366	659	-	-	1160	-
Stage 1	688	-	-	-	-	-
Stage 2	683	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	341	652	-	-	1154	-
Mov Cap-2 Maneuver	341	-	-	-	-	-
Stage 1	685	-	-	-	-	-
Stage 2	640	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	1.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	517	1154	-
HCM Lane V/C Ratio	-	-	0.147	0.049	-
HCM Control Delay (s)	-	-	13.2	8.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.2	-

Intersection						
Int Delay, s/veh	2.6					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	68	29	164	183	18
Future Vol, veh/h	26	68	29	164	183	18
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	74	32	178	199	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	461	219	224	0	-	0
Stage 1	214	-	-	-	-	-
Stage 2	247	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	559	821	1345	-	-	-
Stage 1	822	-	-	-	-	-
Stage 2	794	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	538	813	1338	-	-	-
Mov Cap-2 Maneuver	538	-	-	-	-	-
Stage 1	796	-	-	-	-	-
Stage 2	790	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1338	-	712	-	-
HCM Lane V/C Ratio	0.024	-	0.144	-	-
HCM Control Delay (s)	7.8	0	10.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection						
Int Delay, s/veh	2.1					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	38	58	200	182	24
Future Vol, veh/h	18	38	58	200	182	24
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	41	63	217	198	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	564	221	229	0	-	0
Stage 1	216	-	-	-	-	-
Stage 2	348	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	487	819	1339	-	-	-
Stage 1	820	-	-	-	-	-
Stage 2	715	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	456	811	1332	-	-	-
Mov Cap-2 Maneuver	456	-	-	-	-	-
Stage 1	772	-	-	-	-	-
Stage 2	711	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.1	1.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1332	-	649	-	-
HCM Lane V/C Ratio	0.047	-	0.094	-	-
HCM Control Delay (s)	7.8	0	11.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Intersection						
Int Delay, s/veh	4.3					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	52	133	58	198	202	36
Future Vol, veh/h	52	133	58	198	202	36
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	57	145	63	215	220	39

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	591	250	264	0	-	0
Stage 1	245	-	-	-	-	-
Stage 2	346	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	470	789	1300	-	-	-
Stage 1	796	-	-	-	-	-
Stage 2	716	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	440	781	1293	-	-	-
Mov Cap-2 Maneuver	440	-	-	-	-	-
Stage 1	748	-	-	-	-	-
Stage 2	712	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.2	1.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1293	-	641	-	-
HCM Lane V/C Ratio	0.049	-	0.314	-	-
HCM Control Delay (s)	7.9	0	13.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1.3	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	36	75	114	226	223	47
Future Vol, veh/h	36	75	114	226	223	47
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	82	124	246	242	51

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	772	278	298	0	-	0
Stage 1	273	-	-	-	-	-
Stage 2	499	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	368	761	1263	-	-	-
Stage 1	773	-	-	-	-	-
Stage 2	610	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	323	753	1257	-	-	-
Mov Cap-2 Maneuver	323	-	-	-	-	-
Stage 1	682	-	-	-	-	-
Stage 2	607	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.9	2.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1257	-	526	-	-
HCM Lane V/C Ratio	0.099	-	0.229	-	-
HCM Control Delay (s)	8.2	0	13.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.9	-	-

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	1	166	24	1	2	56	175	11	4	240	7
Future Vol, veh/h	17	1	166	24	1	2	56	175	11	4	240	7
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	15	-	-	15	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	1	180	26	1	2	61	190	12	4	261	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	603	607	275	692	605	206	274	0	0	207	0	0
Stage 1	278	278	-	323	323	-	-	-	-	-	-	-
Stage 2	325	329	-	369	282	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	411	411	764	358	412	835	1289	-	-	1364	-	-
Stage 1	728	680	-	689	650	-	-	-	-	-	-	-
Stage 2	687	646	-	651	678	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	389	386	756	259	387	827	1282	-	-	1357	-	-
Mov Cap-2 Maneuver	389	386	-	259	387	-	-	-	-	-	-	-
Stage 1	690	675	-	653	616	-	-	-	-	-	-	-
Stage 2	648	612	-	491	673	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.3	19.6	1.8	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1282	-	-	692	276	1357	-	-
HCM Lane V/C Ratio	0.047	-	-	0.289	0.106	0.003	-	-
HCM Control Delay (s)	7.9	-	-	12.3	19.6	7.7	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	0.4	0	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	1	105	11	1	4	177	244	24	2	198	20
Future Vol, veh/h	11	1	105	11	1	4	177	244	24	2	198	20
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	15	-	-	15	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	1	114	12	1	4	192	265	26	2	215	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	905	915	236	960	913	288	242	0	0	296	0	0
Stage 1	235	235	-	667	667	-	-	-	-	-	-	-
Stage 2	670	680	-	293	246	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	257	273	803	236	273	751	1324	-	-	1265	-	-
Stage 1	768	710	-	448	457	-	-	-	-	-	-	-
Stage 2	446	451	-	715	703	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	224	230	795	177	230	743	1317	-	-	1259	-	-
Mov Cap-2 Maneuver	224	230	-	177	230	-	-	-	-	-	-	-
Stage 1	653	705	-	381	388	-	-	-	-	-	-	-
Stage 2	376	383	-	607	698	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.1	22.5	3.3	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1317	-	-	631	223	1259	-	-
HCM Lane V/C Ratio	0.146	-	-	0.202	0.078	0.002	-	-
HCM Control Delay (s)	8.2	-	-	12.1	22.5	7.9	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	0.7	0.3	0	-	-

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	1	268	24	1	2	90	228	11	4	321	10
Future Vol, veh/h	26	1	268	24	1	2	90	228	11	4	321	10
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	15	-	-	15	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	1	291	26	1	2	98	248	12	4	349	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	825	829	365	969	828	264	365	0	0	265	0	0
Stage 1	368	368	-	455	455	-	-	-	-	-	-	-
Stage 2	457	461	-	514	373	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	292	306	680	233	306	775	1194	-	-	1299	-	-
Stage 1	652	621	-	585	569	-	-	-	-	-	-	-
Stage 2	583	565	-	543	618	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	269	277	673	122	277	767	1188	-	-	1292	-	-
Mov Cap-2 Maneuver	269	277	-	122	277	-	-	-	-	-	-	-
Stage 1	595	616	-	534	519	-	-	-	-	-	-	-
Stage 2	530	516	-	305	613	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18	39.6	2.3	0.1
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1188	-	-	592	133	1292	-	-
HCM Lane V/C Ratio	0.082	-	-	0.542	0.221	0.003	-	-
HCM Control Delay (s)	8.3	-	-	18	39.6	7.8	-	-
HCM Lane LOS	A	-	-	C	E	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	3.2	0.8	0	-	-

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	1	172	11	1	4	288	320	24	2	267	29
Future Vol, veh/h	16	1	172	11	1	4	288	320	24	2	267	29
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	15	-	-	15	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	1	187	12	1	4	313	348	26	2	290	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1310	1320	316	1401	1323	371	327	0	0	379	0	0
Stage 1	315	315	-	992	992	-	-	-	-	-	-	-
Stage 2	995	1005	-	409	331	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	136	157	724	118	156	675	1233	-	-	1179	-	-
Stage 1	696	656	-	296	324	-	-	-	-	-	-	-
Stage 2	295	319	-	619	645	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	106	116	717	69	115	668	1227	-	-	1173	-	-
Mov Cap-2 Maneuver	106	116	-	69	115	-	-	-	-	-	-	-
Stage 1	516	651	-	219	240	-	-	-	-	-	-	-
Stage 2	216	236	-	454	640	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.3	53	4.1	0.1
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1227	-	-	473	92	1173	-	-
HCM Lane V/C Ratio	0.255	-	-	0.434	0.189	0.002	-	-
HCM Control Delay (s)	8.9	-	-	18.3	53	8.1	-	-
HCM Lane LOS	A	-	-	C	F	A	-	-
HCM 95th %tile Q(veh)	1	-	-	2.2	0.7	0	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	30	296	102	235	451	13
Future Volume (vph)	30	296	102	235	451	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	15.0	0.0	15.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.6		7.6			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.96	1.00		1.00	
Frt		0.850			0.996	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1789	1601	1789	1883	1874	0
Flt Permitted	0.950		0.391			
Satd. Flow (perm)	1767	1535	734	1883	1874	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		322			2	
Link Speed (k/h)	60			60	60	
Link Distance (m)	91.5			47.3	45.7	
Travel Time (s)	5.5			2.8	2.7	
Confl. Peds. (#/hr)	5	5	5			5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	322	111	255	490	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	322	111	255	504	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	26.0	26.0	12.5	26.0	26.0	
Total Split (s)	26.0	26.0	12.5	74.0	61.5	
Total Split (%)	26.0%	26.0%	12.5%	74.0%	61.5%	
Maximum Green (s)	20.0	20.0	8.0	68.0	55.5	
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0	
All-Red Time (s)	2.0	2.0	1.0	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	4.5	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	5	5		5	5	
Act Effct Green (s)	10.5	10.5	69.7	68.2	58.2	
Actuated g/C Ratio	0.12	0.12	0.77	0.75	0.64	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.16	0.70	0.17	0.18	0.42	
Control Delay	37.0	13.0	3.8	4.1	10.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	37.0	13.0	3.8	4.1	10.7	
LOS	D	B	A	A	B	
Approach Delay	15.2			4.0	10.7	
Approach LOS	B			A	B	
Queue Length 50th (m)	5.3	0.0	3.1	8.8	38.4	
Queue Length 95th (m)	13.3	22.4	11.3	25.5	81.2	
Internal Link Dist (m)	67.5			23.3	21.7	
Turn Bay Length (m)	15.0		15.0			
Base Capacity (vph)	395	590	657	1415	1203	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.08	0.55	0.17	0.18	0.42	

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 90.7	
Natural Cycle: 65	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 10.0	Intersection LOS: B
Intersection Capacity Utilization 53.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Tk 2 & Armco South

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	31	195	323	496	340	33
Future Volume (vph)	31	195	323	496	340	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	15.0	0.0	15.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.6		7.6			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.96	0.99		1.00	
Frt		0.850			0.988	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1789	1601	1789	1883	1855	0
Flt Permitted	0.950		0.448			
Satd. Flow (perm)	1767	1535	839	1883	1855	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		212			8	
Link Speed (k/h)	60			60	60	
Link Distance (m)	91.5			47.3	45.7	
Travel Time (s)	5.5			2.8	2.7	
Confl. Peds. (#/hr)	5	5	5			5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	212	351	539	370	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	212	351	539	406	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	26.0	26.0	12.5	26.0	26.0	
Total Split (s)	26.0	26.0	12.5	74.0	61.5	
Total Split (%)	26.0%	26.0%	12.5%	74.0%	61.5%	
Maximum Green (s)	20.0	20.0	8.0	68.0	55.5	
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0	
All-Red Time (s)	2.0	2.0	1.0	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	4.5	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	5	5		5	5	
Act Effct Green (s)	10.3	10.3	69.7	68.2	55.7	
Actuated g/C Ratio	0.11	0.11	0.77	0.75	0.62	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.17	0.59	0.48	0.38	0.36	
Control Delay	37.3	12.3	6.0	5.3	10.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	37.3	12.3	6.0	5.3	10.1	
LOS	D	B	A	A	B	
Approach Delay	15.7			5.6	10.1	
Approach LOS	B			A	B	
Queue Length 50th (m)	5.4	0.0	11.6	22.4	28.4	
Queue Length 95th (m)	13.6	18.2	34.2	60.0	61.7	
Internal Link Dist (m)	67.5			23.3	21.7	
Turn Bay Length (m)	15.0		15.0			
Base Capacity (vph)	396	505	730	1419	1143	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.09	0.42	0.48	0.38	0.36	

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 90.5	
Natural Cycle: 65	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 8.4	Intersection LOS: A
Intersection Capacity Utilization 59.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Tk 2 & Armco South

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	52	446	154	302	626	23
Future Volume (vph)	52	446	154	302	626	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	15.0	0.0	15.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.6		7.6			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.96			1.00	
Frt		0.850			0.995	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1789	1601	1789	1883	1872	0
Flt Permitted	0.950		0.234			
Satd. Flow (perm)	1767	1535	441	1883	1872	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		325			3	
Link Speed (k/h)	60			60	60	
Link Distance (m)	91.5			47.3	45.7	
Travel Time (s)	5.5			2.8	2.7	
Confl. Peds. (#/hr)	5	5	5			5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	485	167	328	680	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	485	167	328	705	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	26.0	26.0	12.5	26.0	26.0	
Total Split (s)	26.0	26.0	12.5	74.0	61.5	
Total Split (%)	26.0%	26.0%	12.5%	74.0%	61.5%	
Maximum Green (s)	20.0	20.0	8.0	68.0	55.5	
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0	
All-Red Time (s)	2.0	2.0	1.0	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	4.5	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	5	5		5	5	
Act Effct Green (s)	16.3	16.3	69.7	68.2	55.7	
Actuated g/C Ratio	0.17	0.17	0.72	0.71	0.58	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.19	0.92	0.39	0.25	0.65	
Control Delay	35.2	36.9	7.4	6.1	18.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	35.2	36.9	7.4	6.1	18.2	
LOS	D	D	A	A	B	
Approach Delay	36.7			6.6	18.2	
Approach LOS	D			A	B	
Queue Length 50th (m)	9.2	30.6	9.5	21.9	91.5	
Queue Length 95th (m)	19.9	#87.0	16.2	33.1	131.7	
Internal Link Dist (m)	67.5			23.3	21.7	
Turn Bay Length (m)	15.0		15.0			
Base Capacity (vph)	371	576	430	1330	1080	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.15	0.84	0.39	0.25	0.65	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 96.5
Natural Cycle: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 20.7 Intersection LOS: C
Intersection Capacity Utilization 72.5% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Tk 2 & Armco South

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	52	294	488	662	451	56
Future Volume (vph)	52	294	488	662	451	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	15.0	0.0	15.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.6		7.6			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.96	1.00		1.00	
Frt		0.850			0.985	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1789	1601	1789	1883	1848	0
Flt Permitted	0.950		0.352			
Satd. Flow (perm)	1767	1535	661	1883	1848	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		320			10	
Link Speed (k/h)	60			60	60	
Link Distance (m)	91.5			47.3	45.7	
Travel Time (s)	5.5			2.8	2.7	
Confl. Peds. (#/hr)	5	5	5			5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	320	530	720	490	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	320	530	720	551	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	26.0	26.0	12.5	26.0	26.0	
Total Split (s)	26.0	26.0	12.5	74.0	61.5	
Total Split (%)	26.0%	26.0%	12.5%	74.0%	61.5%	
Maximum Green (s)	20.0	20.0	8.0	68.0	55.5	
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0	
All-Red Time (s)	2.0	2.0	1.0	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	4.5	6.0	6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	5	5		5	5	
Act Effct Green (s)	10.5	10.5	69.7	68.2	55.6	
Actuated g/C Ratio	0.12	0.12	0.77	0.75	0.61	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.28	0.70	0.87	0.51	0.48	
Control Delay	39.4	12.9	24.0	6.7	11.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	39.4	12.9	24.0	6.7	11.9	
LOS	D	B	C	A	B	
Approach Delay	16.9			14.1	11.9	
Approach LOS	B			B	B	
Queue Length 50th (m)	9.2	0.0	20.2	35.1	43.3	
Queue Length 95th (m)	19.9	22.4	#93.0	92.2	91.1	
Internal Link Dist (m)	67.5			23.3	21.7	
Turn Bay Length (m)	15.0		15.0			
Base Capacity (vph)	395	588	607	1415	1137	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.14	0.54	0.87	0.51	0.48	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 90.7
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 14.0 Intersection LOS: B
Intersection Capacity Utilization 76.2% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Tk 2 & Armco South

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	87	24	314	736	11
Future Vol, veh/h	23	87	24	314	736	11
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	95	26	341	800	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1209	816	817	0	-	0
Stage 1	811	-	-	-	-	-
Stage 2	398	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	202	377	811	-	-	-
Stage 1	437	-	-	-	-	-
Stage 2	678	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	194	373	807	-	-	-
Mov Cap-2 Maneuver	194	-	-	-	-	-
Stage 1	421	-	-	-	-	-
Stage 2	675	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.4	0.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	807	-	313	-	-
HCM Lane V/C Ratio	0.032	-	0.382	-	-
HCM Control Delay (s)	9.6	-	23.4	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	1.7	-	-

Intersection						
Int Delay, s/veh	1.6					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	53	68	800	504	30
Future Vol, veh/h	19	53	68	800	504	30
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	58	74	870	548	33

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1593	575	586	0	-	0
Stage 1	570	-	-	-	-	-
Stage 2	1023	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	118	518	989	-	-	-
Stage 1	566	-	-	-	-	-
Stage 2	347	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	108	513	984	-	-	-
Mov Cap-2 Maneuver	108	-	-	-	-	-
Stage 1	521	-	-	-	-	-
Stage 2	345	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.9	0.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	984	-	258	-	-
HCM Lane V/C Ratio	0.075	-	0.303	-	-
HCM Control Delay (s)	9	-	24.9	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.2	-	-

Intersection						
Int Delay, s/veh	4					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	87	24	432	1061	11
Future Vol, veh/h	23	87	24	432	1061	11
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	95	26	470	1153	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1691	1169	1170	0	-	0
Stage 1	1164	-	-	-	-	-
Stage 2	527	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	103	235	597	-	-	-
Stage 1	297	-	-	-	-	-
Stage 2	592	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	97	233	594	-	-	-
Mov Cap-2 Maneuver	97	-	-	-	-	-
Stage 1	282	-	-	-	-	-
Stage 2	589	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	57.6	0.6	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	594	-	180	-	-
HCM Lane V/C Ratio	0.044	-	0.664	-	-
HCM Control Delay (s)	11.3	-	57.6	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.1	-	3.9	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	54	68	1131	715	30
Future Vol, veh/h	19	54	68	1131	715	30
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	59	74	1229	777	33

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2181	804	815	0	-	0
Stage 1	799	-	-	-	-	-
Stage 2	1382	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	51	383	812	-	-	-
Stage 1	443	-	-	-	-	-
Stage 2	233	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	46	379	808	-	-	-
Mov Cap-2 Maneuver	46	-	-	-	-	-
Stage 1	400	-	-	-	-	-
Stage 2	232	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	67.7	0.6	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	808	-	131	-	-
HCM Lane V/C Ratio	0.091	-	0.606	-	-
HCM Control Delay (s)	9.9	-	67.7	-	-
HCM Lane LOS	A	-	F	-	-
HCM 95th %tile Q(veh)	0.3	-	3.1	-	-

Intersection						
Int Delay, s/veh	2.2					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	87	31	334	821	4
Future Vol, veh/h	13	87	31	334	821	4
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	95	34	363	892	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1335	904	901	0	-	0
Stage 1	899	-	-	-	-	-
Stage 2	436	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	169	335	754	-	-	-
Stage 1	397	-	-	-	-	-
Stage 2	652	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	160	332	750	-	-	-
Mov Cap-2 Maneuver	160	-	-	-	-	-
Stage 1	377	-	-	-	-	-
Stage 2	649	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.6	0.9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	750	-	291	-	-
HCM Lane V/C Ratio	0.045	-	0.374	-	-
HCM Control Delay (s)	10	-	24.6	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	1.7	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	56	113	877	584	7
Future Vol, veh/h	11	56	113	877	584	7
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	61	123	953	635	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1848	649	648	0	-	0
Stage 1	644	-	-	-	-	-
Stage 2	1204	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	82	470	938	-	-	-
Stage 1	523	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	70	465	933	-	-	-
Mov Cap-2 Maneuver	70	-	-	-	-	-
Stage 1	452	-	-	-	-	-
Stage 2	283	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	26.3	1.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	933	-	241	-	-
HCM Lane V/C Ratio	0.132	-	0.302	-	-
HCM Control Delay (s)	9.4	-	26.3	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0.5	-	1.2	-	-

Intersection						
Int Delay, s/veh	3.5					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	87	31	452	1146	4
Future Vol, veh/h	13	87	31	452	1146	4
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	95	34	491	1246	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1817	1258	1255	0	-	0
Stage 1	1253	-	-	-	-	-
Stage 2	564	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	86	209	554	-	-	-
Stage 1	269	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	80	207	551	-	-	-
Mov Cap-2 Maneuver	80	-	-	-	-	-
Stage 1	251	-	-	-	-	-
Stage 2	566	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	56.3	0.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	551	-	172	-	-
HCM Lane V/C Ratio	0.061	-	0.632	-	-
HCM Control Delay (s)	12	-	56.3	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.2	-	3.6	-	-

Intersection						
Int Delay, s/veh	2.7					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	57	113	1208	796	7
Future Vol, veh/h	11	57	113	1208	796	7
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	62	123	1313	865	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2438	879	878	0	-	0
Stage 1	874	-	-	-	-	-
Stage 2	1564	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	35	347	769	-	-	-
Stage 1	408	-	-	-	-	-
Stage 2	190	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	29	343	765	-	-	-
Mov Cap-2 Maneuver	29	-	-	-	-	-
Stage 1	341	-	-	-	-	-
Stage 2	189	-	-	-	-	-

Approach	EB		NB		SB	
HCM Control Delay, s	68.8		0.9		0	
HCM LOS	F					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	765	-	125	-	-
HCM Lane V/C Ratio	0.161	-	0.591	-	-
HCM Control Delay (s)	10.6	-	68.8	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.6	-	3	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1	62	91	1	10	23	376	33	36	899	5
Future Volume (vph)	12	1	62	91	1	10	23	376	33	36	899	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	15.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97			0.99			1.00		0.99	1.00	
Frt		0.888			0.987			0.988			0.999	
Flt Protected		0.992			0.957		0.950			0.950		
Satd. Flow (prot)	0	1605	0	0	1772	0	1789	1856	0	1789	1881	0
Flt Permitted		0.943			0.785		0.204			0.493		
Satd. Flow (perm)	0	1523	0	0	1440	0	384	1856	0	923	1881	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		67			6			10			1	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		95.3			67.3			62.4			54.9	
Travel Time (s)		5.7			4.0			3.7			3.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	1	67	99	1	11	25	409	36	39	977	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	81	0	0	111	0	25	445	0	39	982	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	
Total Split (s)	26.0	26.0		26.0	26.0		66.0	66.0		66.0	66.0	
Total Split (%)	28.3%	28.3%		28.3%	28.3%		71.7%	71.7%		71.7%	71.7%	
Maximum Green (s)	20.0	20.0		20.0	20.0		60.0	60.0		60.0	60.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
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	
Total Lost Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)		12.5			12.5		65.3	65.3		65.3	65.3	
Actuated g/C Ratio		0.15			0.15		0.76	0.76		0.76	0.76	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.29			0.52		0.09	0.31		0.06	0.68	
Control Delay		13.6			40.1		5.8	5.5		4.9	11.1	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		13.6			40.1		5.8	5.5		4.9	11.1	
LOS		B			D		A	A		A	B	
Approach Delay		13.6			40.1			5.5			10.9	
Approach LOS		B			D			A			B	
Queue Length 50th (m)		2.0			15.8		1.0	21.2		1.5	76.4	
Queue Length 95th (m)		13.3			30.8		4.5	47.2		5.7	171.3	
Internal Link Dist (m)		71.3			43.3			38.4			30.9	
Turn Bay Length (m)							15.0			15.0		
Base Capacity (vph)		407			341		292	1417		703	1435	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.20			0.33		0.09	0.31		0.06	0.68	

Intersection Summary

Area Type: Other

Cycle Length: 92

Actuated Cycle Length: 85.6

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 11.4 Intersection LOS: B

Intersection Capacity Utilization 70.7% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 7: Tk 2 & Logan/Rte 277

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1	43	62	1	43	76	944	104	34	606	10
Future Volume (vph)	5	1	43	62	1	43	76	944	104	34	606	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	15.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.96			0.98		1.00	1.00			1.00	
Frt		0.880			0.945			0.985			0.998	
Flt Protected		0.995			0.972		0.950			0.950		
Satd. Flow (prot)	0	1591	0	0	1702	0	1789	1849	0	1789	1879	0
Flt Permitted		0.970			0.790		0.365			0.134		
Satd. Flow (perm)	0	1550	0	0	1375	0	685	1849	0	252	1879	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			35			12			2	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		95.3			67.3			62.4			54.9	
Travel Time (s)		5.7			4.0			3.7			3.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1	47	67	1	47	83	1026	113	37	659	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	53	0	0	115	0	83	1139	0	37	670	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	
Total Split (s)	26.0	26.0		26.0	26.0		66.0	66.0		66.0	66.0	
Total Split (%)	28.3%	28.3%		28.3%	28.3%		71.7%	71.7%		71.7%	71.7%	
Maximum Green (s)	20.0	20.0		20.0	20.0		60.0	60.0		60.0	60.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
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	
Total Lost Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)		11.7			11.7		65.9	65.9		65.9	65.9	
Actuated g/C Ratio		0.14			0.14		0.77	0.77		0.77	0.77	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.21			0.53		0.16	0.80		0.19	0.46	
Control Delay		13.2			32.7		5.6	15.0		8.1	6.7	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		13.2			32.7		5.6	15.0		8.1	6.7	
LOS		B			C		A	B		A	A	
Approach Delay		13.2			32.7			14.4			6.7	
Approach LOS		B			C			B			A	
Queue Length 50th (m)		0.8			11.8		3.2	100.3		1.5	35.5	
Queue Length 95th (m)		9.9			27.0		11.4	#272.4		7.7	83.7	
Internal Link Dist (m)		71.3			43.3			38.4			30.9	
Turn Bay Length (m)							15.0			15.0		
Base Capacity (vph)		399			349		528	1430		194	1451	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.13			0.33		0.16	0.80		0.19	0.46	

Intersection Summary

Area Type: Other
Cycle Length: 92
Actuated Cycle Length: 85.4
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 12.8 Intersection LOS: B
Intersection Capacity Utilization 86.7% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Tk 2 & Logan/Rte 277

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1	62	100	1	15	23	492	36	51	1210	5
Future Volume (vph)	12	1	62	100	1	15	23	492	36	51	1210	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	15.0		0.0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.96			0.98				0.96	0.99	1.00	
Frt		0.888			0.983				0.850		0.999	
Flt Protected		0.992			0.959		0.950			0.950		
Satd. Flow (prot)	0	1599	0	0	1766	0	1789	1883	1601	1789	1881	0
Flt Permitted		0.947			0.729		0.049			0.435		
Satd. Flow (perm)	0	1524	0	0	1329	0	92	1883	1543	815	1881	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		67			6				39			
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		95.3			67.3			62.4			54.9	
Travel Time (s)		5.7			4.0			3.7			3.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	1	67	109	1	16	25	535	39	55	1315	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	81	0	0	126	0	25	535	39	55	1320	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0	26.0	26.0	26.0	
Total Split (s)	26.0	26.0		26.0	26.0		84.0	84.0	84.0	84.0	84.0	
Total Split (%)	23.6%	23.6%		23.6%	23.6%		76.4%	76.4%	76.4%	76.4%	76.4%	
Maximum Green (s)	20.0	20.0		20.0	20.0		78.0	78.0	78.0	78.0	78.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
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	6.0	6.0	6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	
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)	5	5		5	5		5	5	5	5	5	
Act Effct Green (s)		14.6			14.6		81.2	81.2	81.2	81.2	81.2	
Actuated g/C Ratio		0.14			0.14		0.75	0.75	0.75	0.75	0.75	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.31			0.68		0.36	0.38	0.03	0.09	0.93	
Control Delay		15.9			59.8		23.9	6.0	1.5	4.8	26.0	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		15.9			59.8		23.9	6.0	1.5	4.8	26.0	
LOS		B			E		C	A	A	A	C	
Approach Delay		15.9			59.8			6.4			25.2	
Approach LOS		B			E			A			C	
Queue Length 50th (m)		2.5			23.4		1.5	32.7	0.0	2.6	193.8	
Queue Length 95th (m)		15.4			42.7		12.2	58.3	2.8	7.2	#371.3	
Internal Link Dist (m)		71.3			43.3			38.4			30.9	
Turn Bay Length (m)							15.0			15.0		
Base Capacity (vph)		337			251		69	1418	1171	613	1416	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.24			0.50		0.36	0.38	0.03	0.09	0.93	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 107.8
Natural Cycle: 100
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 21.7 Intersection LOS: C
Intersection Capacity Utilization 87.8% ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Tk 2 & Logan/Rte 277

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1	45	68	1	58	77	1261	114	44	810	10
Future Volume (vph)	5	1	45	68	1	58	77	1261	114	44	810	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	15.0		0.0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.96			0.97				0.96		1.00	
Frt		0.880			0.938				0.850		0.998	
Flt Protected		0.995			0.974		0.950			0.950		
Satd. Flow (prot)	0	1582	0	0	1685	0	1789	1883	1601	1789	1879	0
Flt Permitted		0.972			0.839		0.262			0.044		
Satd. Flow (perm)	0	1544	0	0	1441	0	493	1883	1541	83	1879	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49			30				112		1	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		95.3			67.3			62.4			54.9	
Travel Time (s)		5.7			4.0			3.7			3.3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	1	49	74	1	63	84	1371	124	48	880	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	55	0	0	138	0	84	1371	124	48	891	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0	26.0	26.0	26.0	
Total Split (s)	26.0	26.0		26.0	26.0		94.0	94.0	94.0	94.0	94.0	
Total Split (%)	21.7%	21.7%		21.7%	21.7%		78.3%	78.3%	78.3%	78.3%	78.3%	
Maximum Green (s)	20.0	20.0		20.0	20.0		88.0	88.0	88.0	88.0	88.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
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	6.0	6.0	6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	
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)	5	5		5	5		5	5	5	5	5	
Act Effct Green (s)		14.1			14.1		90.9	90.9	90.9	90.9	90.9	
Actuated g/C Ratio		0.12			0.12		0.78	0.78	0.78	0.78	0.78	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.24			0.69		0.22	0.94	0.10	0.75	0.61	
Control Delay		17.0			55.3		5.9	26.0	1.1	76.3	8.4	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		17.0			55.3		5.9	26.0	1.1	76.3	8.4	
LOS		B			E		A	C	A	E	A	
Approach Delay		17.0			55.3			22.9			11.9	
Approach LOS		B			E			C			B	
Queue Length 50th (m)		1.2			23.3		4.3	214.6	0.5	4.8	72.1	
Queue Length 95th (m)		12.6			44.0		11.8	#413.8	5.3	#19.2	129.0	
Internal Link Dist (m)		71.3			43.3			38.4			30.9	
Turn Bay Length (m)							15.0			15.0		
Base Capacity (vph)		305			271		382	1462	1221	64	1459	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.18			0.51		0.22	0.94	0.10	0.75	0.61	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 117	
Natural Cycle: 110	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 20.6	Intersection LOS: C
Intersection Capacity Utilization 91.0%	ICU Level of Service F
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 7: Tk 2 & Logan/Rte 277

Intersection						
Int Delay, s/veh	0.3					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	1	409	8	2	1062
Future Vol, veh/h	9	1	409	8	2	1062
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	1	445	9	2	1154

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1618	460	0	0	459	0
Stage 1	455	-	-	-	-	-
Stage 2	1163	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	114	601	-	-	1102	-
Stage 1	639	-	-	-	-	-
Stage 2	297	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	112	595	-	-	1096	-
Mov Cap-2 Maneuver	112	-	-	-	-	-
Stage 1	636	-	-	-	-	-
Stage 2	294	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	37.4	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	122	1096	-
HCM Lane V/C Ratio	-	-	0.089	0.002	-
HCM Control Delay (s)	-	-	37.4	8.3	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	8	1115	19	1	701
Future Vol, veh/h	10	8	1115	19	1	701
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	9	1212	21	1	762

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1997	1233	0	0	1238	0
Stage 1	1228	-	-	-	-	-
Stage 2	769	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	66	216	-	-	563	-
Stage 1	277	-	-	-	-	-
Stage 2	457	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	65	214	-	-	560	-
Mov Cap-2 Maneuver	65	-	-	-	-	-
Stage 1	276	-	-	-	-	-
Stage 2	453	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s	53.1		0		0	
HCM LOS	F					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	94	560	-
HCM Lane V/C Ratio	-	-	0.208	0.002	-
HCM Control Delay (s)	-	-	53.1	11.4	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	0.7	0	-

Intersection						
Int Delay, s/veh	0.2					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	1	529	9	2	1382
Future Vol, veh/h	10	1	529	9	2	1382
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	1	575	10	2	1502

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1345	303	0	0	590	0
Stage 1	585	-	-	-	-	-
Stage 2	760	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	143	693	-	-	982	-
Stage 1	520	-	-	-	-	-
Stage 2	422	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	140	686	-	-	977	-
Mov Cap-2 Maneuver	140	-	-	-	-	-
Stage 1	517	-	-	-	-	-
Stage 2	415	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.9	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	151	977	-
HCM Lane V/C Ratio	-	-	0.079	0.002	-
HCM Control Delay (s)	-	-	30.9	8.7	0.1
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection						
Int Delay, s/veh	0.6					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	8	1443	20	1	913
Future Vol, veh/h	11	8	1443	20	1	913
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	9	1568	22	1	992

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2087	805	0	0	1595	0
Stage 1	1584	-	-	-	-	-
Stage 2	503	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	45	325	-	-	407	-
Stage 1	154	-	-	-	-	-
Stage 2	573	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	44	322	-	-	405	-
Mov Cap-2 Maneuver	44	-	-	-	-	-
Stage 1	153	-	-	-	-	-
Stage 2	567	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	78.1	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	69	405	-
HCM Lane V/C Ratio	-	-	0.299	0.003	-
HCM Control Delay (s)	-	-	78.1	13.9	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	1.1	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	90	195	78	211	42	263	148	53	33	207	193
Future Volume (vph)	69	90	195	78	211	42	263	148	53	33	207	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		40.0	0.0		0.0	30.0		15.0	25.0		15.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	20.0			20.0			20.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.96		0.99		1.00	0.99		0.99	0.98	
Frt			0.850		0.983			0.960			0.928	
Flt Protected		0.979			0.988		0.950			0.950		
Satd. Flow (prot)	0	1844	1601	0	1821	0	1789	1792	0	1789	1719	0
Flt Permitted		0.694			0.870		0.450			0.621		
Satd. Flow (perm)	0	1304	1543	0	1601	0	844	1792	0	1161	1719	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			212		9			34			87	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		113.7			102.5			78.7			91.3	
Travel Time (s)		6.8			6.2			4.7			5.5	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	98	212	85	229	46	286	161	58	36	225	210
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	173	212	0	360	0	286	219	0	36	435	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	26.9	26.9	26.9	22.1	22.1		30.5	30.5		30.5	30.5	
Total Split (s)	32.0	32.0	32.0	32.0	32.0		52.0	52.0		52.0	52.0	
Total Split (%)	38.1%	38.1%	38.1%	38.1%	38.1%		61.9%	61.9%		61.9%	61.9%	
Maximum Green (s)	26.1	26.1	26.1	26.1	26.1		45.5	45.5		45.5	45.5	
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.9	5.9		5.9		6.5	6.5		6.5	6.5	
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		Min	Min		Min	Min	
Walk Time (s)	8.0	8.0	8.0				8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0	12.0				12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	5	5	5				5	5		5	5	
Act Effct Green (s)		18.6	18.6		18.6		28.4	28.4		28.4	28.4	
Actuated g/C Ratio		0.31	0.31		0.31		0.47	0.47		0.47	0.47	
v/c Ratio		0.43	0.34		0.73		0.73	0.26		0.07	0.51	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		23.7	5.2		30.4		25.3	9.0		9.4	11.1	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		23.7	5.2		30.4		25.3	9.0		9.4	11.1	
LOS		C	A		C		C	A		A	B	
Approach Delay		13.5			30.4			18.2			11.0	
Approach LOS		B			C			B			B	
Queue Length 50th (m)		14.7	0.0		33.2		22.8	10.8		2.0	23.0	
Queue Length 95th (m)		39.8	14.3		#81.1		57.7	25.4		6.8	51.6	
Internal Link Dist (m)		89.7			78.5			54.7			67.3	
Turn Bay Length (m)			40.0				30.0			25.0		
Base Capacity (vph)		623	848		770		651	1391		896	1347	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.28	0.25		0.47		0.44	0.16		0.04	0.32	

Intersection Summary	
Area Type: Other	
Cycle Length: 84	
Actuated Cycle Length: 60.7	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 17.7	Intersection LOS: B
Intersection Capacity Utilization 78.0%	ICU Level of Service D
Analysis Period (min) 15	

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

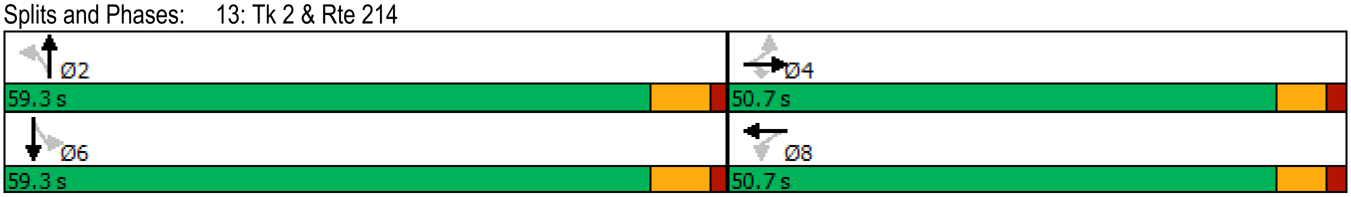
Splits and Phases: 13: Tk 2 & Rte 214

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	227	435	68	159	53	361	262	113	51	215	154
Future Volume (vph)	189	227	435	68	159	53	361	262	113	51	215	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		40.0	0.0		0.0	30.0		15.0	25.0		15.0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (m)	20.0			20.0			20.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	0.96		0.99		0.99	0.99		0.99	0.98	
Frt			0.850		0.974			0.955			0.938	
Flt Protected		0.978			0.988		0.950			0.950		
Satd. Flow (prot)	0	1842	1601	0	1802	0	1789	1778	0	1789	1739	0
Flt Permitted		0.665			0.576		0.438			0.432		
Satd. Flow (perm)	0	1249	1540	0	1049	0	820	1778	0	809	1739	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			362		13			27			45	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		113.7			102.5			78.7			91.3	
Travel Time (s)		6.8			6.2			4.7			5.5	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	205	247	473	74	173	58	392	285	123	55	234	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	452	473	0	305	0	392	408	0	55	401	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	26.9	26.9	26.9	22.1	22.1		30.5	30.5		30.5	30.5	
Total Split (s)	50.7	50.7	50.7	50.7	50.7		59.3	59.3		59.3	59.3	
Total Split (%)	46.1%	46.1%	46.1%	46.1%	46.1%		53.9%	53.9%		53.9%	53.9%	
Maximum Green (s)	44.8	44.8	44.8	44.8	44.8		52.8	52.8		52.8	52.8	
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.9	5.9		5.9		6.5	6.5		6.5	6.5	
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		Min	Min		Min	Min	
Walk Time (s)	8.0	8.0	8.0				8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0	12.0				12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	5	5	5				5	5		5	5	
Act Effct Green (s)		41.2	41.2		41.2		52.9	52.9		52.9	52.9	
Actuated g/C Ratio		0.39	0.39		0.39		0.50	0.50		0.50	0.50	
v/c Ratio		0.94	0.58		0.74		0.96	0.46		0.14	0.45	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		60.1	9.0		38.7		65.4	19.0		17.1	18.0	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		60.1	9.0		38.7		65.4	19.0		17.1	18.0	
LOS		E	A		D		E	B		B	B	
Approach Delay		34.0			38.7			41.7			17.9	
Approach LOS		C			D			D			B	
Queue Length 50th (m)		88.5	15.0		51.2		81.2	53.0		6.4	49.3	
Queue Length 95th (m)		#149.0	43.7		85.3		#144.7	78.7		14.2	74.6	
Internal Link Dist (m)		89.7			78.5			54.7			67.3	
Turn Bay Length (m)			40.0				30.0			25.0		
Base Capacity (vph)		526	858		449		407	896		401	886	
Starvation Cap Reductn		0	0		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.86	0.55		0.68		0.96	0.46		0.14	0.45	

Intersection Summary	
Area Type: Other	
Cycle Length: 110	
Actuated Cycle Length: 106.6	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 34.1	Intersection LOS: C
Intersection Capacity Utilization 99.5%	ICU Level of Service F
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 13: Tk 2 & Rte 214



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	101	197	80	248	37	268	165	54	33	246	241
Future Volume (vph)	84	101	197	80	248	37	268	165	54	33	246	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		40.0	15.0		15.0	30.0		30.0	25.0		15.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	20.0			20.0			20.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.96	0.99		0.97	1.00		0.96	0.99	0.98	
Frt			0.850			0.850			0.850		0.926	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	1883	1601	1789	1883	1601	1789	1883	1601	1789	1713	0
Flt Permitted	0.520			0.686			0.391			0.644		
Satd. Flow (perm)	972	1883	1537	1277	1883	1545	733	1883	1542	1200	1713	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			214			35			59		79	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		113.7			102.5			78.7			91.3	
Travel Time (s)		6.8			6.2			4.7			5.5	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	110	214	87	270	40	291	179	59	36	267	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	110	214	87	270	40	291	179	59	36	529	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	26.9	26.9	26.9	22.1	22.1	22.1	30.5	30.5	30.5	30.5	30.5	
Total Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	72.0	72.0	72.0	72.0	72.0	
Total Split (%)	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	65.5%	65.5%	65.5%	65.5%	65.5%	
Maximum Green (s)	32.1	32.1	32.1	32.1	32.1	32.1	65.5	65.5	65.5	65.5	65.5	
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	1.8	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.9	5.9	5.9	5.9	5.9	5.9	6.5	6.5	6.5	6.5	6.5	
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	3.0	3.0	
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	
Walk Time (s)	8.0	8.0	8.0				8.0	8.0	8.0	8.0	8.0	
Flash Dont Walk (s)	12.0	12.0	12.0				12.0	12.0	12.0	12.0	12.0	
Pedestrian Calls (#/hr)	5	5	5				5	5	5	5	5	
Act Effct Green (s)	15.9	15.9	15.9	15.9	15.9	15.9	32.2	32.2	32.2	32.2	32.2	
Actuated g/C Ratio	0.25	0.25	0.25	0.25	0.25	0.25	0.52	0.52	0.52	0.52	0.52	
v/c Ratio	0.37	0.23	0.39	0.27	0.56	0.10	0.77	0.18	0.07	0.06	0.57	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	29.0	24.3	6.7	25.9	28.9	11.4	27.0	8.2	2.5	7.6	10.9	
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	29.0	24.3	6.7	25.9	28.9	11.4	27.0	8.2	2.5	7.6	10.9	
LOS	C	C	A	C	C	B	C	A	A	A	B	
Approach Delay		16.2			26.5			17.9			10.7	
Approach LOS		B			C			B			B	
Queue Length 50th (m)	7.6	8.9	0.0	7.1	24.0	0.4	21.2	8.7	0.0	1.6	27.2	
Queue Length 95th (m)	30.2	32.1	17.3	27.6	73.5	8.8	66.6	23.3	4.6	6.6	68.8	
Internal Link Dist (m)		89.7			78.5			54.7			67.3	
Turn Bay Length (m)	15.0		40.0	15.0		15.0	30.0		30.0	25.0		
Base Capacity (vph)	578	1119	1000	759	1119	932	666	1711	1407	1090	1564	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.16	0.10	0.21	0.11	0.24	0.04	0.44	0.10	0.04	0.03	0.34	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 62.4
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 17.2 Intersection LOS: B
Intersection Capacity Utilization 83.2% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 13: Tk 2 & Rte 214

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	236	262	442	69	181	51	364	312	115	46	244	185
Future Volume (vph)	236	262	442	69	181	51	364	312	115	46	244	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		40.0	15.0		15.0	30.0		30.0	25.0		15.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	20.0			20.0			20.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.96	0.99		0.97	0.99		0.96	0.99	0.98	
Frt			0.850			0.850			0.850		0.935	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	1883	1601	1789	1883	1601	1789	1883	1601	1789	1733	0
Flt Permitted	0.591			0.459			0.422			0.526		
Satd. Flow (perm)	1103	1883	1537	858	1883	1545	790	1883	1542	983	1733	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			480			38			125		61	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		113.7			102.5			78.7			91.3	
Travel Time (s)		6.8			6.2			4.7			5.5	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	257	285	480	75	197	55	396	339	125	50	265	201
Shared Lane Traffic (%)												
Lane Group Flow (vph)	257	285	480	75	197	55	396	339	125	50	466	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	26.9	26.9	26.9	22.1	22.1	22.1	30.5	30.5	30.5	30.5	30.5	
Total Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	72.0	72.0	72.0	72.0	72.0	
Total Split (%)	34.5%	34.5%	34.5%	34.5%	34.5%	34.5%	65.5%	65.5%	65.5%	65.5%	65.5%	
Maximum Green (s)	32.1	32.1	32.1	32.1	32.1	32.1	65.5	65.5	65.5	65.5	65.5	
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.8	1.8	1.8	1.8	1.8	1.8	1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.9	5.9	5.9	5.9	5.9	5.9	6.5	6.5	6.5	6.5	6.5	
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	3.0	3.0	
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	
Walk Time (s)	8.0	8.0	8.0				8.0	8.0	8.0	8.0	8.0	
Flash Dont Walk (s)	12.0	12.0	12.0				12.0	12.0	12.0	12.0	12.0	
Pedestrian Calls (#/hr)	5	5	5				5	5	5	5	5	
Act Effct Green (s)	27.7	27.7	27.7	27.7	27.7	27.7	50.7	50.7	50.7	50.7	50.7	
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.30	0.30	0.55	0.55	0.55	0.55	0.55	
v/c Ratio	0.77	0.50	0.60	0.29	0.35	0.11	0.91	0.33	0.14	0.09	0.47	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	49.8	32.7	6.4	32.4	30.1	13.7	45.6	12.0	2.2	10.2	12.2	
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	49.8	32.7	6.4	32.4	30.1	13.7	45.6	12.0	2.2	10.2	12.2	
LOS	D	C	A	C	C	B	D	B	A	B	B	
Approach Delay		24.7			27.8			26.0			12.0	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	45.5	45.7	0.0	11.2	29.9	2.3	64.7	33.6	0.0	4.3	44.0	
Queue Length 95th (m)	#92.3	77.1	24.7	25.4	53.3	12.0	#129.8	49.7	7.0	9.6	66.3	
Internal Link Dist (m)		89.7			78.5			54.7			67.3	
Turn Bay Length (m)	15.0		40.0	15.0		15.0	30.0		30.0	25.0		
Base Capacity (vph)	415	708	878	322	708	605	572	1365	1152	713	1273	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.62	0.40	0.55	0.23	0.28	0.09	0.69	0.25	0.11	0.07	0.37	

Intersection Summary	
Area Type: Other	
Cycle Length: 110	
Actuated Cycle Length: 91.7	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 23.1	Intersection LOS: C
Intersection Capacity Utilization 87.8%	ICU Level of Service E
Analysis Period (min) 15	

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

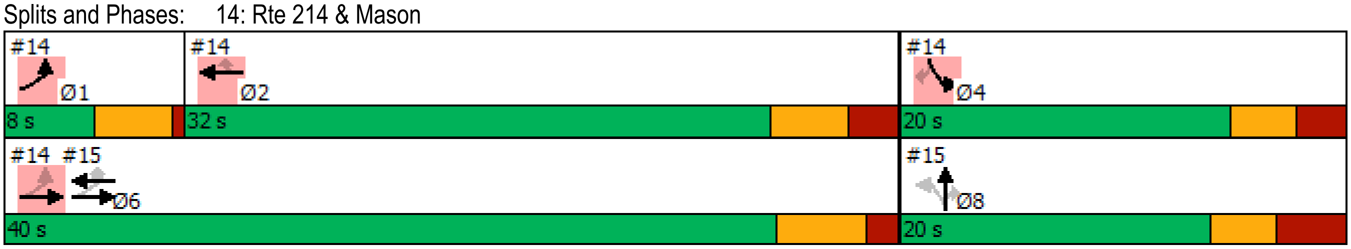
Splits and Phases: 13: Tk 2 & Rte 214

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	146	346	612	225	100	172	
Future Volume (vph)	146	346	612	225	100	172	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (m)	0.0			30.0	0.0	60.0	
Storage Lanes	1			1	1	1	
Taper Length (m)	20.0				20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor				0.97	0.99	0.98	
Frt				0.850		0.850	
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1789	1883	1883	1601	1789	1601	
Flt Permitted	0.168				0.950		
Satd. Flow (perm)	316	1883	1883	1553	1771	1565	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				194		187	
Link Speed (k/h)		60	60		60		
Link Distance (m)		93.5	93.2		85.4		
Travel Time (s)		5.6	5.6		5.1		
Confl. Peds. (#/hr)	5			5	5	5	
Confl. Bikes (#/hr)				5		5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	159	376	665	245	109	187	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	159	376	665	245	109	187	
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm	
Protected Phases	1	6	2		4		8
Permitted Phases	6			2		4	
Detector Phase	1	6	2	2	4	4	
Switch Phase							
Minimum Initial (s)	4.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	8.0	31.5	20.0	20.0	20.0	20.0	20.0
Total Split (s)	8.0	40.0	32.0	32.0	20.0	20.0	20.0
Total Split (%)	13.3%	66.7%	53.3%	53.3%	33.3%	33.3%	33%
Maximum Green (s)	4.0	34.5	26.2	26.2	14.7	14.7	13.8
Yellow Time (s)	3.5	4.0	3.5	3.5	3.0	3.0	3.0
All-Red Time (s)	0.5	1.5	2.3	2.3	2.3	2.3	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.5	5.8	5.8	5.3	5.3	
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?	Yes		Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	Min	None	None	None
Walk Time (s)		8.0					
Flash Dont Walk (s)		12.0					
Pedestrian Calls (#/hr)		5					
Act Effct Green (s)	30.2	28.6	22.5	22.5	12.2	12.2	
Actuated g/C Ratio	0.58	0.55	0.43	0.43	0.23	0.23	
v/c Ratio	0.53	0.36	0.82	0.31	0.26	0.37	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Control Delay	14.1	4.8	24.5	4.4	20.4	6.0	
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	
Total Delay	14.1	5.0	24.5	4.4	20.4	6.0	
LOS	B	A	C	A	C	A	
Approach Delay		7.7	19.1		11.3		
Approach LOS		A	B		B		
Queue Length 50th (m)	2.7	7.9	55.0	2.8	9.6	0.0	
Queue Length 95th (m)	#15.4	19.7	#114.5	13.9	20.6	12.6	
Internal Link Dist (m)		69.5	69.2		61.4		
Turn Bay Length (m)				30.0		60.0	
Base Capacity (vph)	301	1290	995	912	530	595	
Starvation Cap Reductn	0	276	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.53	0.37	0.67	0.27	0.21	0.31	

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 52.2	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 14.2	Intersection LOS: B
Intersection Capacity Utilization 59.5%	ICU Level of Service B
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 14: Rte 214 & Mason



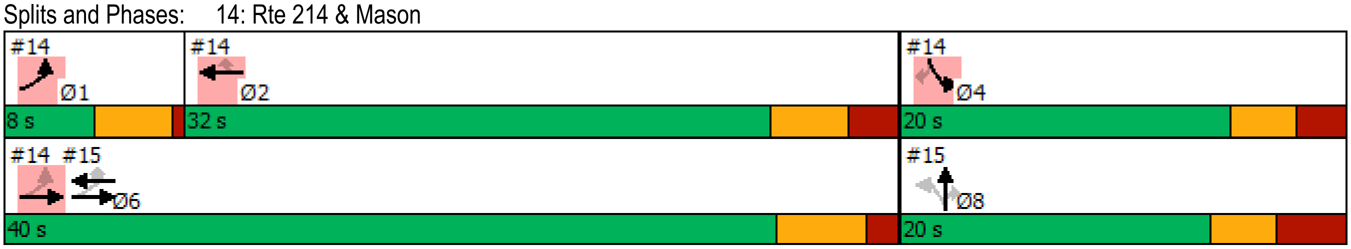
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	248	798	544	263	246	326	
Future Volume (vph)	248	798	544	263	246	326	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (m)	0.0			30.0	0.0	60.0	
Storage Lanes	1			1	1	1	
Taper Length (m)	20.0				20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor	1.00			0.97	0.99	0.98	
Frt				0.850		0.850	
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1789	1883	1883	1601	1789	1601	
Flt Permitted	0.223				0.950		
Satd. Flow (perm)	419	1883	1883	1553	1771	1565	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				255		300	
Link Speed (k/h)		60	60		60		
Link Distance (m)		93.5	93.2		85.4		
Travel Time (s)		5.6	5.6		5.1		
Confl. Peds. (#/hr)	5			5	5	5	
Confl. Bikes (#/hr)				5		5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	270	867	591	286	267	354	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	270	867	591	286	267	354	
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm	
Protected Phases	1	6	2		4		8
Permitted Phases	6			2		4	
Detector Phase	1	6	2	2	4	4	
Switch Phase							
Minimum Initial (s)	4.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	8.0	31.5	20.0	20.0	20.0	20.0	20.0
Total Split (s)	8.0	40.0	32.0	32.0	20.0	20.0	20.0
Total Split (%)	13.3%	66.7%	53.3%	53.3%	33.3%	33.3%	33%
Maximum Green (s)	4.0	34.5	26.2	26.2	14.7	14.7	13.8
Yellow Time (s)	3.5	4.0	3.5	3.5	3.0	3.0	3.0
All-Red Time (s)	0.5	1.5	2.3	2.3	2.3	2.3	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.5	5.8	5.8	5.3	5.3	
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?	Yes		Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	Min	None	None	None
Walk Time (s)		8.0					
Flash Dont Walk (s)		12.0					
Pedestrian Calls (#/hr)		5					
Act Effct Green (s)	35.0	33.5	25.1	25.1	14.5	14.5	
Actuated g/C Ratio	0.60	0.57	0.43	0.43	0.25	0.25	
v/c Ratio	0.79	0.81	0.73	0.35	0.61	0.58	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Control Delay	21.6	13.4	20.7	3.7	26.7	8.8	
Queue Delay	0.0	0.8	0.0	0.0	0.0	0.0	
Total Delay	21.6	14.2	20.7	3.7	26.7	8.8	
LOS	C	B	C	A	C	A	
Approach Delay		16.0	15.1		16.5		
Approach LOS		B	B		B		
Queue Length 50th (m)	9.9	38.4	50.6	1.9	26.1	4.7	
Queue Length 95th (m)	m#22.3	m#86.7	83.6	13.2	46.7	23.9	
Internal Link Dist (m)		69.5	69.2		61.4		
Turn Bay Length (m)				30.0		60.0	
Base Capacity (vph)	342	1107	841	834	448	616	
Starvation Cap Reductn	0	69	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.79	0.84	0.70	0.34	0.60	0.57	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 58.8
Natural Cycle: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 15.8 Intersection LOS: B
Intersection Capacity Utilization 68.6% ICU Level of Service C
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 14: Rte 214 & Mason



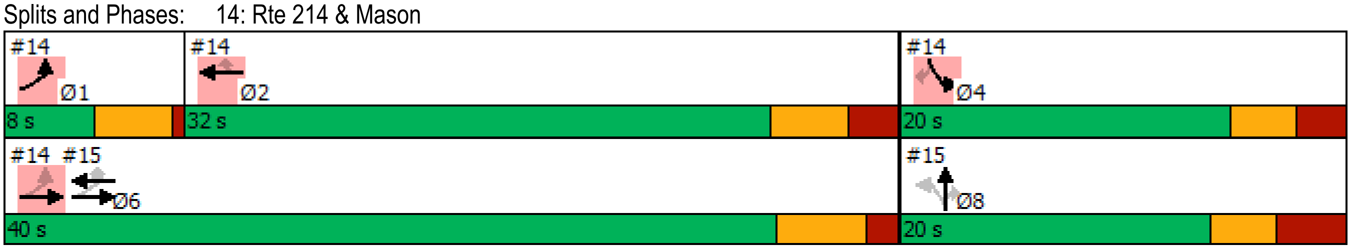
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	146	366	681	244	109	174	
Future Volume (vph)	146	366	681	244	109	174	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (m)	0.0			30.0	0.0	60.0	
Storage Lanes	1			1	1	1	
Taper Length (m)	20.0				20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor				0.97	0.99	0.98	
Frt				0.850		0.850	
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1789	1883	1883	1601	1789	1601	
Flt Permitted	0.139				0.950		
Satd. Flow (perm)	262	1883	1883	1553	1771	1565	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				189		189	
Link Speed (k/h)		60	60		60		
Link Distance (m)		93.5	93.2		85.4		
Travel Time (s)		5.6	5.6		5.1		
Confl. Peds. (#/hr)	5			5	5	5	
Confl. Bikes (#/hr)				5		5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	159	398	740	265	118	189	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	159	398	740	265	118	189	
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm	
Protected Phases	1	6	2		4		8
Permitted Phases	6			2		4	
Detector Phase	1	6	2	2	4	4	
Switch Phase							
Minimum Initial (s)	4.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	8.0	31.5	20.0	20.0	20.0	20.0	20.0
Total Split (s)	8.0	40.0	32.0	32.0	20.0	20.0	20.0
Total Split (%)	13.3%	66.7%	53.3%	53.3%	33.3%	33.3%	33%
Maximum Green (s)	4.0	34.5	26.2	26.2	14.7	14.7	13.8
Yellow Time (s)	3.5	4.0	3.5	3.5	3.0	3.0	3.0
All-Red Time (s)	0.5	1.5	2.3	2.3	2.3	2.3	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.5	5.8	5.8	5.3	5.3	
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?	Yes		Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	Min	None	None	None
Walk Time (s)		8.0					
Flash Dont Walk (s)		12.0					
Pedestrian Calls (#/hr)		5					
Act Effct Green (s)	32.3	30.7	24.5	24.5	13.3	13.3	
Actuated g/C Ratio	0.59	0.56	0.44	0.44	0.24	0.24	
v/c Ratio	0.59	0.38	0.89	0.33	0.27	0.36	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Control Delay	21.0	5.0	30.8	5.1	20.5	5.9	
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	
Total Delay	21.0	5.2	30.8	5.1	20.5	5.9	
LOS	C	A	C	A	C	A	
Approach Delay		9.7	24.0		11.5		
Approach LOS		A	C		B		
Queue Length 50th (m)	3.0	9.2	71.6	4.7	10.5	0.0	
Queue Length 95th (m)	#23.0	20.7	#134.2	16.4	21.9	12.7	
Internal Link Dist (m)		69.5	69.2		61.4		
Turn Bay Length (m)				30.0		60.0	
Base Capacity (vph)	268	1218	925	858	493	568	
Starvation Cap Reductn	0	247	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.59	0.41	0.80	0.31	0.24	0.33	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 55.2
Natural Cycle: 60
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 17.7 Intersection LOS: B
Intersection Capacity Utilization 63.2% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Rte 214 & Mason



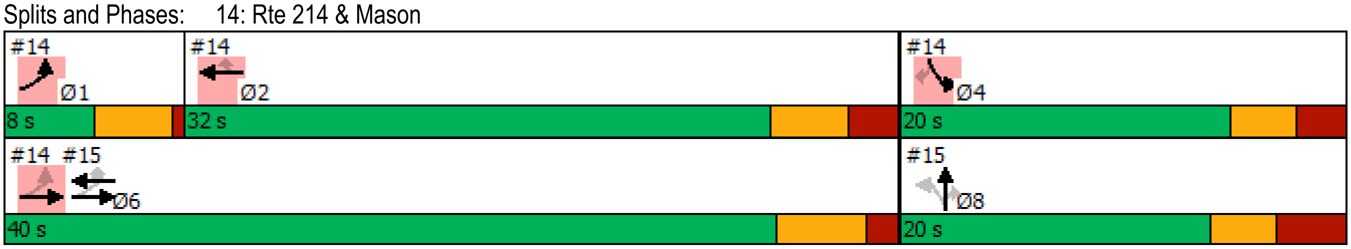
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	250	873	586	276	260	333	
Future Volume (vph)	250	873	586	276	260	333	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (m)	0.0			30.0	0.0	60.0	
Storage Lanes	1			1	1	1	
Taper Length (m)	20.0				20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor	1.00			0.97	0.99	0.98	
Frt				0.850		0.850	
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1789	1883	1883	1601	1789	1601	
Flt Permitted	0.191				0.950		
Satd. Flow (perm)	359	1883	1883	1553	1771	1565	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				248		279	
Link Speed (k/h)		60	60		60		
Link Distance (m)		93.5	93.2		85.4		
Travel Time (s)		5.6	5.6		5.1		
Confl. Peds. (#/hr)	5			5	5	5	
Confl. Bikes (#/hr)				5		5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	272	949	637	300	283	362	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	272	949	637	300	283	362	
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm	
Protected Phases	1	6	2		4		8
Permitted Phases	6			2		4	
Detector Phase	1	6	2	2	4	4	
Switch Phase							
Minimum Initial (s)	4.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	8.0	31.5	20.0	20.0	20.0	20.0	20.0
Total Split (s)	8.0	40.0	32.0	32.0	20.0	20.0	20.0
Total Split (%)	13.3%	66.7%	53.3%	53.3%	33.3%	33.3%	33%
Maximum Green (s)	4.0	34.5	26.2	26.2	14.7	14.7	13.8
Yellow Time (s)	3.5	4.0	3.5	3.5	3.0	3.0	3.0
All-Red Time (s)	0.5	1.5	2.3	2.3	2.3	2.3	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.5	5.8	5.8	5.3	5.3	
Lead/Lag	Lead		Lag	Lag			
Lead-Lag Optimize?	Yes		Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	Min	None	None	None
Walk Time (s)		8.0					
Flash Dont Walk (s)		12.0					
Pedestrian Calls (#/hr)		5					
Act Effct Green (s)	36.0	34.5	26.2	26.2	14.7	14.7	
Actuated g/C Ratio	0.60	0.58	0.44	0.44	0.24	0.24	
v/c Ratio	0.88	0.88	0.77	0.37	0.65	0.61	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Control Delay	31.9	16.9	22.8	4.2	28.5	10.5	
Queue Delay	0.0	2.5	0.0	0.0	0.0	0.0	
Total Delay	31.9	19.3	22.8	4.2	28.5	10.5	
LOS	C	B	C	A	C	B	
Approach Delay		22.1	16.9		18.4		
Approach LOS		C	B		B		
Queue Length 50th (m)	10.6	44.6	56.5	3.2	27.9	7.3	
Queue Length 95th (m)	m#24.2	m#143.0	#107.0	15.2	#50.8	28.3	
Internal Link Dist (m)		69.5	69.2		61.4		
Turn Bay Length (m)				30.0		60.0	
Base Capacity (vph)	310	1082	822	817	438	594	
Starvation Cap Reductn	0	60	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.88	0.93	0.77	0.37	0.65	0.61	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.13
Intersection Signal Delay: 19.5 Intersection LOS: B
Intersection Capacity Utilization 71.7% ICU Level of Service C
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 14: Rte 214 & Mason



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	344	0	0	576	208	175	1	165	0	0	0
Future Volume (vph)	82	344	0	0	576	208	175	1	165	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		1	0		1	0		0
Taper Length (m)	20.0			20.0			20.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.97		0.99	0.98			
Frt						0.850			0.850			
Flt Protected	0.950							0.953				
Satd. Flow (prot)	1789	1883	0	0	1883	1601	0	1795	1601	0	0	0
Flt Permitted	0.330							0.953				
Satd. Flow (perm)	620	1883	0	0	1883	1552	0	1776	1564	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						226			179			
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		79.4			93.5			87.5			65.6	
Travel Time (s)		4.8			5.6			5.3			3.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	89	374	0	0	626	226	190	1	179	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	89	374	0	0	626	226	0	191	179	0	0	0
Turn Type	Perm	NA			NA	Perm	Perm	NA	Perm			
Protected Phases		6			6			8				
Permitted Phases	6					6	8		8			
Detector Phase	6	6			6	6	8	8	8			
Switch Phase												
Minimum Initial (s)	8.0	8.0			8.0	8.0	8.0	8.0	8.0			
Minimum Split (s)	31.5	31.5			31.5	31.5	20.0	20.0	20.0			
Total Split (s)	40.0	40.0			40.0	40.0	20.0	20.0	20.0			
Total Split (%)	66.7%	66.7%			66.7%	66.7%	33.3%	33.3%	33.3%			
Maximum Green (s)	34.5	34.5			34.5	34.5	13.8	13.8	13.8			
Yellow Time (s)	4.0	4.0			4.0	4.0	3.0	3.0	3.0			
All-Red Time (s)	1.5	1.5			1.5	1.5	3.2	3.2	3.2			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0	0.0			
Total Lost Time (s)	5.5	5.5			5.5	5.5		6.2	6.2			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Recall Mode	Min	Min			Min	Min	None	None	None			
Walk Time (s)	8.0	8.0			8.0	8.0						
Flash Dont Walk (s)	12.0	12.0			12.0	12.0						
Pedestrian Calls (#/hr)	5	5			5	5						
Act Effct Green (s)	28.6	28.6			28.6	28.6		11.2	11.2			
Actuated g/C Ratio	0.55	0.55			0.55	0.55		0.21	0.21			
v/c Ratio	0.26	0.36			0.61	0.24		0.50	0.38			

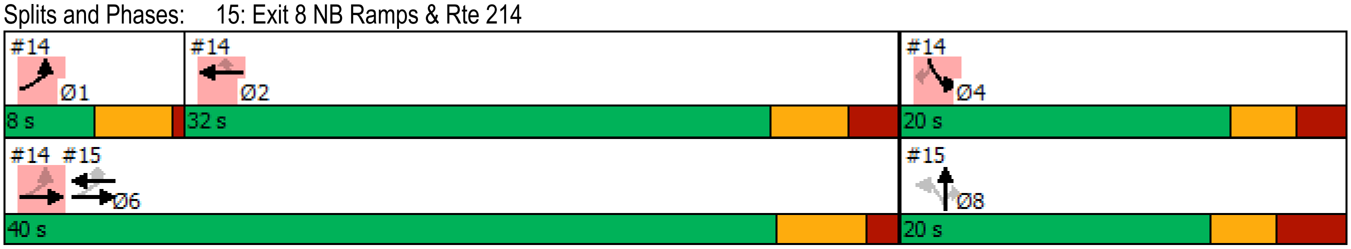
Lane Group	Ø1	Ø2	Ø4
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (m)			
Storage Lanes			
Taper Length (m)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)			
Link Distance (m)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	8.0	8.0
Minimum Split (s)	8.0	20.0	20.0
Total Split (s)	8.0	32.0	20.0
Total Split (%)	13%	53%	33%
Maximum Green (s)	4.0	26.2	14.7
Yellow Time (s)	3.5	3.5	3.0
All-Red Time (s)	0.5	2.3	2.3
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	Min	None
Walk Time (s)			
Flash Dont Walk (s)			
Pedestrian Calls (#/hr)			
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	8.5	7.6			6.5	1.3		25.2	6.5			
Queue Delay	0.0	0.0			0.1	0.0		0.0	0.0			
Total Delay	8.5	7.6			6.6	1.3		25.2	6.5			
LOS	A	A			A	A		C	A			
Approach Delay		7.7			5.2			16.1				
Approach LOS		A			A			B				
Queue Length 50th (m)	3.7	16.8			11.2	0.0		18.2	0.0			
Queue Length 95th (m)	11.1	32.7			33.2	m0.0		34.5	12.5			
Internal Link Dist (m)		55.4			69.5			63.5			41.6	
Turn Bay Length (m)	50.0											
Base Capacity (vph)	425	1290			1290	1134		494	564			
Starvation Cap Reductn	0	0			117	0		0	0			
Spillback Cap Reductn	0	0			0	0		0	0			
Storage Cap Reductn	0	0			0	0		0	0			
Reduced v/c Ratio	0.21	0.29			0.53	0.20		0.39	0.32			

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 52.2	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 8.3	Intersection LOS: A
Intersection Capacity Utilization 67.7%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 15: Exit 8 NB Ramps & Rte 214



Lane Group	Ø1	Ø2	Ø4
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (m)			
Queue Length 95th (m)			
Internal Link Dist (m)			
Turn Bay Length (m)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	265	594	0	0	588	282	334	1	452	0	0	0
Future Volume (vph)	265	594	0	0	588	282	334	1	452	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		1	0		1	0		0
Taper Length (m)	20.0			20.0			20.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.97		0.99	0.98			
Frt						0.850			0.850			
Flt Protected	0.950							0.953				
Satd. Flow (prot)	1789	1883	0	0	1883	1601	0	1795	1601	0	0	0
Flt Permitted	0.316							0.953				
Satd. Flow (perm)	594	1883	0	0	1883	1552	0	1775	1564	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						307			*300			
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		79.4			93.5			87.5			65.6	
Travel Time (s)		4.8			5.6			5.3			3.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	288	646	0	0	639	307	363	1	491	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	288	646	0	0	639	307	0	364	491	0	0	0
Turn Type	Perm	NA			NA	Perm	Perm	NA	Perm			
Protected Phases		6			6			8				
Permitted Phases	6					6	8		8			
Detector Phase	6	6			6	6	8	8	8			
Switch Phase												
Minimum Initial (s)	8.0	8.0			8.0	8.0	8.0	8.0	8.0			
Minimum Split (s)	31.5	31.5			31.5	31.5	20.0	20.0	20.0			
Total Split (s)	40.0	40.0			40.0	40.0	20.0	20.0	20.0			
Total Split (%)	66.7%	66.7%			66.7%	66.7%	33.3%	33.3%	33.3%			
Maximum Green (s)	34.5	34.5			34.5	34.5	13.8	13.8	13.8			
Yellow Time (s)	4.0	4.0			4.0	4.0	3.0	3.0	3.0			
All-Red Time (s)	1.5	1.5			1.5	1.5	3.2	3.2	3.2			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0	0.0			
Total Lost Time (s)	5.5	5.5			5.5	5.5		6.2	6.2			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Recall Mode	Min	Min			Min	Min	None	None	None			
Walk Time (s)	8.0	8.0			8.0	8.0						
Flash Dont Walk (s)	12.0	12.0			12.0	12.0						
Pedestrian Calls (#/hr)	5	5			5	5						
Act Effct Green (s)	33.5	33.5			33.5	33.5		13.6	13.6			
Actuated g/C Ratio	0.57	0.57			0.57	0.57		0.23	0.23			
v/c Ratio	0.85	0.60			0.60	0.30		0.89	0.83			

Lane Group	Ø1	Ø2	Ø4
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (m)			
Storage Lanes			
Taper Length (m)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)			
Link Distance (m)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	8.0	8.0
Minimum Split (s)	8.0	20.0	20.0
Total Split (s)	8.0	32.0	20.0
Total Split (%)	13%	53%	33%
Maximum Green (s)	4.0	26.2	14.7
Yellow Time (s)	3.5	3.5	3.0
All-Red Time (s)	0.5	2.3	2.3
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	Min	None
Walk Time (s)			
Flash Dont Walk (s)			
Pedestrian Calls (#/hr)			
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	38.5	11.3			7.1	1.3		49.2	23.5			
Queue Delay	0.0	0.2			0.3	0.2		0.0	0.5			
Total Delay	38.5	11.5			7.4	1.5		49.2	24.0			
LOS	D	B			A	A		D	C			
Approach Delay		19.8			5.5			34.7				
Approach LOS		B			A			C				
Queue Length 50th (m)	23.1	40.6			19.5	0.0		38.9	18.5			
Queue Length 95th (m)	#67.0	67.2			43.7	m3.3		#80.9	#66.4			
Internal Link Dist (m)		55.4			69.5			63.5			41.6	
Turn Bay Length (m)	50.0											
Base Capacity (vph)	349	1107			1107	1038		417	597			
Starvation Cap Reductn	0	0			120	206		0	0			
Spillback Cap Reductn	0	75			0	0		0	11			
Storage Cap Reductn	0	0			0	0		0	0			
Reduced v/c Ratio	0.83	0.63			0.65	0.37		0.87	0.84			

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 58.8

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 19.5 Intersection LOS: B

Intersection Capacity Utilization 85.2% ICU Level of Service E

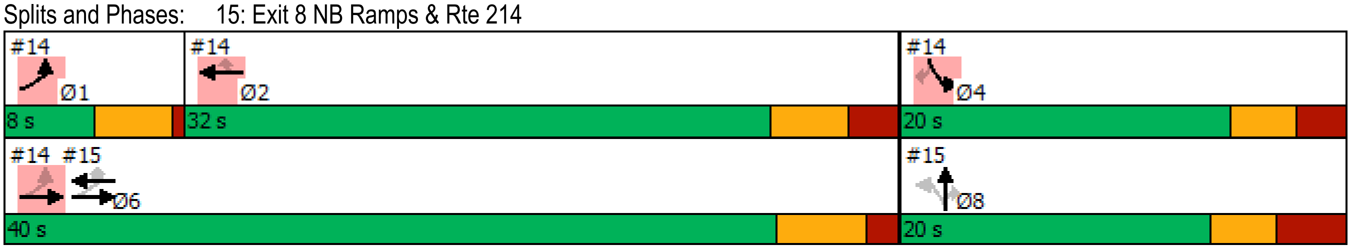
Analysis Period (min) 15

* User Entered Value

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

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

Splits and Phases: 15: Exit 8 NB Ramps & Rte 214



Lane Group	Ø1	Ø2	Ø4
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (m)			
Queue Length 95th (m)			
Internal Link Dist (m)			
Turn Bay Length (m)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	360	0	0	623	233	254	1	175	0	0	0
Future Volume (vph)	100	360	0	0	623	233	254	1	175	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		1	0		1	0		0
Taper Length (m)	20.0			20.0			20.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.97		0.99	0.98			
Frt						0.850			0.850			
Flt Protected	0.950							0.953				
Satd. Flow (prot)	1789	1883	0	0	1883	1601	0	1795	1601	0	0	0
Flt Permitted	0.292							0.953				
Satd. Flow (perm)	549	1883	0	0	1883	1552	0	1775	1564	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						253			190			
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		79.4			93.5			87.5			65.6	
Travel Time (s)		4.8			5.6			5.3			3.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	391	0	0	677	253	276	1	190	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	391	0	0	677	253	0	277	190	0	0	0
Turn Type	Perm	NA			NA	Perm	Perm	NA	Perm			
Protected Phases		6			6			8				
Permitted Phases	6					6	8		8			
Detector Phase	6	6			6	6	8	8	8			
Switch Phase												
Minimum Initial (s)	8.0	8.0			8.0	8.0	8.0	8.0	8.0			
Minimum Split (s)	31.5	31.5			31.5	31.5	20.0	20.0	20.0			
Total Split (s)	40.0	40.0			40.0	40.0	20.0	20.0	20.0			
Total Split (%)	66.7%	66.7%			66.7%	66.7%	33.3%	33.3%	33.3%			
Maximum Green (s)	34.5	34.5			34.5	34.5	13.8	13.8	13.8			
Yellow Time (s)	4.0	4.0			4.0	4.0	3.0	3.0	3.0			
All-Red Time (s)	1.5	1.5			1.5	1.5	3.2	3.2	3.2			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0	0.0			
Total Lost Time (s)	5.5	5.5			5.5	5.5		6.2	6.2			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Recall Mode	Min	Min			Min	Min	None	None	None			
Walk Time (s)	8.0	8.0			8.0	8.0						
Flash Dont Walk (s)	12.0	12.0			12.0	12.0						
Pedestrian Calls (#/hr)	5	5			5	5						
Act Effct Green (s)	30.7	30.7			30.7	30.7		12.4	12.4			
Actuated g/C Ratio	0.56	0.56			0.56	0.56		0.22	0.22			
v/c Ratio	0.36	0.37			0.65	0.26		0.70	0.38			

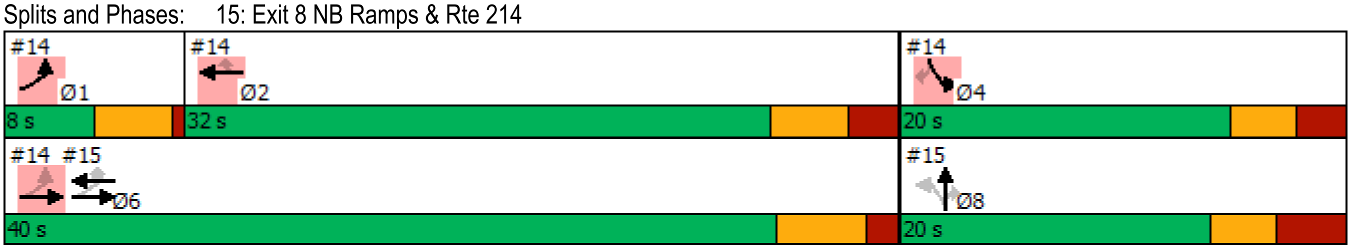
Lane Group	Ø1	Ø2	Ø4
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (m)			
Storage Lanes			
Taper Length (m)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)			
Link Distance (m)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	8.0	8.0
Minimum Split (s)	8.0	20.0	20.0
Total Split (s)	8.0	32.0	20.0
Total Split (%)	13%	53%	33%
Maximum Green (s)	4.0	26.2	14.7
Yellow Time (s)	3.5	3.5	3.0
All-Red Time (s)	0.5	2.3	2.3
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	Min	None
Walk Time (s)			
Flash Dont Walk (s)			
Pedestrian Calls (#/hr)			
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	10.9	8.0			6.9	1.3		32.1	6.3			
Queue Delay	0.0	0.0			0.2	0.0		0.0	0.0			
Total Delay	10.9	8.0			7.1	1.3		32.1	6.3			
LOS	B	A			A	A		C	A			
Approach Delay		8.6			5.5			21.6				
Approach LOS		A			A			C				
Queue Length 50th (m)	5.6	20.3			14.4	0.0		27.9	0.0			
Queue Length 95th (m)	14.9	34.4			m31.8	m0.0		#55.8	13.0			
Internal Link Dist (m)		55.4			69.5			63.5			41.6	
Turn Bay Length (m)	50.0											
Base Capacity (vph)	355	1218			1218	1093		459	545			
Starvation Cap Reductn	0	0			118	0		0	0			
Spillback Cap Reductn	0	0			0	0		0	0			
Storage Cap Reductn	0	0			0	0		0	0			
Reduced v/c Ratio	0.31	0.32			0.62	0.23		0.60	0.35			

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 55.2
Natural Cycle: 60
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 10.3 Intersection LOS: B
Intersection Capacity Utilization 74.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Exit 8 NB Ramps & Rte 214



Lane Group	Ø1	Ø2	Ø4
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (m)			
Queue Length 95th (m)			
Internal Link Dist (m)			
Turn Bay Length (m)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	334	631	0	0	614	306	360	1	492	0	0	0
Future Volume (vph)	334	631	0	0	614	306	360	1	492	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		1	0		1	0		0
Taper Length (m)	20.0			20.0			20.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.97		0.99	0.98			
Frt						0.850			0.850			
Flt Protected	0.950							0.952				
Satd. Flow (prot)	1789	1883	0	0	1883	1601	0	1793	1601	0	0	0
Flt Permitted	0.298							0.952				
Satd. Flow (perm)	560	1883	0	0	1883	1552	0	1774	1564	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						333			*300			
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		79.4			93.5			87.5			65.6	
Travel Time (s)		4.8			5.6			5.3			3.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	363	686	0	0	667	333	391	1	535	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	363	686	0	0	667	333	0	392	535	0	0	0
Turn Type	Perm	NA			NA	Perm	Perm	NA	Perm			
Protected Phases		6			6			8				
Permitted Phases	6					6	8		8			
Detector Phase	6	6			6	6	8	8	8			
Switch Phase												
Minimum Initial (s)	8.0	8.0			8.0	8.0	8.0	8.0	8.0			
Minimum Split (s)	31.5	31.5			31.5	31.5	20.0	20.0	20.0			
Total Split (s)	40.0	40.0			40.0	40.0	20.0	20.0	20.0			
Total Split (%)	66.7%	66.7%			66.7%	66.7%	33.3%	33.3%	33.3%			
Maximum Green (s)	34.5	34.5			34.5	34.5	13.8	13.8	13.8			
Yellow Time (s)	4.0	4.0			4.0	4.0	3.0	3.0	3.0			
All-Red Time (s)	1.5	1.5			1.5	1.5	3.2	3.2	3.2			
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0	0.0			
Total Lost Time (s)	5.5	5.5			5.5	5.5		6.2	6.2			
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Recall Mode	Min	Min			Min	Min	None	None	None			
Walk Time (s)	8.0	8.0			8.0	8.0						
Flash Dont Walk (s)	12.0	12.0			12.0	12.0						
Pedestrian Calls (#/hr)	5	5			5	5						
Act Effct Green (s)	34.5	34.5			34.5	34.5		13.8	13.8			
Actuated g/C Ratio	0.58	0.58			0.58	0.58		0.23	0.23			
v/c Ratio	1.13	0.63			0.62	0.32		0.96	0.91			

Lane Group	Ø1	Ø2	Ø4
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (m)			
Storage Lanes			
Taper Length (m)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (k/h)			
Link Distance (m)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	1	2	4
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0	8.0	8.0
Minimum Split (s)	8.0	20.0	20.0
Total Split (s)	8.0	32.0	20.0
Total Split (%)	13%	53%	33%
Maximum Green (s)	4.0	26.2	14.7
Yellow Time (s)	3.5	3.5	3.0
All-Red Time (s)	0.5	2.3	2.3
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0
Recall Mode	None	Min	None
Walk Time (s)			
Flash Dont Walk (s)			
Pedestrian Calls (#/hr)			
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	108.8	11.9			7.2	1.3		62.8	32.9			
Queue Delay	0.0	0.4			0.5	0.2		0.0	2.1			
Total Delay	108.8	12.3			7.7	1.5		62.8	34.9			
LOS	F	B			A	A		E	C			
Approach Delay		45.7			5.6			46.7				
Approach LOS		D			A			D				
Queue Length 50th (m)	~47.8	44.5			21.6	0.0		42.8	24.6			
Queue Length 95th (m)	#90.9	73.9			m44.3	m3.0		#89.0	#78.9			
Internal Link Dist (m)		55.4			69.5			63.5			41.6	
Turn Bay Length (m)	50.0											
Base Capacity (vph)	322	1082			1082	1033		408	590			
Starvation Cap Reductn	0	0			128	206		0	0			
Spillback Cap Reductn	0	101			0	0		0	15			
Storage Cap Reductn	0	0			0	0		0	0			
Reduced v/c Ratio	1.13	0.70			0.70	0.40		0.96	0.93			

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.13

Intersection Signal Delay: 32.6 Intersection LOS: C

Intersection Capacity Utilization 91.8% ICU Level of Service F

Analysis Period (min) 15

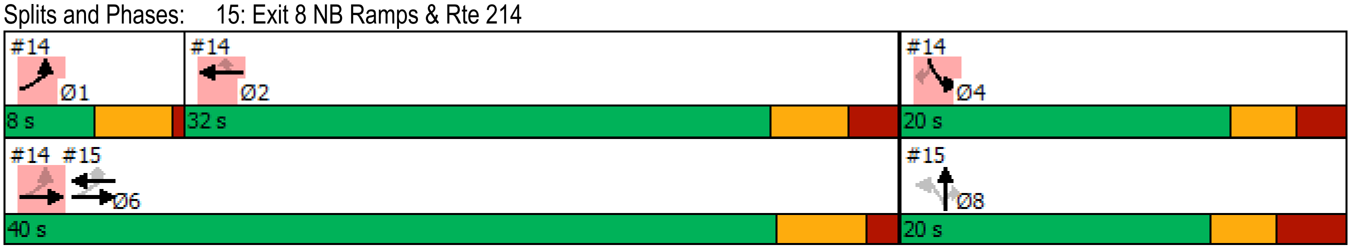
* User Entered Value

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

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

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

Splits and Phases: 15: Exit 8 NB Ramps & Rte 214



Lane Group	Ø1	Ø2	Ø4
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (m)			
Queue Length 95th (m)			
Internal Link Dist (m)			
Turn Bay Length (m)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Intersection Summary

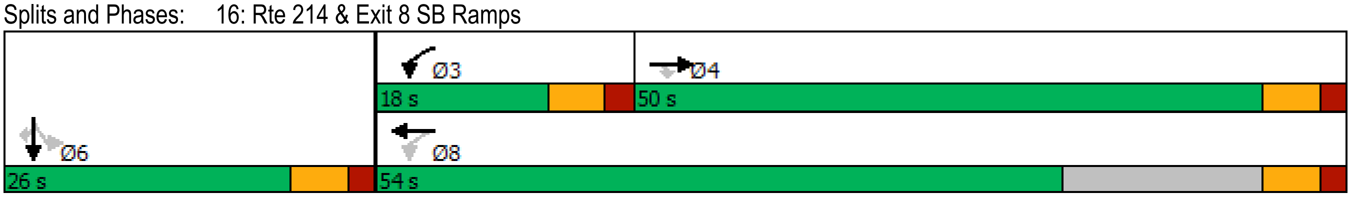
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	341	263	339	455	0	0	0	0	78	0	206
Future Volume (vph)	0	341	263	339	455	0	0	0	0	78	0	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	30.0		0.0	0.0		0.0	15.0		0.0
Storage Lanes	0		1	1		0	0		0	0		1
Taper Length (m)	20.0			20.0			20.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.96	1.00							0.99	0.96
Frt			0.850									0.850
Flt Protected				0.950							0.950	
Satd. Flow (prot)	0	1883	1601	1789	1883	0	0	0	0	0	1789	1601
Flt Permitted				0.269							0.950	
Satd. Flow (perm)	0	1883	1544	504	1883	0	0	0	0	0	1768	1537
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			165									224
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		91.9			95.6			86.4			82.5	
Travel Time (s)		5.5			5.7			5.2			5.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	371	286	368	495	0	0	0	0	85	0	224
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	371	286	368	495	0	0	0	0	0	85	224
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	Perm
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		6
Detector Phase		4	4	3	8					6	6	6
Switch Phase												
Minimum Initial (s)		8.0	8.0	8.0	8.0					8.0	8.0	8.0
Minimum Split (s)		26.0	26.0	14.0	26.0					26.0	26.0	26.0
Total Split (s)		50.0	50.0	18.0	54.0					26.0	26.0	26.0
Total Split (%)		53.2%	53.2%	19.1%	57.4%					27.7%	27.7%	27.7%
Maximum Green (s)		44.0	44.0	12.0	48.0					20.0	20.0	20.0
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0						6.0	6.0
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?		Yes	Yes	Yes								
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Recall Mode		None	None	None	None					Max	Max	Max
Walk Time (s)		8.0	8.0		8.0					8.0	8.0	8.0
Flash Dont Walk (s)		12.0	12.0		12.0					12.0	12.0	12.0
Pedestrian Calls (#/hr)		5	5		5					5	5	5
Act Effct Green (s)		19.6	19.6	37.2	37.2						20.2	20.2
Actuated g/C Ratio		0.28	0.28	0.54	0.54						0.29	0.29
v/c Ratio		0.70	0.52	0.76	0.49						0.17	0.37

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		29.6	12.2	21.1	11.8						21.8	5.6
Queue Delay		0.0	0.0	0.0	0.0						0.0	0.0
Total Delay		29.6	12.2	21.1	11.8						21.8	5.6
LOS		C	B	C	B						C	A
Approach Delay		22.1			15.7						10.1	
Approach LOS		C			B						B	
Queue Length 50th (m)		42.9	12.2	25.4	37.0						8.2	0.0
Queue Length 95th (m)		68.0	30.8	#46.0	57.0						20.8	15.6
Internal Link Dist (m)		67.9			71.6			62.4			58.5	
Turn Bay Length (m)			15.0	30.0								
Base Capacity (vph)		1201	1044	493	1679						513	604
Starvation Cap Reductn		0	0	0	0						0	0
Spillback Cap Reductn		0	0	0	0						0	0
Storage Cap Reductn		0	0	0	0						0	0
Reduced v/c Ratio		0.31	0.27	0.75	0.29						0.17	0.37

Intersection Summary

Area Type: Other
Cycle Length: 94
Actuated Cycle Length: 69.5
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 17.1 Intersection LOS: B
Intersection Capacity Utilization 68.4% ICU Level of Service C
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Rte 214 & Exit 8 SB Ramps



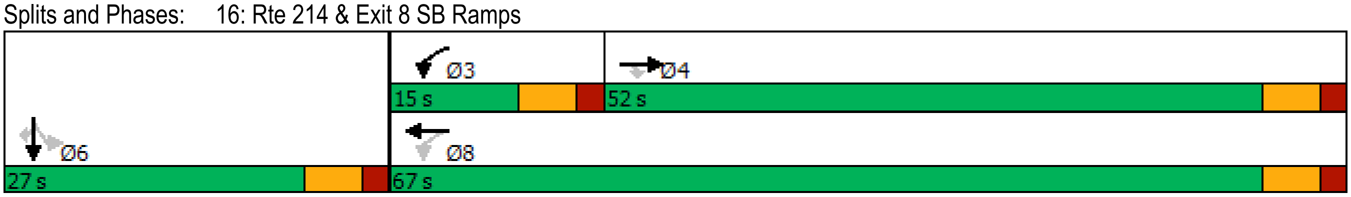
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	665	251	184	703	0	0	0	0	133	0	156
Future Volume (vph)	0	665	251	184	703	0	0	0	0	133	0	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	30.0		0.0	0.0		0.0	15.0		0.0
Storage Lanes	0		1	1		0	0		0	0		1
Taper Length (m)	20.0			20.0			20.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.96								0.99	0.96
Frt			0.850									0.850
Flt Protected				0.950							0.950	
Satd. Flow (prot)	0	1883	1601	1789	1883	0	0	0	0	0	1789	1601
Flt Permitted				0.104							0.950	
Satd. Flow (perm)	0	1883	1544	196	1883	0	0	0	0	0	1768	1537
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			104									170
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		91.9			95.6			86.4			82.5	
Travel Time (s)		5.5			5.7			5.2			5.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	723	273	200	764	0	0	0	0	145	0	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	723	273	200	764	0	0	0	0	0	145	170
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	Perm
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		6
Detector Phase		4	4	3	8					6	6	6
Switch Phase												
Minimum Initial (s)		8.0	8.0	8.0	8.0					8.0	8.0	8.0
Minimum Split (s)		26.0	26.0	14.0	26.0					26.0	26.0	26.0
Total Split (s)		52.0	52.0	15.0	67.0					27.0	27.0	27.0
Total Split (%)		55.3%	55.3%	16.0%	71.3%					28.7%	28.7%	28.7%
Maximum Green (s)		46.0	46.0	9.0	61.0					21.0	21.0	21.0
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0						6.0	6.0
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?		Yes	Yes	Yes								
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Recall Mode		None	None	None	None					Max	Max	Max
Walk Time (s)		8.0	8.0		8.0					8.0	8.0	8.0
Flash Dont Walk (s)		12.0	12.0		12.0					12.0	12.0	12.0
Pedestrian Calls (#/hr)		5	5		5					5	5	5
Act Effct Green (s)		37.8	37.8	52.7	52.7						21.2	21.2
Actuated g/C Ratio		0.44	0.44	0.61	0.61						0.25	0.25
v/c Ratio		0.87	0.37	0.71	0.66						0.33	0.34

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		34.3	10.6	27.9	13.9						31.6	7.1
Queue Delay		0.0	0.0	0.0	0.0						0.0	0.0
Total Delay		34.3	10.6	27.9	13.9						31.6	7.1
LOS		C	B	C	B						C	A
Approach Delay		27.8			16.8						18.3	
Approach LOS		C			B						B	
Queue Length 50th (m)		104.2	16.8	13.3	73.3						20.8	0.0
Queue Length 95th (m)		152.0	33.3	#43.4	107.4						39.5	15.6
Internal Link Dist (m)		67.9			71.6			62.4			58.5	
Turn Bay Length (m)			15.0	30.0								
Base Capacity (vph)		1017	881	288	1348						435	507
Starvation Cap Reductn		0	0	0	0						0	0
Spillback Cap Reductn		0	0	0	0						0	0
Storage Cap Reductn		0	0	0	0						0	0
Reduced v/c Ratio		0.71	0.31	0.69	0.57						0.33	0.34

Intersection Summary

Area Type: Other
Cycle Length: 94
Actuated Cycle Length: 86
Natural Cycle: 80
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 21.8 Intersection LOS: C
Intersection Capacity Utilization 76.9% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Rte 214 & Exit 8 SB Ramps



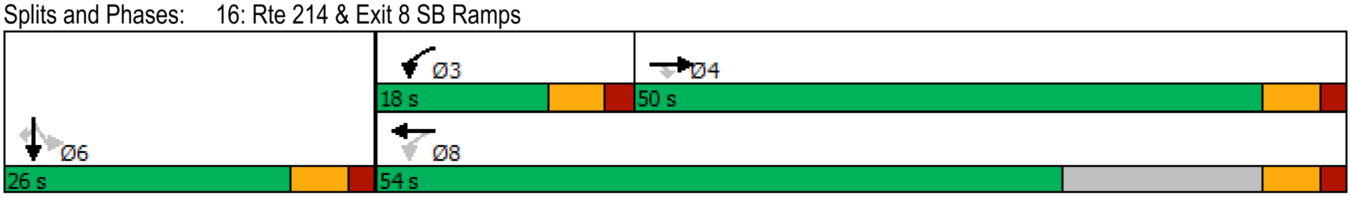
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	370	282	360	559	0	0	0	0	83	0	292
Future Volume (vph)	0	370	282	360	559	0	0	0	0	83	0	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	30.0		0.0	0.0		0.0	15.0		0.0
Storage Lanes	0		1	1		0	0		0	0		1
Taper Length (m)	20.0			20.0			20.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.96	1.00							0.99	0.98
Frt			0.850									0.850
Flt Protected				0.950							0.950	
Satd. Flow (prot)	0	1883	1601	1789	1883	0	0	0	0	0	1789	1601
Flt Permitted				0.251							0.950	
Satd. Flow (perm)	0	1883	1544	471	1883	0	0	0	0	0	1768	1562
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			307									317
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		91.9			95.6			86.4			82.5	
Travel Time (s)		5.5			5.7			5.2			5.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	402	307	391	608	0	0	0	0	90	0	317
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	402	307	391	608	0	0	0	0	0	90	317
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	Perm
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		6
Detector Phase		4	4	3	8					6	6	6
Switch Phase												
Minimum Initial (s)		8.0	8.0	8.0	8.0					8.0	8.0	8.0
Minimum Split (s)		26.0	26.0	14.0	26.0					26.0	26.0	26.0
Total Split (s)		50.0	50.0	18.0	54.0					26.0	26.0	26.0
Total Split (%)		53.2%	53.2%	19.1%	57.4%					27.7%	27.7%	27.7%
Maximum Green (s)		44.0	44.0	12.0	48.0					20.0	20.0	20.0
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0						6.0	6.0
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?		Yes	Yes	Yes								
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Recall Mode		None	None	None	None					Max	Max	Max
Walk Time (s)		8.0	8.0		8.0					8.0	8.0	8.0
Flash Dont Walk (s)		12.0	12.0		12.0					12.0	12.0	12.0
Pedestrian Calls (#/hr)		5	5		5					5	5	5
Act Effct Green (s)		21.4	21.4	39.2	39.2						20.2	20.2
Actuated g/C Ratio		0.30	0.30	0.55	0.55						0.28	0.28
v/c Ratio		0.71	0.45	0.82	0.59						0.18	0.47

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		29.6	4.6	26.3	13.2						23.1	5.9
Queue Delay		0.0	0.0	0.0	0.0						0.0	0.0
Total Delay		29.6	4.6	26.3	13.2						23.1	5.9
LOS		C	A	C	B						C	A
Approach Delay		18.8			18.3						9.7	
Approach LOS		B			B						A	
Queue Length 50th (m)		47.5	0.0	27.5	49.4						9.2	0.0
Queue Length 95th (m)		73.9	14.4	#56.6	74.6						22.9	18.5
Internal Link Dist (m)		67.9			71.6			62.4			58.5	
Turn Bay Length (m)				30.0								
Base Capacity (vph)		1169	1075	481	1644						499	668
Starvation Cap Reductn		0	0	0	0						0	0
Spillback Cap Reductn		0	0	0	0						0	0
Storage Cap Reductn		0	0	0	0						0	0
Reduced v/c Ratio		0.34	0.29	0.81	0.37						0.18	0.47

Intersection Summary

Area Type: Other
Cycle Length: 94
Actuated Cycle Length: 71.5
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 16.8 Intersection LOS: B
Intersection Capacity Utilization 71.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Rte 214 & Exit 8 SB Ramps



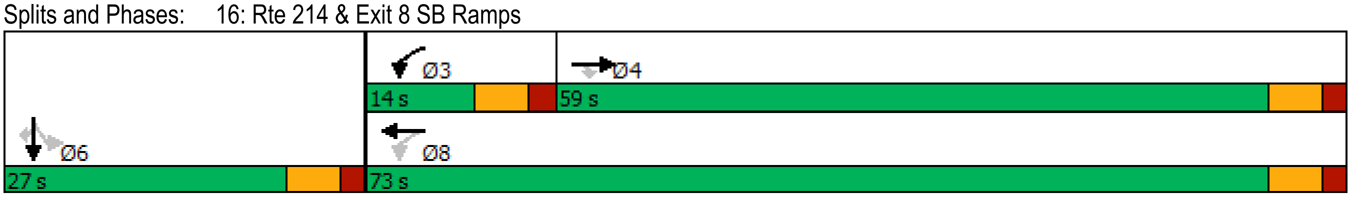
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	751	316	197	742	0	0	0	0	153	0	182
Future Volume (vph)	0	751	316	197	742	0	0	0	0	153	0	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	30.0		0.0	0.0		0.0	15.0		0.0
Storage Lanes	0		1	1		0	0		0	0		1
Taper Length (m)	20.0			20.0			20.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.96								0.99	0.98
Frt			0.850									0.850
Flt Protected				0.950							0.950	
Satd. Flow (prot)	0	1883	1601	1789	1883	0	0	0	0	0	1789	1601
Flt Permitted				0.083							0.950	
Satd. Flow (perm)	0	1883	1544	156	1883	0	0	0	0	0	1767	1562
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			343									198
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		91.9			95.6			86.4			82.5	
Travel Time (s)		5.5			5.7			5.2			5.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	816	343	214	807	0	0	0	0	166	0	198
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	816	343	214	807	0	0	0	0	0	166	198
Turn Type		NA	Perm	pm+pt	NA					Perm	NA	Perm
Protected Phases		4		3	8						6	
Permitted Phases			4	8						6		6
Detector Phase		4	4	3	8					6	6	6
Switch Phase												
Minimum Initial (s)		8.0	8.0	8.0	8.0					8.0	8.0	8.0
Minimum Split (s)		26.0	26.0	14.0	26.0					26.0	26.0	26.0
Total Split (s)		59.0	59.0	14.0	73.0					27.0	27.0	27.0
Total Split (%)		59.0%	59.0%	14.0%	73.0%					27.0%	27.0%	27.0%
Maximum Green (s)		53.0	53.0	8.0	67.0					21.0	21.0	21.0
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0						6.0	6.0
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?		Yes	Yes	Yes								
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Recall Mode		None	None	None	None					Max	Max	Max
Walk Time (s)		8.0	8.0		8.0					8.0	8.0	8.0
Flash Dont Walk (s)		12.0	12.0		12.0					12.0	12.0	12.0
Pedestrian Calls (#/hr)		5	5		5					5	5	5
Act Effct Green (s)		45.1	45.1	59.2	59.2						21.2	21.2
Actuated g/C Ratio		0.49	0.49	0.64	0.64						0.23	0.23
v/c Ratio		0.89	0.37	0.88	0.67						0.41	0.39

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		34.2	2.6	55.2	13.5						36.2	7.4
Queue Delay		0.0	0.0	0.0	0.0						0.0	0.0
Total Delay		34.2	2.6	55.2	13.5						36.2	7.4
LOS		C	A	E	B						D	A
Approach Delay		24.9			22.2						20.5	
Approach LOS		C			C						C	
Queue Length 50th (m)		124.7	0.0	21.6	80.5						26.8	0.0
Queue Length 95th (m)		179.9	12.3	#64.2	116.2						47.9	17.4
Internal Link Dist (m)		67.9			71.6			62.4			58.5	
Turn Bay Length (m)				30.0								
Base Capacity (vph)		1087	1037	242	1375						404	510
Starvation Cap Reductn		0	0	0	0						0	0
Spillback Cap Reductn		0	0	0	0						0	0
Storage Cap Reductn		0	0	0	0						0	0
Reduced v/c Ratio		0.75	0.33	0.88	0.59						0.41	0.39

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 92.5
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 23.2 Intersection LOS: C
Intersection Capacity Utilization 82.1% ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Rte 214 & Exit 8 SB Ramps

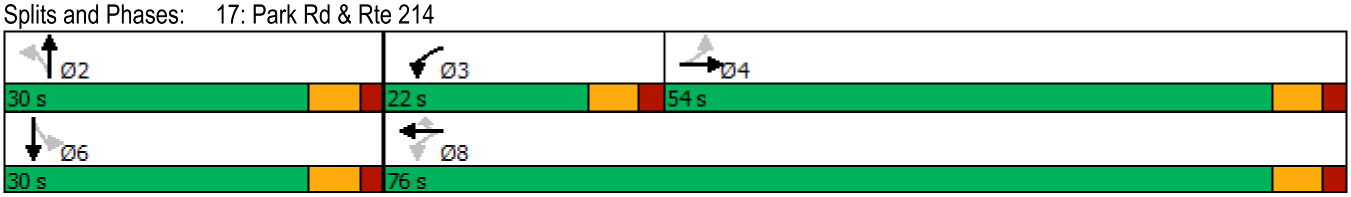


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	319	69	386	149	110	11	7	102	109	15	46
Future Volume (vph)	69	319	69	386	149	110	11	7	102	109	15	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		30.0	15.0		15.0	15.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	20.0			20.0			20.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		1.00		0.96	0.99	0.96		0.99	0.97	
Frt		0.973				0.850		0.860			0.886	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	1821	0	1789	1883	1601	1789	1558	0	1789	1617	0
Flt Permitted	0.654			0.211			0.714			0.681		
Satd. Flow (perm)	1219	1821	0	396	1883	1544	1329	1558	0	1268	1617	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				120		111			50	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		95.7			91.6			86.7			78.0	
Travel Time (s)		5.7			5.5			5.2			4.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	347	75	420	162	120	12	8	111	118	16	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	75	422	0	420	162	120	12	119	0	118	66	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		3	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	26.0	26.0		14.0	26.0	26.0	26.0	26.0		26.0	26.0	
Total Split (s)	54.0	54.0		22.0	76.0	76.0	30.0	30.0		30.0	30.0	
Total Split (%)	50.9%	50.9%		20.8%	71.7%	71.7%	28.3%	28.3%		28.3%	28.3%	
Maximum Green (s)	48.0	48.0		16.0	70.0	70.0	24.0	24.0		24.0	24.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
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		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
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)	8.0	8.0			8.0	8.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0			12.0	12.0	12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	5	5			5	5	5	5		5	5	
Act Effct Green (s)	23.5	23.5		44.4	44.4	44.4	24.3	24.3		24.3	24.3	
Actuated g/C Ratio	0.29	0.29		0.55	0.55	0.55	0.30	0.30		0.30	0.30	
v/c Ratio	0.21	0.78		0.89	0.16	0.13	0.03	0.22		0.31	0.13	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	22.6	36.4		36.7	8.9	1.9	24.3	7.4		27.4	11.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	22.6	36.4		36.7	8.9	1.9	24.3	7.4		27.4	11.2	
LOS	C	D		D	A	A	C	A		C	B	
Approach Delay		34.3			24.4			9.0			21.6	
Approach LOS		C			C			A			C	
Queue Length 50th (m)	8.8	58.2		36.7	11.2	0.0	1.3	0.9		14.0	1.7	
Queue Length 95th (m)	18.5	88.8		#88.7	19.4	6.0	5.9	13.7		32.6	11.7	
Internal Link Dist (m)		71.7			67.6			62.7			54.0	
Turn Bay Length (m)	30.0			30.0		30.0	15.0			15.0		
Base Capacity (vph)	732	1098		496	1641	1361	399	545		380	520	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.10	0.38		0.85	0.10	0.09	0.03	0.22		0.31	0.13	

Intersection Summary	
Area Type: Other	
Cycle Length: 106	
Actuated Cycle Length: 80.8	
Natural Cycle: 70	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 25.9	Intersection LOS: C
Intersection Capacity Utilization 74.1%	ICU Level of Service D
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 17: Park Rd & Rte 214



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	208	27	174	458	181	56	26	376	337	14	144
Future Volume (vph)	94	208	27	174	458	181	56	26	376	337	14	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		30.0	15.0		15.0	15.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	20.0			20.0			20.0			20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99		0.96	0.99	0.97		0.99	0.97	
Frt		0.983				0.850		0.860			0.863	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	1843	0	1789	1883	1601	1789	1565	0	1789	1572	0
Flt Permitted	0.314			0.275			0.649			0.433		
Satd. Flow (perm)	588	1843	0	515	1883	1540	1210	1565	0	811	1572	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				101		409			152	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		95.7			91.6			86.7			78.0	
Travel Time (s)		5.7			5.5			5.2			4.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	102	226	29	189	498	197	61	28	409	366	15	157
Shared Lane Traffic (%)												
Lane Group Flow (vph)	102	255	0	189	498	197	61	437	0	366	172	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		3	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	26.0	26.0		14.0	26.0	26.0	26.0	26.0		26.0	26.0	
Total Split (s)	28.0	28.0		14.0	42.0	42.0	64.0	64.0		64.0	64.0	
Total Split (%)	26.4%	26.4%		13.2%	39.6%	39.6%	60.4%	60.4%		60.4%	60.4%	
Maximum Green (s)	22.0	22.0		8.0	36.0	36.0	58.0	58.0		58.0	58.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
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		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
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)	8.0	8.0			8.0	8.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	12.0	12.0			12.0	12.0	12.0	12.0		12.0	12.0	
Pedestrian Calls (#/hr)	5	5			5	5	5	5		5	5	
Act Effct Green (s)	19.6	19.6		33.6	33.6	33.6	58.1	58.1		58.1	58.1	
Actuated g/C Ratio	0.19	0.19		0.32	0.32	0.32	0.56	0.56		0.56	0.56	
v/c Ratio	0.92	0.73		0.71	0.82	0.35	0.09	0.41		0.81	0.18	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	109.9	51.3		43.3	44.3	14.6	11.9	2.9		35.5	3.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	109.9	51.3		43.3	44.3	14.6	11.9	2.9		35.5	3.1	
LOS	F	D		D	D	B	B	A		D	A	
Approach Delay		68.0			37.5			4.0			25.2	
Approach LOS		E			D			A			C	
Queue Length 50th (m)	20.4	47.8		28.6	91.5	13.9	5.7	2.5		59.1	1.8	
Queue Length 95th (m)	#50.8	74.4		#51.0	#131.9	31.6	12.0	16.3		#117.3	11.1	
Internal Link Dist (m)		71.7			67.6			62.7			54.0	
Turn Bay Length (m)	30.0			30.0		30.0	15.0			15.0		
Base Capacity (vph)	125	395		265	654	601	678	1056		454	947	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.82	0.65		0.71	0.76	0.33	0.09	0.41		0.81	0.18	

Intersection Summary

Area Type: Other

Cycle Length: 106

Actuated Cycle Length: 103.7

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.92

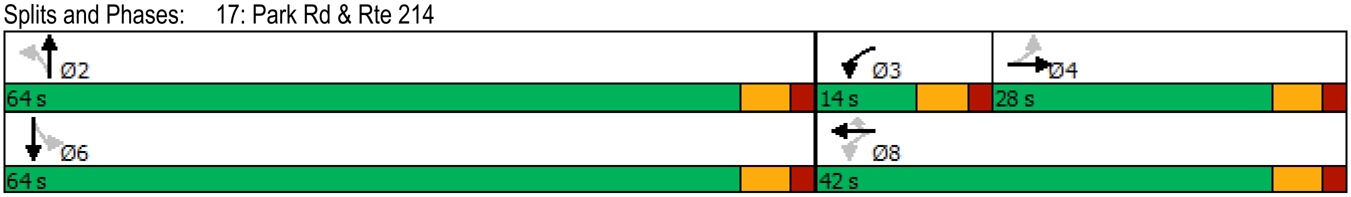
Intersection Signal Delay: 32.0 Intersection LOS: C

Intersection Capacity Utilization 94.6% ICU Level of Service F

Analysis Period (min) 15

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

Splits and Phases: 17: Park Rd & Rte 214



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	304	92	553	130	153	16	7	134	140	15	74
Future Volume (vph)	97	304	92	553	130	153	16	7	134	140	15	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	0.0		30.0	15.0		30.0	15.0		0.0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (m)	20.0			20.0			20.0			20.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99		0.96	0.99		0.96	0.98	0.96	
Frt		0.965				0.850			0.850		0.875	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3419	0	1789	1883	1601	1789	1883	1601	3471	1584	0
Flt Permitted	0.667			0.242			0.950			0.950		
Satd. Flow (perm)	1240	3419	0	453	1883	1540	1765	1883	1540	3418	1584	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30				166			146		80	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		95.7			91.6			86.7			78.0	
Travel Time (s)		5.7			5.5			5.2			4.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	105	330	100	601	141	166	17	8	146	152	16	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	430	0	601	141	166	17	8	146	152	96	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases		4		3	8		2	2		6	6	
Permitted Phases	4			8		8			2			
Detector Phase	4	4		3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	26.0	26.0		14.0	26.0	26.0	16.0	16.0	16.0	26.0	26.0	
Total Split (s)	35.0	35.0		44.0	79.0	79.0	18.0	18.0	18.0	26.0	26.0	
Total Split (%)	28.5%	28.5%		35.8%	64.2%	64.2%	14.6%	14.6%	14.6%	21.1%	21.1%	
Maximum Green (s)	29.0	29.0		38.0	73.0	73.0	12.0	12.0	12.0	20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	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	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	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	Max	
Walk Time (s)	8.0	8.0			8.0	8.0				8.0	8.0	
Flash Dont Walk (s)	12.0	12.0			12.0	12.0				12.0	12.0	
Pedestrian Calls (#/hr)	5	5			5	5				5	5	
Act Effct Green (s)	18.4	18.4		56.0	56.0	56.0	12.1	12.1	12.1	20.2	20.2	
Actuated g/C Ratio	0.17	0.17		0.53	0.53	0.53	0.11	0.11	0.11	0.19	0.19	
v/c Ratio	0.49	0.70		0.95	0.14	0.19	0.08	0.04	0.48	0.23	0.26	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	49.1	45.4		49.1	12.7	2.2	48.1	47.9	13.8	40.2	14.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	49.1	45.4		49.1	12.7	2.2	48.1	47.9	13.8	40.2	14.9	
LOS	D	D		D	B	A	D	D	B	D	B	
Approach Delay		46.1			34.9			18.8			30.4	
Approach LOS		D			C			B			C	
Queue Length 50th (m)	20.1	41.8		95.7	14.2	0.0	3.2	1.5	0.0	14.0	2.8	
Queue Length 95th (m)	38.4	61.0		#163.9	23.5	8.7	10.8	6.6	19.1	26.0	18.0	
Internal Link Dist (m)		71.7			67.6			62.7			54.0	
Turn Bay Length (m)	30.0					30.0	15.0		30.0	15.0		
Base Capacity (vph)	341	962		719	1303	1117	203	214	304	658	365	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.31	0.45		0.84	0.11	0.15	0.08	0.04	0.48	0.23	0.26	

Intersection Summary	
Area Type: Other	
Cycle Length: 123	
Actuated Cycle Length: 106.5	
Natural Cycle: 95	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 36.0	Intersection LOS: D
Intersection Capacity Utilization 74.6%	ICU Level of Service D
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 17: Park Rd & Rte 214

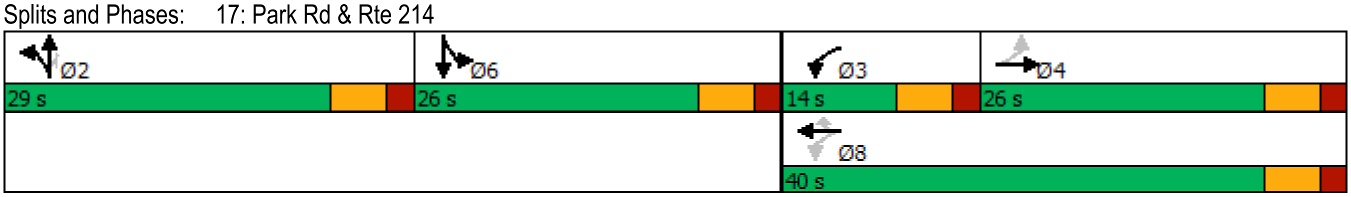
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	173	34	221	428	227	76	26	512	387	14	188
Future Volume (vph)	139	173	34	221	428	227	76	26	512	387	14	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	0.0		30.0	15.0		30.0	15.0		0.0
Storage Lanes	1		0	1		1	1		1	2		0
Taper Length (m)	20.0			20.0			20.0			20.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99		0.96	0.99		0.98	0.99	0.96	
Frt		0.975				0.850			0.850		0.860	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3466	0	1789	1883	1601	1789	1883	1601	3471	1559	0
Flt Permitted	0.463			0.462			0.950			0.950		
Satd. Flow (perm)	867	3466	0	864	1883	1542	1774	1883	1565	3432	1559	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22				155			347		204	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		95.7			91.6			86.7			78.0	
Travel Time (s)		5.7			5.5			5.2			4.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	151	188	37	240	465	247	83	28	557	421	15	204
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	225	0	240	465	247	83	28	557	421	219	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases		4		3	8		2	2		6	6	
Permitted Phases	4			8		8			2			
Detector Phase	4	4		3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	26.0	26.0		14.0	26.0	26.0	26.0	26.0	26.0	26.0	26.0	
Total Split (s)	26.0	26.0		14.0	40.0	40.0	29.0	29.0	29.0	26.0	26.0	
Total Split (%)	27.4%	27.4%		14.7%	42.1%	42.1%	30.5%	30.5%	30.5%	27.4%	27.4%	
Maximum Green (s)	20.0	20.0		8.0	34.0	34.0	23.0	23.0	23.0	20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	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	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	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	Max	
Walk Time (s)	8.0	8.0			8.0	8.0				8.0	8.0	
Flash Dont Walk (s)	12.0	12.0			12.0	12.0				12.0	12.0	
Pedestrian Calls (#/hr)	5	5			5	5				5	5	
Act Effct Green (s)	18.6	18.6		32.6	32.6	32.6	23.0	23.0	23.0	20.0	20.0	
Actuated g/C Ratio	0.20	0.20		0.35	0.35	0.35	0.25	0.25	0.25	0.21	0.21	
v/c Ratio	0.88	0.32		0.63	0.71	0.39	0.19	0.06	0.86	0.57	0.44	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	81.5	30.0		31.9	33.4	10.6	30.0	28.3	28.0	36.8	9.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	81.5	30.0		31.9	33.4	10.6	30.0	28.3	28.0	36.8	9.0	
LOS	F	C		C	C	B	C	C	C	D	A	
Approach Delay		50.7			27.1			28.3			27.3	
Approach LOS		D			C			C			C	
Queue Length 50th (m)	26.7	16.5		32.2	71.8	11.4	12.2	4.0	38.7	35.9	2.2	
Queue Length 95th (m)	#60.3	26.7		51.8	106.0	29.4	24.1	10.7	#99.8	50.7	20.5	
Internal Link Dist (m)		71.7			67.6			62.7			54.0	
Turn Bay Length (m)	30.0					30.0	15.0		30.0	15.0		
Base Capacity (vph)	185	758		380	684	659	440	462	646	741	493	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.82	0.30		0.63	0.68	0.37	0.19	0.06	0.86	0.57	0.44	

Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 93.6
Natural Cycle: 95
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 30.8 Intersection LOS: C
Intersection Capacity Utilization 73.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 17: Park Rd & Rte 214



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	66	182	42	429	453	35
Future Volume (vph)	66	182	42	429	453	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	20.0		20.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97		1.00		1.00	
Frt	0.901				0.990	
Flt Protected	0.987		0.950			
Satd. Flow (prot)	1626	0	1789	1883	1860	0
Flt Permitted	0.987		0.433			
Satd. Flow (perm)	1621	0	812	1883	1860	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	138				9	
Link Speed (k/h)	60			60	60	
Link Distance (m)	91.3			75.2	69.8	
Travel Time (s)	5.5			4.5	4.2	
Confl. Peds. (#/hr)	5	5	5			5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	198	46	466	492	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	270	0	46	466	530	0
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	8.0		8.0	8.0	8.0	
Minimum Split (s)	26.0		26.0	26.0	26.0	
Total Split (s)	26.0		66.0	66.0	66.0	
Total Split (%)	28.3%		71.7%	71.7%	71.7%	
Maximum Green (s)	20.0		60.0	60.0	60.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	None		Max	Max	Max	
Walk Time (s)	8.0		8.0	8.0	8.0	
Flash Dont Walk (s)	12.0		12.0	12.0	12.0	
Pedestrian Calls (#/hr)	5		5	5	5	
Act Effct Green (s)	13.1		60.8	60.8	60.8	
Actuated g/C Ratio	0.15		0.71	0.71	0.71	
v/c Ratio	0.74		0.08	0.35	0.40	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Control Delay	29.3		5.4	6.4	6.8	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	29.3		5.4	6.4	6.8	
LOS	C		A	A	A	
Approach Delay	29.3			6.3	6.8	
Approach LOS	C			A	A	
Queue Length 50th (m)	20.0		1.9	24.5	28.6	
Queue Length 95th (m)	45.0		6.6	50.7	59.3	
Internal Link Dist (m)	67.3			51.2	45.8	
Turn Bay Length (m)			15.0			
Base Capacity (vph)	484		574	1332	1318	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.56		0.08	0.35	0.40	

Intersection Summary	
Area Type: Other	
Cycle Length: 92	
Actuated Cycle Length: 86	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 11.2	Intersection LOS: B
Intersection Capacity Utilization 60.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 18: Tk 2 & Elmwood

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	51	105	160	708	537	101
Future Volume (vph)	51	105	160	708	537	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	20.0		20.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97		1.00		0.99	
Frt	0.909				0.979	
Flt Protected	0.984		0.950			
Satd. Flow (prot)	1640	0	1789	1883	1834	0
Flt Permitted	0.984		0.348			
Satd. Flow (perm)	1633	0	653	1883	1834	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	104				21	
Link Speed (k/h)	60			60	60	
Link Distance (m)	91.3			75.2	69.8	
Travel Time (s)	5.5			4.5	4.2	
Confl. Peds. (#/hr)	5	5	5			5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	114	174	770	584	110
Shared Lane Traffic (%)						
Lane Group Flow (vph)	169	0	174	770	694	0
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	8.0		8.0	8.0	8.0	
Minimum Split (s)	26.0		26.0	26.0	26.0	
Total Split (s)	26.0		66.0	66.0	66.0	
Total Split (%)	28.3%		71.7%	71.7%	71.7%	
Maximum Green (s)	20.0		60.0	60.0	60.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	None		Max	Max	Max	
Walk Time (s)	8.0		8.0	8.0	8.0	
Flash Dont Walk (s)	12.0		12.0	12.0	12.0	
Pedestrian Calls (#/hr)	5		5	5	5	
Act Effct Green (s)	11.1		64.1	64.1	64.1	
Actuated g/C Ratio	0.13		0.73	0.73	0.73	
v/c Ratio	0.57		0.36	0.56	0.51	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Control Delay	21.6		7.8	8.0	7.2	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	21.6		7.8	8.0	7.2	
LOS	C		A	A	A	
Approach Delay	21.6			7.9	7.2	
Approach LOS	C			A	A	
Queue Length 50th (m)	9.5		7.4	40.7	33.4	
Queue Length 95th (m)	26.7		26.8	105.4	88.2	
Internal Link Dist (m)	67.3			51.2	45.8	
Turn Bay Length (m)			15.0			
Base Capacity (vph)	457		479	1383	1352	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.37		0.36	0.56	0.51	

Intersection Summary	
Area Type: Other	
Cycle Length: 92	
Actuated Cycle Length: 87.3	
Natural Cycle: 65	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 8.9	Intersection LOS: A
Intersection Capacity Utilization 69.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 18: Tk 2 & Elmwood

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	68	182	42	451	497	38
Future Volume (vph)	68	182	42	451	497	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	20.0		20.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97		1.00		1.00	
Frt	0.902				0.990	
Flt Protected	0.987		0.950			
Satd. Flow (prot)	1628	0	1789	1883	1860	0
Flt Permitted	0.987		0.401			
Satd. Flow (perm)	1623	0	752	1883	1860	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	134				9	
Link Speed (k/h)	60			60	60	
Link Distance (m)	91.3			75.2	69.8	
Travel Time (s)	5.5			4.5	4.2	
Confl. Peds. (#/hr)	5	5	5			5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	198	46	490	540	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	272	0	46	490	581	0
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	8.0		8.0	8.0	8.0	
Minimum Split (s)	26.0		26.0	26.0	26.0	
Total Split (s)	26.0		66.0	66.0	66.0	
Total Split (%)	28.3%		71.7%	71.7%	71.7%	
Maximum Green (s)	20.0		60.0	60.0	60.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	None		Max	Max	Max	
Walk Time (s)	8.0		8.0	8.0	8.0	
Flash Dont Walk (s)	12.0		12.0	12.0	12.0	
Pedestrian Calls (#/hr)	5		5	5	5	
Act Effct Green (s)	13.3		60.8	60.8	60.8	
Actuated g/C Ratio	0.15		0.71	0.71	0.71	
v/c Ratio	0.75		0.09	0.37	0.44	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Control Delay	30.2		5.5	6.6	7.3	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	30.2		5.5	6.6	7.3	
LOS	C		A	A	A	
Approach Delay	30.2			6.5	7.3	
Approach LOS	C			A	A	
Queue Length 50th (m)	21.1		2.0	26.5	33.2	
Queue Length 95th (m)	46.5		6.6	54.1	67.4	
Internal Link Dist (m)	67.3			51.2	45.8	
Turn Bay Length (m)			15.0			
Base Capacity (vph)	481		530	1329	1315	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.57		0.09	0.37	0.44	

Intersection Summary	
Area Type: Other	
Cycle Length: 92	
Actuated Cycle Length: 86.1	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 11.5	Intersection LOS: B
Intersection Capacity Utilization 60.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 18: Tk 2 & Elmwood

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	54	105	160	759	572	104
Future Volume (vph)	54	105	160	759	572	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	20.0		20.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97		1.00		0.99	
Frt	0.911				0.979	
Flt Protected	0.983		0.950			
Satd. Flow (prot)	1643	0	1789	1883	1834	0
Flt Permitted	0.983		0.325			
Satd. Flow (perm)	1636	0	611	1883	1834	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	97				20	
Link Speed (k/h)	60			60	60	
Link Distance (m)	91.3			75.2	69.8	
Travel Time (s)	5.5			4.5	4.2	
Confl. Peds. (#/hr)	5	5	5			5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	114	174	825	622	113
Shared Lane Traffic (%)						
Lane Group Flow (vph)	173	0	174	825	735	0
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	8.0		8.0	8.0	8.0	
Minimum Split (s)	26.0		26.0	26.0	26.0	
Total Split (s)	26.0		66.0	66.0	66.0	
Total Split (%)	28.3%		71.7%	71.7%	71.7%	
Maximum Green (s)	20.0		60.0	60.0	60.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	None		Max	Max	Max	
Walk Time (s)	8.0		8.0	8.0	8.0	
Flash Dont Walk (s)	12.0		12.0	12.0	12.0	
Pedestrian Calls (#/hr)	5		5	5	5	
Act Effct Green (s)	11.4		63.9	63.9	63.9	
Actuated g/C Ratio	0.13		0.73	0.73	0.73	
v/c Ratio	0.58		0.39	0.60	0.55	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Control Delay	23.6		8.6	8.7	7.7	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	23.6		8.6	8.7	7.7	
LOS	C		A	A	A	
Approach Delay	23.6			8.7	7.7	
Approach LOS	C			A	A	
Queue Length 50th (m)	11.1		7.8	47.6	38.3	
Queue Length 95th (m)	28.7		28.2	119.6	97.3	
Internal Link Dist (m)	67.3			51.2	45.8	
Turn Bay Length (m)			15.0			
Base Capacity (vph)	452		447	1378	1348	
Starvation Cap Reductn	0		0	0	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductn	0		0	0	0	
Reduced v/c Ratio	0.38		0.39	0.60	0.55	

Intersection Summary	
Area Type: Other	
Cycle Length: 92	
Actuated Cycle Length: 87.3	
Natural Cycle: 65	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay: 9.7	Intersection LOS: A
Intersection Capacity Utilization 71.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 18: Tk 2 & Elmwood

Intersection						
Int Delay, s/veh	2.3					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	36	66	18	403	711	19
Future Vol, veh/h	36	66	18	403	711	19
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	72	20	438	773	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1272	794	799	0	-	0
Stage 1	789	-	-	-	-	-
Stage 2	483	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	185	388	824	-	-	-
Stage 1	448	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	179	384	820	-	-	-
Mov Cap-2 Maneuver	179	-	-	-	-	-
Stage 1	435	-	-	-	-	-
Stage 2	617	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	26.9	0.4	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	820	-	273	-	-
HCM Lane V/C Ratio	0.024	-	0.406	-	-
HCM Control Delay (s)	9.5	-	26.9	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	1.9	-	-

Intersection						
Int Delay, s/veh	4.6					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	43	40	62	908	648	37
Future Vol, veh/h	43	40	62	908	648	37
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	43	67	987	704	40

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1855	734	749	0	-	0
Stage 1	729	-	-	-	-	-
Stage 2	1126	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	81	420	860	-	-	-
Stage 1	477	-	-	-	-	-
Stage 2	310	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	74	416	856	-	-	-
Mov Cap-2 Maneuver	74	-	-	-	-	-
Stage 1	437	-	-	-	-	-
Stage 2	308	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	89.4	0.6	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	856	-	123	-	-
HCM Lane V/C Ratio	0.079	-	0.733	-	-
HCM Control Delay (s)	9.6	-	89.4	-	-
HCM Lane LOS	A	-	F	-	-
HCM 95th %tile Q(veh)	0.3	-	4.1	-	-

Intersection						
Int Delay, s/veh	2.5					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	38	66	18	423	751	22
Future Vol, veh/h	38	66	18	423	751	22
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	72	20	460	816	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1338	838	845	0	-	0
Stage 1	833	-	-	-	-	-
Stage 2	505	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	169	366	792	-	-	-
Stage 1	427	-	-	-	-	-
Stage 2	606	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	163	363	788	-	-	-
Mov Cap-2 Maneuver	163	-	-	-	-	-
Stage 1	414	-	-	-	-	-
Stage 2	603	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	30.6	0.4	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	788	-	251	-	-
HCM Lane V/C Ratio	0.025	-	0.45	-	-
HCM Control Delay (s)	9.7	-	30.6	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	2.2	-	-

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	46	40	62	958	679	40
Future Vol, veh/h	46	40	62	958	679	40
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	50	43	67	1041	738	43

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1945	770	786	0	-	0
Stage 1	765	-	-	-	-	-
Stage 2	1180	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	71	401	833	-	-	-
Stage 1	459	-	-	-	-	-
Stage 2	292	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	65	397	829	-	-	-
Mov Cap-2 Maneuver	65	-	-	-	-	-
Stage 1	420	-	-	-	-	-
Stage 2	291	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	131.5	0.6	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	829	-	106	-	-
HCM Lane V/C Ratio	0.081	-	0.882	-	-
HCM Control Delay (s)	9.7	-	131.5	-	-
HCM Lane LOS	A	-	F	-	-
HCM 95th %tile Q(veh)	0.3	-	5.2	-	-

Intersection						
Int Delay, s/veh	0.5					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	24	4	415	772	5
Future Vol, veh/h	5	24	4	415	772	5
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	26	4	451	839	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1311	852	849	0	-	0
Stage 1	847	-	-	-	-	-
Stage 2	464	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	175	359	789	-	-	-
Stage 1	420	-	-	-	-	-
Stage 2	633	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	172	356	785	-	-	-
Mov Cap-2 Maneuver	172	-	-	-	-	-
Stage 1	415	-	-	-	-	-
Stage 2	630	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.4	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	785	-	301	-	-
HCM Lane V/C Ratio	0.006	-	0.105	-	-
HCM Control Delay (s)	9.6	0	18.4	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	8	15	962	677	10
Future Vol, veh/h	9	8	15	962	677	10
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	9	16	1046	736	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1830	752	752	0	-	0
Stage 1	747	-	-	-	-	-
Stage 2	1083	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	84	410	858	-	-	-
Stage 1	468	-	-	-	-	-
Stage 2	325	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	79	406	854	-	-	-
Mov Cap-2 Maneuver	79	-	-	-	-	-
Stage 1	445	-	-	-	-	-
Stage 2	323	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	38.1	0.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	854	-	127	-	-
HCM Lane V/C Ratio	0.019	-	0.145	-	-
HCM Control Delay (s)	9.3	0	38.1	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection						
Int Delay, s/veh	0.5					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	24	4	435	811	8
Future Vol, veh/h	7	24	4	435	811	8
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	26	4	473	882	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1378	897	896	0	-	0
Stage 1	892	-	-	-	-	-
Stage 2	486	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	160	339	757	-	-	-
Stage 1	400	-	-	-	-	-
Stage 2	618	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	157	336	754	-	-	-
Mov Cap-2 Maneuver	157	-	-	-	-	-
Stage 1	395	-	-	-	-	-
Stage 2	615	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.4	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	754	-	267	-	-
HCM Lane V/C Ratio	0.006	-	0.126	-	-
HCM Control Delay (s)	9.8	0	20.4	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection						
Int Delay, s/veh	0.6					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	8	15	1008	708	13
Future Vol, veh/h	12	8	15	1008	708	13
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	9	16	1096	770	14

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1915	787	789	0	-	0
Stage 1	782	-	-	-	-	-
Stage 2	1133	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	74	392	831	-	-	-
Stage 1	451	-	-	-	-	-
Stage 2	307	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	70	388	827	-	-	-
Mov Cap-2 Maneuver	70	-	-	-	-	-
Stage 1	427	-	-	-	-	-
Stage 2	305	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	48.5	0.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	827	-	104	-	-
HCM Lane V/C Ratio	0.02	-	0.209	-	-
HCM Control Delay (s)	9.4	0	48.5	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	139	294	73	263	745	75
Future Volume (vph)	139	294	73	263	745	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	15.0	15.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	20.0		20.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.96			1.00	
Frt		0.850			0.988	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1789	1601	1789	1883	1855	0
Flt Permitted	0.950		0.229			
Satd. Flow (perm)	1769	1537	431	1883	1855	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		210			11	
Link Speed (k/h)	60			60	60	
Link Distance (m)	91.0			79.2	46.3	
Travel Time (s)	5.5			4.8	2.8	
Confl. Peds. (#/hr)	5	5	5			5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	151	320	79	286	810	82
Shared Lane Traffic (%)						
Lane Group Flow (vph)	151	320	79	286	892	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	26.0	26.0	26.0	26.0	26.0	
Total Split (s)	26.0	26.0	66.0	66.0	66.0	
Total Split (%)	28.3%	28.3%	71.7%	71.7%	71.7%	
Maximum Green (s)	20.0	20.0	60.0	60.0	60.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
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	6.0	6.0	6.0	
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)	8.0	8.0	8.0	8.0	8.0	
Flash Dont Walk (s)	12.0	12.0	12.0	12.0	12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	
Act Effct Green (s)	13.2	13.2	60.1	60.1	60.1	
Actuated g/C Ratio	0.15	0.15	0.70	0.70	0.70	
v/c Ratio	0.55	0.77	0.26	0.22	0.68	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Control Delay	40.6	25.5	8.4	5.5	11.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	40.6	25.5	8.4	5.5	11.4	
LOS	D	C	A	A	B	
Approach Delay	30.3			6.1	11.4	
Approach LOS	C			A	B	
Queue Length 50th (m)	23.0	16.5	3.7	13.0	65.4	
Queue Length 95th (m)	40.3	44.5	13.1	29.2	140.2	
Internal Link Dist (m)	67.0			55.2	22.3	
Turn Bay Length (m)		15.0	15.0			
Base Capacity (vph)	420	521	303	1326	1309	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.36	0.61	0.26	0.22	0.68	

Intersection Summary	
Area Type: Other	
Cycle Length: 92	
Actuated Cycle Length: 85.4	
Natural Cycle: 70	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 15.4	Intersection LOS: B
Intersection Capacity Utilization 74.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 21: Tk 2 & Old Enfield

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	130	147	316	872	469	169
Future Volume (vph)	130	147	316	872	469	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	15.0	15.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	20.0		20.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.96	1.00		0.99	
Frt		0.850			0.964	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1789	1601	1789	1883	1800	0
Flt Permitted	0.950		0.331			
Satd. Flow (perm)	1771	1541	622	1883	1800	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		160			41	
Link Speed (k/h)	60			60	60	
Link Distance (m)	91.0			79.2	46.3	
Travel Time (s)	5.5			4.8	2.8	
Confl. Peds. (#/hr)	5	5	5			5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	141	160	343	948	510	184
Shared Lane Traffic (%)						
Lane Group Flow (vph)	141	160	343	948	694	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	26.0	26.0	26.0	26.0	26.0	
Total Split (s)	26.0	26.0	56.0	56.0	56.0	
Total Split (%)	31.7%	31.7%	68.3%	68.3%	68.3%	
Maximum Green (s)	20.0	20.0	50.0	50.0	50.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
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	6.0	6.0	6.0	
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)	8.0	8.0	8.0	8.0	8.0	
Flash Dont Walk (s)	12.0	12.0	12.0	12.0	12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	
Act Effct Green (s)	12.2	12.2	52.5	52.5	52.5	
Actuated g/C Ratio	0.16	0.16	0.68	0.68	0.68	
v/c Ratio	0.50	0.42	0.81	0.74	0.56	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Control Delay	34.5	8.4	28.6	13.5	8.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	34.5	8.4	28.6	13.5	8.7	
LOS	C	A	C	B	A	
Approach Delay	20.6			17.6	8.7	
Approach LOS	C			B	A	
Queue Length 50th (m)	18.1	0.0	27.5	68.6	37.4	
Queue Length 95th (m)	33.3	13.7	#99.3	#167.7	89.8	
Internal Link Dist (m)	67.0			55.2	22.3	
Turn Bay Length (m)		15.0	15.0			
Base Capacity (vph)	468	521	425	1288	1244	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.30	0.31	0.81	0.74	0.56	

Intersection Summary	
Area Type: Other	
Cycle Length: 82	
Actuated Cycle Length: 76.7	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 15.3	Intersection LOS: B
Intersection Capacity Utilization 76.3%	ICU Level of Service D
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 21: Tk 2 & Old Enfield

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	149	341	89	273	777	82
Future Volume (vph)	149	341	89	273	777	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	15.0	15.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	20.0		20.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.96			1.00	
Frt		0.850			0.987	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1789	1601	1789	1883	1853	0
Flt Permitted	0.950		0.195			
Satd. Flow (perm)	1769	1537	367	1883	1853	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		196			12	
Link Speed (k/h)	60			60	60	
Link Distance (m)	91.0			79.2	46.3	
Travel Time (s)	5.5			4.8	2.8	
Confl. Peds. (#/hr)	5	5	5			5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	162	371	97	297	845	89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	162	371	97	297	934	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	26.0	26.0	26.0	26.0	26.0	
Total Split (s)	26.0	26.0	66.0	66.0	66.0	
Total Split (%)	28.3%	28.3%	71.7%	71.7%	71.7%	
Maximum Green (s)	20.0	20.0	60.0	60.0	60.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
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	6.0	6.0	6.0	
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)	8.0	8.0	8.0	8.0	8.0	
Flash Dont Walk (s)	12.0	12.0	12.0	12.0	12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	
Act Effct Green (s)	15.5	15.5	60.2	60.2	60.2	
Actuated g/C Ratio	0.18	0.18	0.69	0.69	0.69	
v/c Ratio	0.51	0.86	0.38	0.23	0.73	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Control Delay	38.3	36.0	12.7	6.3	13.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	38.3	36.0	12.7	6.3	13.9	
LOS	D	D	B	A	B	
Approach Delay	36.7			7.9	13.9	
Approach LOS	D			A	B	
Queue Length 50th (m)	24.8	28.9	6.5	17.5	91.6	
Queue Length 95th (m)	43.2	#70.1	19.0	30.3	154.6	
Internal Link Dist (m)	67.0			55.2	22.3	
Turn Bay Length (m)		15.0	15.0			
Base Capacity (vph)	409	502	252	1292	1275	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.40	0.74	0.38	0.23	0.73	

Intersection Summary

Area Type: Other
Cycle Length: 92
Actuated Cycle Length: 87.7
Natural Cycle: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 19.2 — Intersection LOS: B
Intersection Capacity Utilization 77.6% — ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 21: Tk 2 & Old Enfield

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	140	181	372	908	485	183
Future Volume (vph)	140	181	372	908	485	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	15.0	15.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	20.0		20.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.96	1.00		0.99	
Frt		0.850			0.963	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1789	1601	1789	1883	1796	0
Flt Permitted	0.950		0.326			
Satd. Flow (perm)	1767	1535	612	1883	1796	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		173			42	
Link Speed (k/h)	60			60	60	
Link Distance (m)	91.0			79.2	46.3	
Travel Time (s)	5.5			4.8	2.8	
Confl. Peds. (#/hr)	5	5	5			5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	152	197	404	987	527	199
Shared Lane Traffic (%)						
Lane Group Flow (vph)	152	197	404	987	726	0
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	26.0	26.0	26.0	26.0	26.0	
Total Split (s)	26.0	26.0	74.0	74.0	74.0	
Total Split (%)	26.0%	26.0%	74.0%	74.0%	74.0%	
Maximum Green (s)	20.0	20.0	68.0	68.0	68.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
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	6.0	6.0	6.0	
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)	8.0	8.0	8.0	8.0	8.0	
Flash Dont Walk (s)	12.0	12.0	12.0	12.0	12.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	
Act Effct Green (s)	13.4	13.4	68.7	68.7	68.7	
Actuated g/C Ratio	0.14	0.14	0.73	0.73	0.73	
v/c Ratio	0.60	0.54	0.91	0.72	0.55	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Control Delay	47.4	13.7	39.5	11.9	7.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	47.4	13.7	39.5	11.9	7.9	
LOS	D	B	D	B	A	
Approach Delay	28.4			20.0	7.9	
Approach LOS	C			B	A	
Queue Length 50th (m)	26.0	3.8	48.1	83.9	45.5	
Queue Length 95th (m)	44.8	22.4	#135.4	168.6	92.1	
Internal Link Dist (m)	67.0			55.2	22.3	
Turn Bay Length (m)		15.0	15.0			
Base Capacity (vph)	380	462	446	1373	1321	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.40	0.43	0.91	0.72	0.55	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 94.1

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 17.6 Intersection LOS: B

Intersection Capacity Utilization 81.5% ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 21: Tk 2 & Old Enfield

ROAD NETWORK – OPTION 1 Roundabouts

#9 – Trunk 2 / Lantz Connector Rd

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Geometry - 2023 Baseline																	
Leg WB	D1	0.0	0.5	3.39	0.01	A	2.37	A	277 % [Leg SB]	D2	0.0	0.5	4.11	0.03	A	2.35	A	238 % [Leg WB]
Leg SB		0.3	1.3	2.66	0.24	A					0.2	0.5	2.43	0.17	A			
Leg EB		0.1	0.5	1.98	0.07	A					0.2	0.5	2.26	0.19	A			
Leg NB		0.1	0.5	1.92	0.09	A					0.2	0.5	2.20	0.15	A			
	Existing Geometry - 2033 Total Opt 1																	
Leg WB	D3	0.0	0.5	3.98	0.01	A	4.14	A	57 % [Leg SB]	D4	0.1	0.5	7.71	0.05	A	3.82	A	50 % [Leg WB]
Leg SB		1.6	2.8	5.27	0.61	A					0.8	1.5	3.65	0.43	A			
Leg EB		0.2	0.5	2.39	0.19	A					1.1	1.4	4.00	0.52	A			
Leg NB		0.2	0.5	2.20	0.16	A					0.5	1.9	3.50	0.32	A			
	Existing Geometry - 2043 Total Opt 1																	
Leg WB	D5	0.0	0.5	4.33	0.01	A	7.60	A	20 % [Leg SB]	D6	0.1	0.5	13.67	0.09	B	5.60	A	17 % [Leg WB]
Leg SB		4.1	18.4	10.48	0.81	B					1.3	1.9	4.85	0.57	A			
Leg EB		0.3	1.4	2.68	0.26	A					2.2	4.9	6.33	0.69	A			
Leg NB		0.2	0.5	2.36	0.18	A					0.8	1.5	4.93	0.45	A			

#10 – Lantz Connector Rd / Shaw Dr

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Geometry - 2033 Total Opt 1																	
Leg WB	D3	1.3	1.5	5.45	0.56	A	4.08	A	41 % [Leg WB]	D4	0.5	2.1	3.33	0.35	A	4.64	A	47 % [Leg EB]
Leg EB		0.3	0.8	2.20	0.21	A					1.6	3.0	4.92	0.63	A			
Leg NB		0.3	1.0	2.99	0.21	A					0.6	2.1	5.77	0.36	A			
	Existing Geometry - 2043 Total Opt 1																	
Leg WB	D5	6.0	32.4	19.19	0.87	C	11.60	B	6 % [Leg WB]	D6	1.1	1.5	5.01	0.52	A	10.51	B	12 % [Leg EB]
Leg EB		0.4	1.5	2.40	0.27	A					5.6	29.6	12.67	0.86	B			
Leg NB		0.4	1.5	3.56	0.29	A					1.5	3.0	12.14	0.61	B			

#11 – Lantz Connector Rd / Exit 8A NB Ramps

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Geometry - 2023 Baseline																	
Leg WB	D1	0.2	0.5	3.58	0.16	A	3.41	A	481 % [Leg WB]	D2	0.1	0.5	3.34	0.11	A	3.18	A	797 % [Leg WB]
Leg EB		0.1	0.5	3.14	0.05	A					0.1	0.5	3.18	0.06	A			
Leg NB		0.0	0.5	3.08	0.00	A					0.0	0.5	3.10	0.00	A			
	Existing Geometry - 2033 Total Opt 1																	
Leg WB	D3	2.2	5.5	9.83	0.69	A	7.77	A	36 % [Leg WB]	D4	1.0	1.5	6.41	0.51	A	5.28	A	78 % [Leg WB]
Leg EB		0.2	0.5	3.62	0.17	A					0.7	1.5	5.15	0.42	A			
Leg NB		0.0	0.5	3.46	0.04	A					0.1	0.5	4.42	0.07	A			
	Existing Geometry - 2043 Total Opt 1																	
Leg WB	D5	16.4	74.3	56.20	1.00	F	34.17	D	-5 % [Leg WB]	D6	3.1	15.0	14.80	0.77	B	9.85	A	17 % [Leg WB]
Leg EB		0.4	1.4	4.13	0.28	A					1.8	3.1	8.30	0.64	A			
Leg NB		0.1	0.5	4.02	0.11	A					0.3	1.4	6.89	0.25	A			

#12 – Lantz Connector Rd / Exit 8A SB Ramps

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Geometry - 2023 Baseline																	
Leg WB		0.2	0.5	3.57	0.16	A			488 %		0.1	0.5	3.34	0.11	A			687 %
Leg SB	D1	0.1	0.5	3.47	0.05	A	3.55	A		D2	0.1	0.5	3.39	0.06	A	3.36	A	
Leg EB		0.0	~1	0.00	0.00	A			[Leg WB]		0.0	~1	0.00	0.00	A			[Leg SB]
	Existing Geometry - 2033 Total Opt 1																	
Leg WB		2.2	5.7	9.67	0.70	A			37 %		1.1	1.5	6.33	0.53	A			40 %
Leg SB	D3	0.3	1.4	6.39	0.24	A	8.88	A		D4	1.1	1.5	9.01	0.53	A	7.47	A	
Leg EB		0.1	0.5	7.05	0.06	A			[Leg WB]		0.1	0.5	6.93	0.10	A			[Leg SB]
	Existing Geometry - 2043 Total Opt 1																	
Leg WB		15.4	74.0	46.99	0.98	E			-3 %		3.5	16.7	13.49	0.79	B			-1 %
Leg SB	D5	0.7	2.4	10.64	0.40	B	36.00	E		D6	6.5	30.1	37.65	0.90	E	23.26	C	
Leg EB		0.4	1.6	15.03	0.31	C			[Leg WB]		0.8	2.7	17.30	0.45	C			[Leg SB]

#21 – Trunk 2 / Old Enfield Rd

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Future Geometry - 2033 Total Opt 1																	
Leg SB		0.8	1.5	3.70	0.45	A			72 %		0.5	1.9	3.28	0.32	A			51 %
Leg EB	D3	0.3	1.3	7.25	0.23	A	4.35	A		D4	0.2	0.5	5.46	0.18	A	4.49	A	
Leg NB		0.2	0.5	2.18	0.18	A			[Leg EB]		1.7	3.6	4.90	0.64	A			[Leg NB]
	Future Geometry - 2043 Total Opt 1																	
Leg SB		0.9	1.5	3.88	0.48	A			64 %		0.5	2.0	3.46	0.34	A			40 %
Leg EB	D5	0.3	1.5	7.70	0.26	A	4.63	A		D6	0.2	1.0	5.63	0.19	A	5.05	A	
Leg NB		0.2	0.5	2.23	0.20	A			[Leg EB]		2.2	5.1	5.73	0.69	A			[Leg NB]
	Future Geometry - 2053 Total Opt 2																	
Leg SB		1.1	1.5	4.30	0.52	A			56 %		0.6	1.9	4.24	0.39	A			16 %
Leg EB	D7	0.4	1.4	8.25	0.28	A	5.23	A		D8	0.3	1.2	5.84	0.21	A	8.34	A	
Leg NB		0.3	1.3	2.36	0.24	A			[Leg EB]		5.1	25.1	10.94	0.85	B			[Leg NB]

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Arcady_9_LantzTk2.j10
Path: C:\Users\copel\OneDrive\Desktop\GRIFFIN\Projects\2023\2323 - East Hants Traffic Study\Analysis\Opt 1 - Existing Roads\Arcady
Report generation date: 3/28/2024 10:28:26 AM

Summary of intersection performance

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Geometry - 2023 Baseline																	
Leg WB	D1	0.0	0.5	3.39	0.01	A	2.37	A	277 % [Leg SB]	D2	0.0	0.5	4.11	0.03	A	2.35	A	238 % [Leg WB]
Leg SB		0.3	1.3	2.66	0.24	A					0.2	0.5	2.43	0.17	A			
Leg EB		0.1	0.5	1.98	0.07	A					0.2	0.5	2.26	0.19	A			
Leg NB		0.1	0.5	1.92	0.09	A					0.2	0.5	2.20	0.15	A			
	Existing Geometry - 2033 Total Opt 1																	
Leg WB	D3	0.0	0.5	3.98	0.01	A	4.14	A	57 % [Leg SB]	D4	0.1	0.5	7.71	0.05	A	3.82	A	50 % [Leg WB]
Leg SB		1.6	2.8	5.27	0.61	A					0.8	1.5	3.65	0.43	A			
Leg EB		0.2	0.5	2.39	0.19	A					1.1	1.4	4.00	0.52	A			
Leg NB		0.2	0.5	2.20	0.16	A					0.5	1.9	3.50	0.32	A			
	Existing Geometry - 2043 Total Opt 1																	
Leg WB	D5	0.0	0.5	4.33	0.01	A	7.60	A	20 % [Leg SB]	D6	0.1	0.5	13.67	0.09	B	5.60	A	17 % [Leg WB]
Leg SB		4.1	18.4	10.48	0.81	B					1.3	1.9	4.85	0.57	A			
Leg EB		0.3	1.4	2.68	0.26	A					2.2	4.9	6.33	0.69	A			
Leg NB		0.2	0.5	2.36	0.18	A					0.8	1.5	4.93	0.45	A			

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

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

File summary

File Description

Title	East Hants Traffic Study
Location	MEH - Trunk 2
Site number	9
Date	3/25/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	SURFACEPRO7\copel
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Analysis Set Details

ID	Name	Description	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Existing Geometry	Two lane entries	✓	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2043 Total Opt 1	PM Vols	PHF	00:00	01:00	15	✓

Existing Geometry - 2043 Total Opt 1, PM Vols

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	Leg WB - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Leg SB - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Leg EB - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Leg NB - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
9	LantzConn&Tk2	Standard Roundabout		WB, SB, EB, NB	5.60	A

Intersection Network

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold	Network delay (s)	Network LOS
Right	Normal/unknown	17	Leg WB	5.60	A

Legs

Legs

Leg	Name	Description	No yield line
WB	ClayWB		
SB	Tk2SB		
EB	LantzEB		
NB	Tk2NB		

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
WB	3.50	4.00	30.0	30.0	50.0	20.0		
SB	3.50	7.00	30.0	30.0	50.0	20.0		
EB	7.00	7.00	0.0	30.0	50.0	20.0		
NB	7.00	7.00	0.0	30.0	50.0	20.0		

Unsignalled Pedestrian Crossing Crossings

Leg	Space between crossing and intersection entry (Unsignalled Pedestrian Crossing) (PCE)	Vehicles queueing on exit (Unsignalled Pedestrian Crossing) (PCE)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
WB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86
SB	1.00	1.00	✓	Distance	7.00	5.00	7.00	5.00
EB	1.00	1.00	✓	Distance	7.00	5.00	4.00	2.86
NB	1.00	1.00	✓	Distance	7.00	5.00	4.00	2.86

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Final slope	Final intercept (PCE/hr)
WB	0.541	1266
SB	0.666	1926
EB	0.723	2229
NB	0.723	2229

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

Traffic Demand

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

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
WB		PHF	✓	24	100.000
SB		PHF	✓	907	100.000
EB		PHF	✓	1178	100.000
NB		PHF	✓	547	100.000

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
WB	24	0.92	SecondQuarter
SB	907	0.92	SecondQuarter
EB	1178	0.92	SecondQuarter
NB	547	0.92	SecondQuarter

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB	[PHF]	0.00
SB	[PHF]	0.00
EB	[PHF]	0.00
NB	[PHF]	0.00

Peak Hour Factor Data (Pedestrians)

Leg	Hourly volume (Ped/hr)	Peak hour factor	Peak time segment
WB	0.00	1.00	SecondQuarter
SB	0.00	1.00	SecondQuarter
EB	0.00	1.00	SecondQuarter
NB	0.00	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To			
		WB	SB	EB	NB
From	WB	0	6	13	5
	SB	1	0	555	351
	EB	3	1017	0	158
	NB	2	412	133	0

Vehicle Mix

Truck Percentages

		To			
		WB	SB	EB	NB
From	WB	5	5	5	5
	SB	5	5	5	5
	EB	5	5	5	5
	NB	5	5	5	5

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Intersection Arrivals (Veh)
WB	0.09	13.67	0.1	0.5	B	24	24
SB	0.57	4.85	1.3	1.9	A	907	907
EB	0.69	6.33	2.2	4.9	A	1178	1178
NB	0.45	4.93	0.8	1.5	A	547	547

Main Results for each time segment

00:00 - 00:15

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	23	6	1464	0.00	413	0.055	22	6	0.0	0.1	9.205	A
SB	854	214	142	0.00	1740	0.491	851	1345	0.0	1.0	4.030	A
EB	1110	277	335	0.00	1881	0.590	1104	657	0.0	1.4	4.602	A
NB	515	129	957	0.00	1431	0.360	513	482	0.0	0.6	3.913	A

00:15 - 00:30

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	26	7	1694	0.00	289	0.090	26	7	0.1	0.1	13.673	B
SB	986	246	164	0.00	1725	0.571	984	1556	1.0	1.3	4.848	A
EB	1280	320	387	0.00	1843	0.695	1277	761	1.4	2.2	6.328	A
NB	595	149	1107	0.00	1322	0.450	594	558	0.6	0.8	4.932	A

00:30 - 00:45

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	25	6	1609	0.00	335	0.074	25	6	0.1	0.1	11.599	B
SB	933	233	156	0.00	1731	0.539	934	1478	1.3	1.2	4.519	A
EB	1212	303	368	0.00	1857	0.653	1213	722	2.2	1.9	5.606	A
NB	563	141	1052	0.00	1362	0.413	563	529	0.8	0.7	4.509	A

00:45 - 01:00

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	23	6	1474	0.00	408	0.055	23	6	0.1	0.1	9.337	A
SB	854	214	142	0.00	1740	0.491	855	1354	1.2	1.0	4.074	A
EB	1110	277	337	0.00	1880	0.590	1112	661	1.9	1.5	4.700	A
NB	515	129	963	0.00	1426	0.361	516	485	0.7	0.6	3.958	A

Queue Variation Results for each time segment

00:00 - 00:15

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.06	0.03	0.25	0.45	0.48			N/A	N/A
SB	0.96	0.09	0.90	1.55	1.89			N/A	N/A
EB	1.42	0.06	0.74	3.35	4.89			N/A	N/A
NB	0.56	0.08	0.79	1.36	1.43			N/A	N/A

00:15 - 00:30

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.10	0.03	0.26	0.47	0.50			N/A	N/A
SB	1.32	0.03	0.26	1.32	1.32			N/A	N/A
EB	2.23	0.03	0.27	2.23	2.23			N/A	N/A
NB	0.81	0.03	0.25	0.81	0.81			N/A	N/A

00:30 - 00:45

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.08	0.03	0.25	0.45	0.48			N/A	N/A
SB	1.18	0.03	0.26	1.18	1.18			N/A	N/A
EB	1.91	0.03	0.26	1.91	1.91			N/A	N/A
NB	0.71	0.03	0.27	0.71	1.08			N/A	N/A

00:45 - 01:00

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.06	0.00	0.00	0.06	0.06			N/A	N/A
SB	0.97	0.40	1.01	1.38	1.38			N/A	N/A
EB	1.46	0.10	1.14	2.81	3.74			N/A	N/A
NB	0.57	0.55	1.00	1.40	1.45			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.4.1693

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Filename: Arcady_10_LantzShawDr.j10
Path: C:\Users\copel\OneDrive\Desktop\GRIFFIN\Projects\2023\2323 - East Hants Traffic Study\Analysis\Opt 1 - Existing Roads\Arcady
Report generation date: 3/28/2024 10:31:01 AM

Summary of intersection performance

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Geometry - 2033 Total Opt 1																	
Leg WB	D3	1.3	1.5	5.45	0.56	A	4.08	A	41 % [Leg WB]	D4	0.5	2.1	3.33	0.35	A	4.64	A	47 % [Leg EB]
Leg EB		0.3	0.8	2.20	0.21	A					1.6	3.0	4.92	0.63	A			
Leg NB		0.3	1.0	2.99	0.21	A					0.6	2.1	5.77	0.36	A			
	Existing Geometry - 2043 Total Opt 1																	
Leg WB	D5	6.0	32.4	19.19	0.87	C	11.60	B	6 % [Leg WB]	D6	1.1	1.5	5.01	0.52	A	10.51	B	12 % [Leg EB]
Leg EB		0.4	1.5	2.40	0.27	A					5.6	29.6	12.67	0.86	B			
Leg NB		0.4	1.5	3.56	0.29	A					1.5	3.0	12.14	0.61	B			

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

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

File summary

File Description

Title	East Hants Traffic Study
Location	MEH - Trunk 2
Site number	10
Date	3/25/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	SURFACEPRO7\copel
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Analysis Set Details

ID	Name	Description	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Existing Geometry	Two lane entries	✓	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2043 Total Opt 1	PM Vols	PHF	00:00	01:00	15	✓

Existing Geometry - 2043 Total Opt 1, PM Vols

Data Errors and Warnings

Severity	Area	Item	Description
Last Run	Last Run	Leg WB - Capacity	Pedestrian Crossing causes blocking on previous leg due to traffic queing to leave the intersection in 4 timesegment(s).
Last Run	Last Run	Leg NB - Capacity	Pedestrian Crossing causes blocking on previous leg due to traffic queing to leave the intersection in 4 timesegment(s).
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
10	LantzConn&ShawDr	Standard Roundabout		WB, EB, NB	10.51	B

Intersection Network

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold	Network delay (s)	Network LOS
Right	Normal/unknown	12	Leg EB	10.51	B

Legs

Legs

Leg	Name	Description	No yield line
WB	LantzWB		
EB	LantzEB		
NB	ShawNB		

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
WB	7.00	7.00	0.0	30.0	50.0	20.0		
EB	7.00	7.00	0.0	30.0	50.0	20.0		
NB	3.50	7.00	30.0	30.0	50.0	20.0		

Unsignalled Pedestrian Crossing Crossings

Leg	Space between crossing and intersection entry (Unsignalled Pedestrian Crossing) (PCE)	Vehicles queueing on exit (Unsignalled Pedestrian Crossing) (PCE)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
WB	1.00	1.00	✓	Distance	7.00	5.00	4.00	2.86
EB	1.00	1.00	✓	Distance	7.00	5.00	4.00	2.86
NB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Final slope	Final intercept (PCE/hr)
WB	0.723	2229
EB	0.723	2229
NB	0.666	1926

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

Traffic Demand

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

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
WB		PHF	✓	702	100.000
EB		PHF	✓	1464	100.000
NB		PHF	✓	423	100.000

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
WB	702	0.92	SecondQuarter
EB	1464	0.92	SecondQuarter
NB	423	0.92	SecondQuarter

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB	[PHF]	5.00
EB	[PHF]	5.00
NB	[PHF]	5.00

Peak Hour Factor Data (Pedestrians)

Leg	Hourly volume (Ped/hr)	Peak hour factor	Peak time segment
WB	5.00	1.00	SecondQuarter
EB	5.00	1.00	SecondQuarter
NB	5.00	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To		
		WB	EB	NB
From	WB	0	549	153
	EB	1116	0	348
	NB	62	361	0

Vehicle Mix

Truck Percentages

		To		
		WB	EB	NB
From	WB	5	5	5
	EB	5	5	5
	NB	5	5	5

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Intersection Arrivals (Veh)
WB	0.52	5.01	1.1	1.5	A	702	702
EB	0.86	12.67	5.6	29.6	B	1464	1464
NB	0.61	12.14	1.5	3.0	B	423	423

Main Results for each time segment

00:00 - 00:15

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	661	165	337	5.00	1573	0.421	658	1101	0.0	0.7	3.926	A
EB	1379	345	144	5.00	1907	0.723	1369	852	0.0	2.5	6.568	A
NB	398	100	1044	5.00	881	0.453	395	469	0.0	0.8	7.369	A

00:15 - 00:30

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	763	191	390	5.00	1479	0.516	762	1271	0.7	1.1	5.012	A
EB	1591	398	166	5.00	1852	0.859	1579	986	2.5	5.6	12.672	B
NB	460	115	1204	5.00	751	0.613	457	541	0.8	1.5	12.142	B

00:30 - 00:45

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	722	181	372	5.00	1512	0.478	723	1216	1.1	0.9	4.569	A
EB	1506	377	158	5.00	1872	0.805	1511	938	5.6	4.3	10.141	B
NB	435	109	1152	5.00	792	0.550	436	517	1.5	1.2	10.170	B

00:45 - 01:00

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	661	165	341	5.00	1567	0.422	662	1115	0.9	0.7	3.983	A
EB	1379	345	144	5.00	1904	0.724	1386	859	4.3	2.7	7.026	A
NB	398	100	1056	5.00	870	0.458	400	474	1.2	0.9	7.685	A

Queue Variation Results for each time segment

00:00 - 00:15

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.72	0.10	0.85	1.39	1.45			N/A	N/A
EB	2.54	0.05	0.49	6.98	11.46			N/A	N/A
NB	0.81	0.09	0.86	1.41	1.41			N/A	N/A

00:15 - 00:30

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	1.05	0.03	0.26	1.05	1.05			N/A	N/A
EB	5.57	0.03	0.34	10.25	29.63			N/A	N/A
NB	1.53	0.03	0.27	1.53	3.05			N/A	N/A

00:30 - 00:45

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.92	0.03	0.26	0.92	0.92			N/A	N/A
EB	4.32	0.03	0.27	4.32	4.72			N/A	N/A
NB	1.25	0.03	0.27	1.25	1.42			N/A	N/A

00:45 - 01:00

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.74	0.48	0.97	1.39	1.45			N/A	N/A
EB	2.69	0.04	0.43	7.45	13.28			N/A	N/A
NB	0.86	0.07	0.79	1.40	1.82			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.4.1693

Filename: Arcady_11_LantzHwy102NB.j10
Path: C:\Users\copel\OneDrive\Desktop\GRIFFIN\Projects\2023\2323 - East Hants Traffic Study\Analysis\Opt 1 - Existing Roads\Arcady
Report generation date: 3/28/2024 10:33:23 AM

Summary of intersection performance

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Geometry - 2023 Baseline																	
Leg WB	D1	0.2	0.5	3.58	0.16	A	3.41	A	481 % [Leg WB]	D2	0.1	0.5	3.34	0.11	A	3.18	A	797 % [Leg WB]
Leg EB		0.1	0.5	3.14	0.05	A					0.1	0.5	3.18	0.06	A			
Leg NB		0.0	0.5	3.08	0.00	A					0.0	0.5	3.10	0.00	A			
	Existing Geometry - 2033 Total Opt 1																	
Leg WB	D3	2.2	5.5	9.83	0.69	A	7.77	A	36 % [Leg WB]	D4	1.0	1.5	6.41	0.51	A	5.28	A	78 % [Leg WB]
Leg EB		0.2	0.5	3.62	0.17	A					0.7	1.5	5.15	0.42	A			
Leg NB		0.0	0.5	3.46	0.04	A					0.1	0.5	4.42	0.07	A			
	Existing Geometry - 2043 Total Opt 1																	
Leg WB	D5	16.4	74.3	56.20	1.00	F	34.17	D	-5 % [Leg WB]	D6	3.1	15.0	14.80	0.77	B	9.85	A	17 % [Leg WB]
Leg EB		0.4	1.4	4.13	0.28	A					1.8	3.1	8.30	0.64	A			
Leg NB		0.1	0.5	4.02	0.11	A					0.3	1.4	6.89	0.25	A			

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

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

File summary

File Description

Title	East Hants Traffic Study
Location	MEH - Trunk 2
Site number	11
Date	3/25/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	SURFACEPRO7\copel
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Analysis Set Details

ID	Name	Description	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Existing Geometry	Single lane entries	✓	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2043 Total Opt 1	PM Vols	PHF	00:00	01:00	15	✓

Existing Geometry - 2043 Total Opt 1, PM Vols

Data Errors and Warnings

Severity	Area	Item	Description
Last Run	Last Run	Leg SB - Capacity	Pedestrian Crossing causes blocking on previous leg due to traffic queing to leave the intersection in 4 timesegment(s).
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
11	LantzConn&Hwy102NB	Standard Roundabout		WB, SB, EB, NB	9.85	A

Intersection Network

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold	Network delay (s)	Network LOS
Right	Normal/unknown	17	Leg WB	9.85	A

Legs

Legs

Leg	Name	Description	No yield line
WB	LantzWB		
SB	OnRampSB		
EB	LantzEB		
NB	OffRampNB		

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
WB	3.50	4.00	30.0	30.0	45.0	20.0		
SB								✓
EB	3.50	4.00	30.0	30.0	45.0	20.0		
NB	3.50	4.00	30.0	30.0	45.0	20.0	✓	

Bypass

Leg	Leg has bypass	Bypass utilisation (%)
WB	✓	100
SB		
EB		
NB	✓	100

Unsignalled Pedestrian Crossing Crossings

Leg	Space between crossing and intersection entry (Unsignalled Pedestrian Crossing) (PCE)	Vehicles queueing on exit (Unsignalled Pedestrian Crossing) (PCE)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
WB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86
SB		1.00	✓	Distance			4.00	2.86
EB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86
NB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Final slope	Final intercept (PCE/hr)
WB	0.558	1266
SB		
EB	0.558	1266
NB	0.558	1266

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

Traffic Demand

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

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
WB		PHF	✓	910	100.000
SB					
EB		PHF	✓	714	100.000
NB		PHF	✓	1148	100.000

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
WB	910	0.92	SecondQuarter
SB			
EB	714	0.92	SecondQuarter
NB	1148	0.92	SecondQuarter

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB	[PHF]	5.00
SB	[PHF]	5.00
EB	[PHF]	5.00
NB	[PHF]	5.00

Peak Hour Factor Data (Pedestrians)

Leg	Hourly volume (Ped/hr)	Peak hour factor	Peak time segment
WB	5.00	1.00	SecondQuarter
SB	5.00	1.00	SecondQuarter
EB	5.00	1.00	SecondQuarter
NB	5.00	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To			
		WB	SB	EB	NB
From	WB	0	197	713	0
	SB	0	0	0	0
	EB	560	154	0	0
	NB	985	2	161	0

Vehicle Mix

Truck Percentages

		To			
		WB	SB	EB	NB
From	WB	5	5	5	5
	SB	5	5	5	5
	EB	5	5	5	5
	NB	5	5	5	5

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Intersection Arrivals (Veh)
WB	0.77	14.80	3.1	15.0	B	910	713
SB							
EB	0.64	8.30	1.8	3.1	A	714	714
NB	0.25	6.89	0.3	1.4	A	1148	163

Main Results for each time segment

00:00 - 00:15

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	857	672	168	186	928	297	5.00	1035	0.649	664	524	0.0	1.8	9.536	A
SB						815	5.00				146				
EB	673	673	168	0	0	0	5.00	1205	0.558	668	815	0.0	1.2	6.634	A
NB	1081	154	38	928	0	668	5.00	774	0.198	153	0	0.0	0.2	5.772	A

00:15 - 00:30

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	989	775	194	214	1071	344	5.00	1007	0.769	770	607	1.8	3.1	14.803	B
SB						944	5.00				169				
EB	776	776	194	0	0	0	5.00	1205	0.644	774	944	1.2	1.8	8.303	A
NB	1248	177	44	1071	0	774	5.00	699	0.254	177	0	0.2	0.3	6.894	A

00:30 - 00:45

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	936	734	183	203	1014	326	5.00	1018	0.721	735	577	3.1	2.7	12.854	B
SB						901	5.00				161				
EB	735	735	184	0	0	0	5.00	1205	0.610	735	901	1.8	1.6	7.675	A
NB	1181	168	42	1014	0	735	5.00	726	0.231	168	0	0.3	0.3	6.451	A

00:45 - 01:00

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	857	672	168	186	928	299	5.00	1034	0.650	675	529	2.7	1.9	10.117	B
SB						827	5.00				147				
EB	673	673	168	0	0	0	5.00	1205	0.558	674	827	1.6	1.3	6.788	A
NB	1081	154	38	928	0	674	5.00	770	0.199	154	0	0.3	0.3	5.845	A

Queue Variation Results for each time segment

00:00 - 00:15

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	1.79	0.07	1.07	4.13	5.86			N/A	N/A
SB									
EB	1.24	0.09	1.02	2.28	2.96			N/A	N/A
NB	0.25	0.00	0.00	0.25	0.25			N/A	N/A

00:15 - 00:30

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	3.12	0.03	0.31	3.95	15.05			N/A	N/A
SB									
EB	1.76	0.03	0.27	1.76	2.07			N/A	N/A
NB	0.34	0.03	0.25	0.46	0.48			N/A	N/A

00:30 - 00:45

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	2.69	0.03	0.27	2.69	2.85			N/A	N/A
SB									
EB	1.59	0.03	0.26	1.59	1.59			N/A	N/A
NB	0.30	0.03	0.31	1.08	1.44			N/A	N/A

00:45 - 01:00

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	1.91	0.05	0.46	5.12	8.43			N/A	N/A
SB									
EB	1.28	0.09	1.04	2.42	3.14			N/A	N/A
NB	0.25	0.00	0.00	0.25	0.25			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.4.1693

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Filename: Arcady_12_LantzHwy102SB.j10
Path: C:\Users\copel\OneDrive\Desktop\GRIFFIN\Projects\2023\2323 - East Hants Traffic Study\Analysis\Opt 1 - Existing Roads\Arcady
Report generation date: 3/28/2024 10:39:03 AM

«Existing Geometry - 2043 Total Opt 1, PM Vols

Summary of intersection performance

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Geometry - 2023 Baseline																	
Leg WB	D1	0.2	0.5	3.57	0.16	A	3.55	A	488 % [Leg WB]	D2	0.1	0.5	3.34	0.11	A	3.36	A	687 % [Leg SB]
Leg SB		0.1	0.5	3.47	0.05	A					0.1	0.5	3.39	0.06	A			
Leg EB		0.0	~1	0.00	0.00	A					0.0	~1	0.00	0.00	A			
	Existing Geometry - 2033 Total Opt 1																	
Leg WB	D3	2.2	5.7	9.67	0.70	A	8.88	A	37 % [Leg WB]	D4	1.1	1.5	6.33	0.53	A	7.47	A	40 % [Leg SB]
Leg SB		0.3	1.4	6.39	0.24	A					1.1	1.5	9.01	0.53	A			
Leg EB		0.1	0.5	7.05	0.06	A					0.1	0.5	6.93	0.10	A			
	Existing Geometry - 2043 Total Opt 1																	
Leg WB	D5	15.4	74.0	46.99	0.98	E	36.00	E	-3 % [Leg WB]	D6	3.5	16.7	13.49	0.79	B	23.26	C	-1 % [Leg SB]
Leg SB		0.7	2.4	10.64	0.40	B					6.5	30.1	37.65	0.90	E			
Leg EB		0.4	1.6	15.03	0.31	C					0.8	2.7	17.30	0.45	C			

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

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

File summary

File Description

Title	East Milford TIS
Location	MEH - Trunk 2
Site number	2
Date	4/25/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	SURFACEPRO7\copel
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Analysis Set Details

ID	Name	Description	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Existing Geometry	Single lane entries	✓	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2043 Total Opt 1	PM Vols	PHF	00:00	01:00	15	✓

Existing Geometry - 2043 Total Opt 1, PM Vols

Data Errors and Warnings

Severity	Area	Item	Description
Last Run	Last Run	Leg EB - Capacity	Pedestrian Crossing causes blocking on previous leg due to traffic queing to leave the intersection in 4 timesegment(s).
Last Run	Last Run	Leg NB - Capacity	Pedestrian Crossing causes blocking on previous leg due to traffic queing to leave the intersection in 4 timesegment(s).
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
12	LantzConn&Hwy102SB	Standard Roundabout		WB, SB, EB, NB	23.26	C

Intersection Network

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold	Network delay (s)	Network LOS
Right	Normal/unknown	-1	Leg SB	23.26	C

Legs

Legs

Leg	Name	Description	No yield line
WB	LantzWB		
SB	OffRampSB		
EB	LantzEB		
NB	OnRampSB		

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
WB	3.50	4.00	30.0	30.0	45.0	20.0		
SB	3.50	4.00	30.0	30.0	45.0	20.0	✓	
EB	3.50	4.00	30.0	30.0	45.0	20.0		
NB								✓

Bypass

Leg	Leg has bypass	Bypass utilisation (%)
WB		
SB	✓	100
EB	✓	100
NB		

Unsignalled Pedestrian Crossing Crossings

Leg	Space between crossing and intersection entry (Unsignalled Pedestrian Crossing) (PCE)	Vehicles queueing on exit (Unsignalled Pedestrian Crossing) (PCE)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
WB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86
SB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86
EB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86
NB		1.00	✓	Distance			4.00	2.86

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Final slope	Final intercept (PCE/hr)
WB	0.558	1266
SB	0.558	1266
EB	0.558	1266
NB		

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

Traffic Demand

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

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
WB		PHF	✓	874	100.000
SB		PHF	✓	721	100.000
EB		PHF	✓	309	100.000
NB					

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
WB	874	0.92	SecondQuarter
SB	721	0.92	SecondQuarter
EB	309	0.92	SecondQuarter
NB			

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB	[PHF]	5.00
SB	[PHF]	5.00
EB	[PHF]	5.00
NB	[PHF]	5.00

Peak Hour Factor Data (Pedestrians)

Leg	Hourly volume (Ped/hr)	Peak hour factor	Peak time segment
WB	5.00	1.00	SecondQuarter
SB	5.00	1.00	SecondQuarter
EB	5.00	1.00	SecondQuarter
NB	5.00	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To			
		WB	SB	EB	NB
From	WB	0	0	160	714
	SB	560	0	161	0
	EB	154	0	0	155
	NB	0	0	0	0

Vehicle Mix

Truck Percentages

		To			
		WB	SB	EB	NB
From	WB	5	5	5	5
	SB	5	5	5	5
	EB	5	5	5	5
	NB	5	5	5	5

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Intersection Arrivals (Veh)
WB	0.79	13.49	3.5	16.7	B	874	874
SB	0.90	37.65	6.5	30.1	E	721	560
EB	0.45	17.30	0.8	2.7	C	309	154
NB							

Main Results for each time segment

00:00 - 00:15

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	823	823	206	0	0	0	5.00	1205	0.683	815	662	0.0	2.1	9.039	A
SB	679	528	132	152	0	815	5.00	747	0.706	518	0	0.0	2.3	15.201	C
EB	291	145	36	146	152	1184	5.00	480	0.302	143	149	0.0	0.4	10.636	B
NB						662	5.00				666				

00:15 - 00:30

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	950	950	238	0	0	0	5.00	1205	0.788	944	758	2.1	3.5	13.491	B
SB	784	609	152	175	0	944	5.00	674	0.903	592	0	2.3	6.5	37.651	E
EB	336	167	42	168	175	1363	5.00	372	0.450	166	173	0.4	0.8	17.305	C
NB						758	5.00				772				

00:30 - 00:45

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	899	899	225	0	0	0	5.00	1205	0.746	901	740	3.5	3.1	11.919	B
SB	742	576	144	166	0	901	5.00	699	0.825	581	0	6.5	5.3	32.119	D
EB	318	158	40	159	166	1317	5.00	401	0.395	159	165	0.8	0.7	14.893	B
NB						740	5.00				736				

00:45 - 01:00

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	823	823	206	0	0	0	5.00	1205	0.683	827	684	3.1	2.2	9.593	A
SB	679	528	132	152	0	827	5.00	741	0.712	538	0	5.3	2.6	18.621	C
EB	291	145	36	146	152	1214	5.00	464	0.313	146	151	0.7	0.5	11.354	B
NB						684	5.00				675				

Queue Variation Results for each time segment

00:00 - 00:15

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	2.09	0.07	1.06	5.12	7.46			N/A	N/A
SB	2.27	0.07	1.11	5.66	8.21			N/A	N/A
EB	0.43	0.00	0.00	0.43	0.43			N/A	N/A
NB									

00:15 - 00:30

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	3.49	0.03	0.31	4.30	16.70			N/A	N/A
SB	6.51	0.06	1.27	18.73	30.12			N/A	N/A
EB	0.79	0.03	0.26	0.79	0.79			N/A	N/A
NB									

00:30 - 00:45

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	3.06	0.03	0.27	3.06	3.06			N/A	N/A
SB	5.29	0.03	0.33	9.52	27.97			N/A	N/A
EB	0.67	0.03	0.28	0.91	2.68			N/A	N/A
NB									

00:45 - 01:00

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	2.22	0.05	0.45	6.07	10.20			N/A	N/A
SB	2.62	0.03	0.35	5.98	14.00			N/A	N/A
EB	0.46	0.04	0.40	1.23	1.36			N/A	N/A
NB									

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.4.1693

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Filename: Arcady_21_Trunk2OldEnfield.j10
Path: C:\Users\copel\OneDrive\Desktop\GRIFFIN\Projects\2023\2323 - East Hants Traffic Study\Analysis\Opt 1 - Existing Roads\Arcady
Report generation date: 3/28/2024 10:41:41 AM

Summary of intersection performance

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Future Geometry - 2033 Total Opt 1																	
Leg SB	D3	0.8	1.5	3.70	0.45	A	4.35	A	72 % [Leg EB]	D4	0.5	1.9	3.28	0.32	A	4.49	A	51 % [Leg NB]
Leg EB		0.3	1.3	7.25	0.23	A					0.2	0.5	5.46	0.18	A			
Leg NB		0.2	0.5	2.18	0.18	A					1.7	3.6	4.90	0.64	A			
	Future Geometry - 2043 Total Opt 1																	
Leg SB	D5	0.9	1.5	3.88	0.48	A	4.63	A	64 % [Leg EB]	D6	0.5	2.0	3.46	0.34	A	5.05	A	40 % [Leg NB]
Leg EB		0.3	1.5	7.70	0.26	A					0.2	1.0	5.63	0.19	A			
Leg NB		0.2	0.5	2.23	0.20	A					2.2	5.1	5.73	0.69	A			
	Future Geometry - 2053 Total Opt 2																	
Leg SB	D7	1.1	1.5	4.30	0.52	A	5.23	A	56 % [Leg EB]	D8	0.6	1.9	4.24	0.39	A	8.34	A	16 % [Leg NB]
Leg EB		0.4	1.4	8.25	0.28	A					0.3	1.2	5.84	0.21	A			
Leg NB		0.3	1.3	2.36	0.24	A					5.1	25.1	10.94	0.85	B			

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

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

File summary

File Description

Title	East Hants Traffic Study
Location	MEH - Trunk 2
Site number	21
Date	3/25/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	SURFACEPRO7\copel
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Analysis Set Details

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

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2043 Total Opt 1	PM Vols	PHF	16:00	17:00	15	✓

Future Geometry - 2043 Total Opt 1, PM Vols

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	Leg SB - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Leg EB - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Leg NB - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
21	Trunk2OldEnfieldRd	Standard Roundabout		SB, EB, NB	5.05	A

Intersection Network

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold	Network delay (s)	Network LOS
Right	Normal/unknown	40	Leg NB	5.05	A

Legs

Legs

Leg	Name	Description	No yield line
SB	Tk2SB		
EB	OldEnfldEB		
NB	Tk2NB		

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
SB	3.50	7.00	30.0	30.0	50.0	20.0		
EB	3.50	3.50	0.0	30.0	50.0	20.0		
NB	7.00	7.00	0.0	30.0	50.0	20.0		

Bypass

Leg	Leg has bypass	Bypass utilisation (%)
SB	✓	100
EB	✓	100
NB		

Unsignalled Pedestrian Crossing Crossings

Leg	Space between crossing and intersection entry (Unsignalled Pedestrian Crossing) (PCE)	Vehicles queueing on exit (Unsignalled Pedestrian Crossing) (PCE)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
SB	1.00	1.00	✓	Distance	7.00	5.00	4.00	2.86
EB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86
NB	1.00	1.00	✓	Distance	7.00	5.00	4.00	2.86

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Final slope	Final intercept (PCE/hr)
SB	0.666	1926
EB	0.512	1115
NB	0.723	2229

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

Traffic Demand

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

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
SB		PHF	✓	668	100.000
EB		PHF	✓	321	100.000
NB		PHF	✓	1280	100.000

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
SB	668	0.92	SecondQuarter
EB	321	0.92	SecondQuarter
NB	1280	0.92	SecondQuarter

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
SB	[PHF]	1.00
EB	[PHF]	1.00
NB	[PHF]	1.00

Peak Hour Factor Data (Pedestrians)

Leg	Hourly volume (Ped/hr)	Peak hour factor	Peak time segment
SB	1.00	1.00	SecondQuarter
EB	1.00	1.00	SecondQuarter
NB	1.00	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To		
		SB	EB	NB
From	SB	0	183	485
	EB	140	0	181
	NB	908	372	0

Vehicle Mix

Truck Percentages

		To		
		SB	EB	NB
From	SB	5	5	5
	EB	5	5	5
	NB	5	5	5

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Intersection Arrivals (Veh)
SB	0.34	3.46	0.5	2.0	A	668	485
EB	0.19	5.63	0.2	1.0	A	321	140
NB	0.69	5.73	2.2	5.1	A	1280	1280

Main Results for each time segment

16:00 - 16:15

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
SB	629	457	114	172	0	349	0.00	1602	0.285	455	982	0.0	0.4	3.135	A
EB	302	132	33	171	172	455	0.00	828	0.159	131	349	0.0	0.2	5.159	A
NB	1206	1206	301	0	171	131	0.00	2028	0.595	1200	455	0.0	1.4	4.317	A

16:15 - 16:30

Leg	Total Demand	Intersection demand	Intersection Arrivals	Bypass demand	Bypass exit flow	Circulating flow	Pedestrian demand	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side)	Start queue	End queue	Delay (s)	Unsignalised level of

	(Veh/hr)	(Veh/hr)	(Veh)	(Veh/hr)	(Veh/hr)	(Veh/hr)	(Ped/hr)				(Veh/hr)	(Veh)	(Veh)		service
SB	726	527	132	199	0	403	0.00	1566	0.337	527	1137	0.4	0.5	3.462	A
EB	349	152	38	197	199	527	0.00	792	0.192	152	403	0.2	0.2	5.627	A
NB	1391	1391	348	0	197	152	0.00	2013	0.691	1388	527	1.4	2.2	5.734	A

16:30 - 16:45

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
SB	687	499	125	188	0	383	0.00	1579	0.316	499	1079	0.5	0.5	3.332	A
EB	330	144	36	186	188	499	0.00	806	0.179	144	383	0.2	0.2	5.443	A
NB	1317	1317	329	0	186	144	0.00	2019	0.652	1318	499	2.2	1.9	5.150	A

16:45 - 17:00

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
SB	629	457	114	172	0	351	0.00	1601	0.285	457	989	0.5	0.4	3.150	A
EB	302	132	33	171	172	457	0.00	827	0.159	132	351	0.2	0.2	5.180	A
NB	1206	1206	301	0	171	132	0.00	2028	0.595	1207	457	1.9	1.5	4.398	A

Queue Variation Results for each time segment

16:00 - 16:15

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
SB	0.40	0.00	0.00	0.40	0.40			N/A	N/A
EB	0.19	0.00	0.00	0.19	0.19			N/A	N/A
NB	1.45	0.06	0.71	3.48	5.08			N/A	N/A

16:15 - 16:30

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
SB	0.50	0.03	0.25	0.50	0.50			N/A	N/A
EB	0.24	0.03	0.25	0.46	0.48			N/A	N/A
NB	2.19	0.03	0.27	2.19	2.19			N/A	N/A

16:30 - 16:45

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
SB	0.46	0.03	0.29	1.11	2.03			N/A	N/A
EB	0.22	0.03	0.28	0.52	1.02			N/A	N/A
NB	1.91	0.03	0.26	1.91	1.91			N/A	N/A

16:45 - 17:00

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
SB	0.40	0.00	0.00	0.40	0.40			N/A	N/A
EB	0.19	0.00	0.00	0.19	0.19			N/A	N/A
NB	1.48	0.11	1.19	2.78	3.65			N/A	N/A

ROAD NETWORK – OPTION 2 Roundabouts

#9 – Trunk 2 / Lantz Connector Rd

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Geometry - 2043 Total Opt 2																	
Leg WB	D5	0.0	0.5	3.92	0.01	A	4.01	A	60 % [Leg SB]	D6	0.1	0.5	7.70	0.05	A	3.72	A	50 % [Leg WB]
Leg SB		1.5	2.5	5.07	0.60	A					0.7	1.5	3.57	0.42	A			
Leg EB		0.2	0.5	2.40	0.17	A					0.9	1.5	3.81	0.49	A			
Leg NB		0.2	0.5	2.19	0.17	A					0.6	2.0	3.59	0.37	A			
	Existing Geometry - 2053 Total Opt 2																	
Leg WB	D7	0.0	0.5	4.14	0.01	A	6.11	A	29 % [Leg SB]	D8	0.1	0.5	11.47	0.08	B	4.64	A	24 % [Leg WB]
Leg SB		3.0	8.2	8.18	0.75	A					1.0	1.5	4.19	0.50	A			
Leg EB		0.2	0.5	2.59	0.20	A					1.4	2.2	4.79	0.59	A			
Leg NB		0.3	0.8	2.31	0.20	A					0.9	1.5	4.71	0.48	A			

#10 – Lantz Connector Rd / Shaw Dr

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Geometry - 2043 Total Opt 2																	
Leg WB	D5	1.0	1.4	4.97	0.50	A	3.75	A	48 % [Leg WB]	D6	0.4	1.8	3.26	0.31	A	5.14	A	37 % [Leg EB]
Leg EB		0.2	0.5	2.17	0.19	A					1.9	3.7	5.59	0.65	A			
Leg NB		0.4	1.5	3.11	0.26	A					0.8	1.6	6.00	0.43	A			
	Existing Geometry - 2053 Total Opt 2																	
Leg WB	D7	1.9	2.9	7.53	0.66	A	5.20	A	26 % [Leg WB]	D8	0.6	2.1	3.60	0.36	A	6.77	A	24 % [Leg EB]
Leg EB		0.3	0.9	2.23	0.21	A					2.9	6.9	7.62	0.75	A			
Leg NB		0.4	1.1	3.19	0.27	A					1.1	1.4	8.10	0.52	A			

#11 – Lantz Connector Rd / Exit 8A NB Ramps

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Geometry - 2043 Total Opt 2																	
Leg WB	D5	2.6	9.8	11.91	0.73	B	8.85	A	26 % [Leg WB]	D6	1.3	1.7	8.17	0.57	A	6.56	A	48 % [Leg WB]
Leg EB		0.3	1.3	3.89	0.23	A					1.1	1.5	6.17	0.52	A			
Leg NB		0.1	0.5	3.87	0.11	A					0.3	1.2	5.65	0.22	A			
	Existing Geometry - 2053 Total Opt 2																	
Leg WB	D7	4.7	25.8	19.06	0.84	C	13.69	B	11 % [Leg WB]	D8	1.6	2.5	9.21	0.62	A	7.28	A	39 % [Leg WB]
Leg EB		0.3	1.3	3.89	0.23	A					1.3	1.8	6.95	0.57	A			
Leg NB		0.1	0.5	3.87	0.11	A					0.3	1.3	6.13	0.23	A			

#12 – Lantz Connector Rd / Exit 8A SB Ramps

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Geometry - 2043 Total Opt 2																	
Leg WB		2.8	10.6	11.32	0.74	B			29 %		1.6	2.5	7.75	0.62	A			29 %
Leg SB	D5	0.3	1.3	6.64	0.23	A	9.86	A		D6	1.3	1.8	10.80	0.58	B	9.06	A	
Leg EB		0.2	0.9	7.84	0.19	A			[Leg WB]		0.4	1.4	8.69	0.29	A			[Leg SB]
	Existing Geometry - 2053 Total Opt 2																	
Leg WB		4.9	26.8	17.64	0.85	C			13 %		1.9	3.7	8.69	0.66	A			16 %
Leg SB	D7	0.4	1.2	7.73	0.27	A	14.70	B		D8	2.1	8.6	14.86	0.69	B	11.36	B	
Leg EB		0.3	1.3	9.93	0.23	A			[Leg WB]		0.5	1.8	10.40	0.33	B			[Leg SB]

#22 – Trunk 2 / New North Connector Rd

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Future Geometry - 2053 Total Opt 2																	
Leg SB		0.4	1.5	7.33	0.29	A			18 %		0.4	1.7	6.18	0.30	A			24 %
Leg EB	D7	0.0	0.5	3.73	0.01	A	12.56	B		D8	0.0	0.5	4.03	0.03	A	8.52	A	
Leg NB		3.6	18.7	16.01	0.80	C			[Leg NB]		2.7	11.3	13.14	0.74	B			[Leg NB]

#23 – New North Connector Rd / New I/C NB Ramps

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Future Geometry - 2053 Total Opt 2																	
Leg WB		0.6	1.7	4.93	0.39	A			142 %		0.3	1.4	3.97	0.25	A			287 %
Leg EB	D5	0.0	0.5	3.11	0.04	A	4.46	A		D6	0.1	0.5	3.40	0.12	A	3.53	A	
Leg NB		0.0	0.5	3.06	0.00	A			[Leg WB]		0.0	0.5	3.22	0.00	A			[Leg WB]

#24 – New North Connector Rd / New I/C SB Ramps

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Geometry - 2053 Total Opt 2																	
Leg WB	D5	0.6	1.8	4.92	0.39	A	4.86	A	143 %	D6	0.3	1.4	3.96	0.25	A	4.02	A	208 %
Leg SB		0.1	0.5	4.29	0.06	A			[Leg WB]		0.2	0.5	4.13	0.14	A			[Leg SB]

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Arcady_9_LantzTk2_Opt2.j10
Path: C:\Users\copel\OneDrive\Desktop\GRIFFIN\Projects\2023\2323 - East Hants Traffic Study\Analysis\Opt 2 - North IC\Arcady
Report generation date: 3/28/2024 9:16:44 AM

Summary of intersection performance

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Geometry - 2043 Total Opt 2																	
Leg WB	D5	0.0	0.5	3.92	0.01	A	4.01	A	60 % [Leg SB]	D6	0.1	0.5	7.70	0.05	A	3.72	A	50 % [Leg WB]
Leg SB		1.5	2.5	5.07	0.60	A					0.7	1.5	3.57	0.42	A			
Leg EB		0.2	0.5	2.40	0.17	A					0.9	1.5	3.81	0.49	A			
Leg NB		0.2	0.5	2.19	0.17	A					0.6	2.0	3.59	0.37	A			
	Existing Geometry - 2053 Total Opt 2																	
Leg WB	D7	0.0	0.5	4.14	0.01	A	6.11	A	29 % [Leg SB]	D8	0.1	0.5	11.47	0.08	B	4.64	A	24 % [Leg WB]
Leg SB		3.0	8.2	8.18	0.75	A					1.0	1.5	4.19	0.50	A			
Leg EB		0.2	0.5	2.59	0.20	A					1.4	2.2	4.79	0.59	A			
Leg NB		0.3	0.8	2.31	0.20	A					0.9	1.5	4.71	0.48	A			

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

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

File summary

File Description

Title	East Hants Traffic Study
Location	MEH - Trunk 2
Site number	9
Date	3/25/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	SURFACEPRO7\copel
Description	Option 2

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Analysis Set Details

ID	Name	Description	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Existing Geometry	Two lane entries	✓	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2053 Total Opt 2	PM Vols	full build-out	PHF	00:00	01:00	15	✓

Existing Geometry - 2053 Total Opt 2, PM Vols

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	Leg WB - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Leg SB - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Leg EB - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Pedestrian Crossing	Leg NB - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
9	LantzConn&Tk2_Opt2	Standard Roundabout		WB, SB, EB, NB	4.64	A

Intersection Network

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold	Network delay (s)	Network LOS
Right	Normal/unknown	24	Leg WB	4.64	A

Legs

Legs

Leg	Name	Description	No yield line
WB	ClayWB		
SB	Tk2SB		
EB	LantzEB		
NB	Tk2NB		

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
WB	3.50	4.00	30.0	30.0	50.0	20.0		
SB	3.50	7.00	30.0	30.0	50.0	20.0		
EB	7.00	7.00	0.0	30.0	50.0	20.0		
NB	7.00	7.00	0.0	30.0	50.0	20.0		

Unsignalled Pedestrian Crossing Crossings

Leg	Space between crossing and intersection entry (Unsignalled Pedestrian Crossing) (PCE)	Vehicles queueing on exit (Unsignalled Pedestrian Crossing) (PCE)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
WB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86
SB	1.00	1.00	✓	Distance	7.00	5.00	7.00	5.00
EB	1.00	1.00	✓	Distance	7.00	5.00	4.00	2.86
NB	1.00	1.00	✓	Distance	7.00	5.00	4.00	2.86

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Final slope	Final intercept (PCE/hr)
WB	0.541	1266
SB	0.666	1926
EB	0.723	2229
NB	0.723	2229

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

Traffic Demand

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

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
WB		PHF	✓	24	100.000
SB		PHF	✓	794	100.000
EB		PHF	✓	993	100.000
NB		PHF	✓	656	100.000

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
WB	24	0.92	SecondQuarter
SB	794	0.92	SecondQuarter
EB	993	0.92	SecondQuarter
NB	656	0.92	SecondQuarter

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB	[PHF]	0.00
SB	[PHF]	0.00
EB	[PHF]	0.00
NB	[PHF]	0.00

Peak Hour Factor Data (Pedestrians)

Leg	Hourly volume (Ped/hr)	Peak hour factor	Peak time segment
WB	0.00	1.00	SecondQuarter
SB	0.00	1.00	SecondQuarter
EB	0.00	1.00	SecondQuarter
NB	0.00	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To			
		WB	SB	EB	NB
From	WB	0	6	13	5
	SB	1	0	423	370
	EB	3	821	0	169
	NB	2	514	140	0

Vehicle Mix

Truck Percentages

		To			
		WB	SB	EB	NB
From	WB	5	5	5	5
	SB	5	5	5	5
	EB	5	5	5	5
	NB	5	5	5	5

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Intersection Arrivals (Veh)
WB	0.08	11.47	0.1	0.5	B	24	24
SB	0.50	4.19	1.0	1.5	A	794	794
EB	0.59	4.79	1.4	2.2	A	993	993
NB	0.48	4.71	0.9	1.5	A	656	656

Main Results for each time segment

00:00 - 00:15

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	23	6	1384	0.00	457	0.049	22	6	0.0	0.1	8.281	A
SB	748	187	148	0.00	1736	0.431	745	1258	0.0	0.8	3.623	A
EB	935	234	353	0.00	1868	0.501	931	540	0.0	1.0	3.828	A
NB	618	154	774	0.00	1563	0.395	615	510	0.0	0.6	3.789	A

00:15 - 00:30

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	26	7	1601	0.00	340	0.077	26	7	0.1	0.1	11.472	B
SB	863	216	171	0.00	1720	0.502	862	1455	0.8	1.0	4.190	A
EB	1079	270	408	0.00	1828	0.591	1078	625	1.0	1.4	4.789	A
NB	713	178	895	0.00	1475	0.483	712	591	0.6	0.9	4.708	A

00:30 - 00:45

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	25	6	1519	0.00	384	0.064	25	6	0.1	0.1	10.027	B
SB	817	204	163	0.00	1726	0.473	817	1381	1.0	0.9	3.964	A
EB	1022	255	387	0.00	1843	0.554	1022	593	1.4	1.3	4.392	A
NB	675	169	849	0.00	1509	0.447	675	560	0.9	0.8	4.324	A

00:45 - 01:00

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	23	6	1391	0.00	453	0.050	23	6	0.1	0.1	8.367	A
SB	748	187	149	0.00	1735	0.431	749	1265	0.9	0.8	3.649	A
EB	935	234	354	0.00	1867	0.501	936	543	1.3	1.0	3.874	A
NB	618	154	778	0.00	1560	0.396	619	513	0.8	0.7	3.827	A

Queue Variation Results for each time segment

00:00 - 00:15

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.05	0.03	0.25	0.45	0.48			N/A	N/A
SB	0.75	0.12	0.88	1.40	1.46			N/A	N/A
EB	0.99	0.08	0.88	1.73	2.20			N/A	N/A
NB	0.65	0.11	0.85	1.37	1.44			N/A	N/A

00:15 - 00:30

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.08	0.03	0.26	0.47	0.50			N/A	N/A
SB	1.00	0.03	0.26	1.00	1.00			N/A	N/A
EB	1.42	0.03	0.26	1.42	1.42			N/A	N/A
NB	0.93	0.03	0.26	0.93	0.93			N/A	N/A

00:30 - 00:45

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.07	0.03	0.25	0.45	0.48			N/A	N/A
SB	0.91	0.03	0.26	0.91	0.91			N/A	N/A
EB	1.26	0.03	0.26	1.26	1.26			N/A	N/A
NB	0.82	0.03	0.27	0.82	0.96			N/A	N/A

00:45 - 01:00

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.05	0.00	0.00	0.05	0.05			N/A	N/A
SB	0.76	0.55	1.00	1.40	1.45			N/A	N/A
EB	1.01	0.35	1.03	1.15	1.59			N/A	N/A
NB	0.66	0.55	1.00	1.40	1.45			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Arcady_10_LantzShawDr_Opt2.j10
Path: C:\Users\copel\OneDrive\Desktop\GRIFFIN\Projects\2023\2323 - East Hants Traffic Study\Analysis\Opt 2 - North IC\Arcady
Report generation date: 3/28/2024 9:19:15 AM

Summary of intersection performance

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Geometry - 2043 Total Opt 2																	
Leg WB		1.0	1.4	4.97	0.50	A			48 %		0.4	1.8	3.26	0.31	A			37 %
Leg EB	D5	0.2	0.5	2.17	0.19	A	3.75	A		D6	1.9	3.7	5.59	0.65	A	5.14	A	
Leg NB		0.4	1.5	3.11	0.26	A			[Leg WB]		0.8	1.6	6.00	0.43	A			[Leg EB]
	Existing Geometry - 2053 Total Opt 2																	
Leg WB		1.9	2.9	7.53	0.66	A			26 %		0.6	2.1	3.60	0.36	A			24 %
Leg EB	D7	0.3	0.9	2.23	0.21	A	5.20	A		D8	2.9	6.9	7.62	0.75	A	6.77	A	
Leg NB		0.4	1.1	3.19	0.27	A			[Leg WB]		1.1	1.4	8.10	0.52	A			[Leg EB]

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

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

File summary

File Description

Title	East Hants Traffic Study
Location	MEH - Trunk 2
Site number	10
Date	3/25/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	SURFACEPRO7\copel
Description	Option 2

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Analysis Set Details

ID	Name	Description	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Existing Geometry	Two lane entries	✓	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2053 Total Opt 2	PM Vols	full build-out	PHF	00:00	01:00	15	✓

Existing Geometry - 2053 Total Opt 2, PM Vols

Data Errors and Warnings

Severity	Area	Item	Description
Last Run	Last Run	Leg WB - Capacity	Pedestrian Crossing causes blocking on previous leg due to traffic queing to leave the intersection in 4 timesegment(s).
Last Run	Last Run	Leg NB - Capacity	Pedestrian Crossing causes blocking on previous leg due to traffic queing to leave the intersection in 4 timesegment(s).
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
10	LantzConn&ShawDr	Standard Roundabout		WB, EB, NB	6.77	A

Intersection Network

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold	Network delay (s)	Network LOS
Right	Normal/unknown	24	Leg EB	6.77	A

Legs

Legs

Leg	Name	Description	No yield line
WB	LantzWB		
EB	LantzEB		
NB	ShawNB		

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
WB	7.00	7.00	0.0	30.0	50.0	20.0		
EB	7.00	7.00	0.0	30.0	50.0	20.0		
NB	3.50	7.00	30.0	30.0	50.0	20.0		

Unsignalled Pedestrian Crossing Crossings

Leg	Space between crossing and intersection entry (Unsignalled Pedestrian Crossing) (PCE)	Vehicles queueing on exit (Unsignalled Pedestrian Crossing) (PCE)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
WB	1.00	1.00	✓	Distance	7.00	5.00	4.00	2.86
EB	1.00	1.00	✓	Distance	7.00	5.00	4.00	2.86
NB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Final slope	Final intercept (PCE/hr)
WB	0.723	2229
EB	0.723	2229
NB	0.666	1926

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

Traffic Demand

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

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
WB		PHF	✓	524	100.000
EB		PHF	✓	1268	100.000

NB		PHF	✓	434	100.000

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
WB	524	0.92	SecondQuarter
EB	1268	0.92	SecondQuarter
NB	434	0.92	SecondQuarter

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB	[PHF]	5.00
EB	[PHF]	5.00
NB	[PHF]	5.00

Peak Hour Factor Data (Pedestrians)

Leg	Hourly volume (Ped/hr)	Peak hour factor	Peak time segment
WB	5.00	1.00	SecondQuarter
EB	5.00	1.00	SecondQuarter
NB	5.00	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To		
		WB	EB	NB
From	WB	0	364	160
	EB	920	0	348
	NB	73	361	0

Vehicle Mix

Truck Percentages

		To		
		WB	EB	NB
From	WB	5	5	5
	EB	5	5	5
	NB	5	5	5

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Intersection Arrivals (Veh)
WB	0.36	3.60	0.6	2.1	A	524	524
EB	0.75	7.62	2.9	6.9	A	1268	1268
NB	0.52	8.10	1.1	1.4	A	434	434

Main Results for each time segment

00:00 - 00:15

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	494	123	338	5.00	1650	0.299	492	930	0.0	0.4	3.105	A
EB	1194	299	150	5.00	1899	0.629	1188	680	0.0	1.7	5.017	A
NB	409	102	862	5.00	1030	0.397	406	476	0.0	0.7	5.744	A

00:15 - 00:30

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	570	142	391	5.00	1570	0.363	569	1076	0.4	0.6	3.595	A
EB	1378	345	174	5.00	1841	0.749	1373	786	1.7	2.9	7.621	A

NB	472	118	996	5.00	913	0.517	470	551	0.7	1.1	8.101	A

00:30 - 00:45

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	539	135	372	5.00	1599	0.337	539	1023	0.6	0.5	3.397	A
EB	1305	326	165	5.00	1863	0.700	1307	747	2.9	2.4	6.496	A
NB	447	112	948	5.00	955	0.468	447	523	1.1	0.9	7.108	A

00:45 - 01:00

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	494	123	341	5.00	1646	0.300	494	938	0.5	0.4	3.124	A
EB	1194	299	151	5.00	1897	0.630	1197	684	2.4	1.7	5.163	A
NB	409	102	869	5.00	1024	0.399	410	479	0.9	0.7	5.865	A

Queue Variation Results for each time segment

00:00 - 00:15

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.42	0.00	0.00	0.42	0.42			N/A	N/A
EB	1.67	0.05	0.56	4.27	6.59			N/A	N/A
NB	0.65	0.11	0.85	1.37	1.44			N/A	N/A

00:15 - 00:30

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.57	0.03	0.25	0.57	0.57			N/A	N/A
EB	2.89	0.03	0.28	2.89	6.93			N/A	N/A
NB	1.05	0.03	0.26	1.05	1.05			N/A	N/A

00:30 - 00:45

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.51	0.03	0.28	0.89	2.08			N/A	N/A
EB	2.39	0.03	0.26	2.39	2.39			N/A	N/A
NB	0.89	0.03	0.27	0.89	1.34			N/A	N/A

00:45 - 01:00

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.43	0.00	0.00	0.43	0.43			N/A	N/A
EB	1.73	0.07	0.98	4.01	5.80			N/A	N/A
NB	0.67	0.11	0.85	1.37	1.44			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.4.1693

Filename: Arcady_11_LantzHwy102NB_Opt2.j10
Path: C:\Users\copel\OneDrive\Desktop\GRIFFIN\Projects\2023\2323 - East Hants Traffic Study\Analysis\Opt 2 - North IC\Arcady
Report generation date: 3/28/2024 9:24:35 AM

Summary of intersection performance

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Geometry - 2043 Total Opt 2																	
Leg WB	D5	2.6	9.8	11.91	0.73	B	8.85	A	26 % [Leg WB]	D6	1.3	1.7	8.17	0.57	A	6.56	A	48 % [Leg WB]
Leg EB		0.3	1.3	3.89	0.23	A					1.1	1.5	6.17	0.52	A			
Leg NB		0.1	0.5	3.87	0.11	A					0.3	1.2	5.65	0.22	A			
	Existing Geometry - 2053 Total Opt 2																	
Leg WB	D7	4.7	25.8	19.06	0.84	C	13.69	B	11 % [Leg WB]	D8	1.6	2.5	9.21	0.62	A	7.28	A	39 % [Leg WB]
Leg EB		0.3	1.3	3.89	0.23	A					1.3	1.8	6.95	0.57	A			
Leg NB		0.1	0.5	3.87	0.11	A					0.3	1.3	6.13	0.23	A			

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

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

File summary

File Description

Title	East Hants Traffic Study
Location	MEH - Trunk 2
Site number	11
Date	3/25/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	SURFACEPRO7\copel
Description	Option 2

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Analysis Set Details

ID	Name	Description	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Existing Geometry	Single lane entries	✓	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2053 Total Opt 2	PM Vols	full build-out	PHF	00:00	01:00	15	✓

Existing Geometry - 2053 Total Opt 2, PM Vols

Data Errors and Warnings

Severity	Area	Item	Description
Last Run	Last Run	Leg SB - Capacity	Pedestrian Crossing causes blocking on previous leg due to traffic queing to leave the intersection in 4 timesegment(s).
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
11	LantzConn&Hwy102NB	Standard Roundabout		WB, SB, EB, NB	7.28	A

Intersection Network

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold	Network delay (s)	Network LOS
Right	Normal/unknown	39	Leg WB	7.28	A

Legs

Legs

Leg	Name	Description	No yield line
WB	LantzWB		
SB	OnRampSB		
EB	LantzEB		
NB	OffRampNB		

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
WB	3.50	4.00	30.0	30.0	45.0	20.0		
SB								✓
EB	3.50	4.00	30.0	30.0	45.0	20.0		
NB	3.50	4.00	30.0	30.0	45.0	20.0	✓	

Bypass

Leg	Leg has bypass	Bypass utilisation (%)
WB	✓	100
SB		
EB		
NB	✓	100

Unsignalled Pedestrian Crossing Crossings

Leg	Space between crossing and intersection entry (Unsignalled Pedestrian Crossing) (PCE)	Vehicles queueing on exit (Unsignalled Pedestrian Crossing) (PCE)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
WB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86
SB		1.00	✓	Distance			4.00	2.86
EB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86
NB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Final slope	Final intercept (PCE/hr)
WB	0.558	1266
SB		
EB	0.558	1266
NB	0.558	1266

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

Traffic Demand

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

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
WB		PHF	✓	725	100.000
SB					
EB		PHF	✓	635	100.000
NB		PHF	✓	1030	100.000

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
WB	725	0.92	SecondQuarter
SB			
EB	635	0.92	SecondQuarter
NB	1030	0.92	SecondQuarter

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB	[PHF]	5.00
SB	[PHF]	5.00
EB	[PHF]	5.00
NB	[PHF]	5.00

Peak Hour Factor Data (Pedestrians)

Leg	Hourly volume (Ped/hr)	Peak hour factor	Peak time segment
WB	5.00	1.00	SecondQuarter
SB	5.00	1.00	SecondQuarter
EB	5.00	1.00	SecondQuarter
NB	5.00	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To			
		WB	SB	EB	NB
From	WB	0	154	571	0
	SB	0	0	0	0
	EB	481	154	0	0
	NB	867	2	161	0

Vehicle Mix

Truck Percentages

		To			
		WB	SB	EB	NB
From	WB	5	5	5	5
	SB	5	5	5	5
	EB	5	5	5	5
	NB	5	5	5	5

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Intersection Arrivals (Veh)
WB	0.62	9.21	1.6	2.5	A	725	571
SB							
EB	0.57	6.95	1.3	1.8	A	635	635
NB	0.23	6.13	0.3	1.3	A	1030	163

Main Results for each time segment

00:00 - 00:15

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	683	538	134	145	817	297	5.00	1035	0.520	534	450	0.0	1.1	7.119	A
SB						684	5.00				146				
EB	598	598	150	0	0	0	5.00	1205	0.496	594	684	0.0	1.0	5.892	A
NB	970	154	38	817	0	594	5.00	830	0.185	153	0	0.0	0.2	5.312	A

00:15 - 00:30

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	788	621	155	167	942	344	5.00	1007	0.616	619	522	1.1	1.6	9.214	A
SB						793	5.00				169				
EB	690	690	173	0	0	0	5.00	1205	0.573	689	793	1.0	1.3	6.947	A
NB	1120	177	44	942	0	689	5.00	764	0.232	177	0	0.2	0.3	6.131	A

00:30 - 00:45

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	746	588	147	158	892	326	5.00	1018	0.577	588	495	1.6	1.4	8.400	A
SB						754	5.00				161				
EB	653	653	163	0	0	0	5.00	1205	0.542	654	754	1.3	1.2	6.535	A
NB	1060	168	42	892	0	654	5.00	788	0.213	168	0	0.3	0.3	5.805	A

00:45 - 01:00

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	683	538	134	145	817	299	5.00	1034	0.520	539	454	1.4	1.1	7.292	A
SB						691	5.00				147				
EB	598	598	150	0	0	0	5.00	1205	0.496	599	691	1.2	1.0	5.946	A
NB	970	154	38	817	0	599	5.00	826	0.186	154	0	0.3	0.2	5.355	A

Queue Variation Results for each time segment

00:00 - 00:15

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	1.06	0.11	0.99	1.72	2.01			N/A	N/A
SB									
EB	0.97	0.12	0.96	1.44	1.79			N/A	N/A
NB	0.23	0.00	0.00	0.23	0.23			N/A	N/A

00:15 - 00:30

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	1.57	0.03	0.27	1.57	1.80			N/A	N/A
SB									
EB	1.32	0.03	0.26	1.32	1.32			N/A	N/A
NB	0.30	0.03	0.25	0.46	0.48			N/A	N/A

00:30 - 00:45

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	1.39	0.03	0.26	1.39	1.39			N/A	N/A
SB									
EB	1.20	0.03	0.26	1.20	1.20			N/A	N/A
NB	0.27	0.03	0.30	0.98	1.31			N/A	N/A

00:45 - 01:00

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	1.10	0.09	0.97	1.87	2.49			N/A	N/A
SB									
EB	1.00	0.16	1.00	1.40	1.75			N/A	N/A
NB	0.23	0.00	0.00	0.23	0.23			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Arcady_12_LantzHwy102SB_Opt2.j10
Path: C:\Users\copel\OneDrive\Desktop\GRIFFIN\Projects\2023\2323 - East Hants Traffic Study\Analysis\Opt 2 - North IC\Arcady
Report generation date: 3/28/2024 9:28:37 AM

Summary of intersection performance

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Geometry - 2043 Total Opt 2																	
Leg WB	D5	2.8	10.6	11.32	0.74	B	9.86	A	29 % [Leg WB]	D6	1.6	2.5	7.75	0.62	A	9.06	A	29 % [Leg SB]
Leg SB		0.3	1.3	6.64	0.23	A					1.3	1.8	10.80	0.58	B			
Leg EB		0.2	0.9	7.84	0.19	A					0.4	1.4	8.69	0.29	A			
	Existing Geometry - 2053 Total Opt 2																	
Leg WB	D7	4.9	26.8	17.64	0.85	C	14.70	B	13 % [Leg WB]	D8	1.9	3.7	8.69	0.66	A	11.36	B	16 % [Leg SB]
Leg SB		0.4	1.2	7.73	0.27	A					2.1	8.6	14.86	0.69	B			
Leg EB		0.3	1.3	9.93	0.23	A					0.5	1.8	10.40	0.33	B			

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

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

File summary

File Description

Title	East Milford TIS
Location	MEH - Trunk 2
Site number	2
Date	4/25/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	SURFACEPRO7\copel
Description	Option 2

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Analysis Set Details

ID	Name	Description	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Existing Geometry	Single lane entries	✓	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2053 Total Opt 2	PM Vols	PHF	00:00	01:00	15	✓

Existing Geometry - 2053 Total Opt 2, PM Vols

Data Errors and Warnings

Severity	Area	Item	Description
Last Run	Last Run	Leg EB - Capacity	Pedestrian Crossing causes blocking on previous leg due to traffic queing to leave the intersection in 1 timesegment(s).
Last Run	Last Run	Leg NB - Capacity	Pedestrian Crossing causes blocking on previous leg due to traffic queing to leave the intersection in 2 timesegment(s).
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
12	LantzConn&Hwy102SB	Standard Roundabout		WB, SB, EB, NB	11.36	B

Intersection Network

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold	Network delay (s)	Network LOS
Right	Normal/unknown	16	Leg SB	11.36	B

Legs

Legs

Leg	Name	Description	No yield line
WB	LantzWB		
SB	OffRampSB		
EB	LantzEB		
NB	OnRampSB		

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
WB	3.50	4.00	30.0	30.0	45.0	20.0		
SB	3.50	4.00	30.0	30.0	45.0	20.0	✓	
EB	3.50	4.00	30.0	30.0	45.0	20.0		
NB								✓

Bypass

Leg	Leg has bypass	Bypass utilisation (%)
WB		
SB	✓	100
EB	✓	100
NB	✓	100

Unsignalled Pedestrian Crossing Crossings

Leg	Space between crossing and intersection entry (Unsignalled Pedestrian Crossing) (PCE)	Vehicles queueing on exit (Unsignalled Pedestrian Crossing) (PCE)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
WB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86
SB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86
EB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86
NB		1.00	✓	Distance			4.00	2.86

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Final slope	Final intercept (PCE/hr)
WB	0.558	1266
SB	0.558	1266
EB	0.558	1266
NB		

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

Traffic Demand

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

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
WB		PHF	✓	732	100.000
SB		PHF	✓	642	100.000
EB		PHF	✓	309	100.000
NB					

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
WB	732	0.92	SecondQuarter
SB	642	0.92	SecondQuarter
EB	309	0.92	SecondQuarter
NB			

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB	[PHF]	5.00
SB	[PHF]	5.00
EB	[PHF]	5.00
NB	[PHF]	5.00

Peak Hour Factor Data (Pedestrians)

Leg	Hourly volume (Ped/hr)	Peak hour factor	Peak time segment
WB	5.00	1.00	SecondQuarter
SB	5.00	1.00	SecondQuarter
EB	5.00	1.00	SecondQuarter
NB	5.00	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To			
		WB	SB	EB	NB
From	WB	0	0	160	572
	SB	481	0	161	0
	EB	154	0	0	155
	NB	0	0	0	0

Vehicle Mix

Truck Percentages

		To			
		WB	SB	EB	NB
From	WB	5	5	5	5
	SB	5	5	5	5
	EB	5	5	5	5
	NB	5	5	5	5

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Intersection Arrivals (Veh)
WB	0.66	8.69	1.9	3.7	A	732	732
SB	0.69	14.86	2.1	8.6	B	642	481
EB	0.33	10.40	0.5	1.8	B	309	154
NB							

Main Results for each time segment

00:00 - 00:15

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	690	690	172	0	0	0	5.00	1205	0.572	684	592	0.0	1.3	6.841	A
SB	605	453	113	152	0	684	5.00	820	0.553	448	0	0.0	1.2	9.574	A
EB	291	145	36	146	152	983	5.00	609	0.238	144	150	0.0	0.3	7.727	A
NB						592	5.00				535				

00:15 - 00:30

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	796	796	199	0	0	0	5.00	1205	0.660	793	686	1.3	1.9	8.686	A
SB	698	523	131	175	0	793	5.00	758	0.690	519	0	1.2	2.1	14.857	B
EB	336	167	42	168	175	1139	5.00	512	0.327	167	173	0.3	0.5	10.403	B
NB						686	5.00				620				

00:30 - 00:45

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	753	753	188	0	0	0	5.00	1205	0.625	754	655	1.9	1.7	7.991	A
SB	661	495	124	166	0	754	5.00	780	0.634	496	0	2.1	1.8	12.749	B
EB	318	158	40	159	166	1085	5.00	545	0.291	159	165	0.5	0.4	9.319	A
NB						655	5.00				589				

00:45 - 01:00

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	690	690	172	0	0	0	5.00	1205	0.572	691	601	1.7	1.4	7.016	A
SB	605	453	113	152	0	691	5.00	816	0.555	455	0	1.8	1.3	10.038	B
EB	291	145	36	146	152	995	5.00	601	0.241	145	151	0.4	0.3	7.903	A
NB						601	5.00				540				

Queue Variation Results for each time segment

00:00 - 00:15

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	1.31	0.08	1.03	2.56	3.41			N/A	N/A
SB	1.21	0.09	1.02	2.12	2.84			N/A	N/A
EB	0.31	0.00	0.00	0.31	0.31			N/A	N/A
NB									

00:15 - 00:30

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	1.89	0.03	0.27	1.89	2.98			N/A	N/A
SB	2.12	0.03	0.29	2.12	8.63			N/A	N/A
EB	0.48	0.03	0.26	0.48	0.49			N/A	N/A
NB									

00:30 - 00:45

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	1.70	0.03	0.26	1.70	1.70			N/A	N/A
SB	1.79	0.03	0.27	1.79	1.79			N/A	N/A
EB	0.42	0.03	0.29	1.17	1.82			N/A	N/A
NB									

00:45 - 01:00

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	1.36	0.08	1.03	2.73	3.70			N/A	N/A
SB	1.28	0.05	0.64	2.94	4.40			N/A	N/A
EB	0.32	0.00	0.00	0.32	0.32			N/A	N/A
NB									

Junctions 10
ARCADY 10 - Roundabout Module
Version: 10.0.4.1693 © Copyright TRL Software Limited, 2021
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Filename: Arcady_22_Trunk2NewConnector.j10
Path: C:\Users\copel\OneDrive\Desktop\GRIFFIN\Projects\2023\2323 - East Hants Traffic Study\Analysis\Opt 2 - North IC\Arcady
Report generation date: 3/28/2024 9:31:59 AM

Summary of intersection performance

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Future Geometry - 2053 Total Opt 2																	
Leg SB	D7	0.4	1.5	7.33	0.29	A	12.56	B	18 % [Leg NB]	D8	0.4	1.7	6.18	0.30	A	8.52	A	24 % [Leg NB]
Leg EB		0.0	0.5	3.73	0.01	A					0.0	0.5	4.03	0.03	A			
Leg NB		3.6	18.7	16.01	0.80	C					2.7	11.3	13.14	0.74	B			

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

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

File summary

File Description

Title	East Hants Traffic Study
Location	MEH - Trunk 2
Site number	22
Date	3/25/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	SURFACEPRO7\copel
Description	Option 2

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Analysis Set Details

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

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2053 Total Opt 2	PM Vols	full build-out	PHF	16:00	17:00	15	✓

Future Geometry - 2053 Total Opt 2, PM Vols

Data Errors and Warnings

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

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
22	Trunk2NewNorthConnector	Standard Roundabout		SB, EB, NB	8.52	A

Intersection Network

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold	Network delay (s)	Network LOS
Right	Normal/unknown	24	Leg NB	8.52	A

Legs

Legs

Leg	Name	Description	No yield line
SB	Tk2SB		
EB	NewConnectorEB		
NB	Tk2NB		

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
SB	3.50	3.50	0.0	30.0	50.0	20.0		
EB	3.50	3.50	0.0	30.0	50.0	20.0		
NB	3.50	3.50	0.0	30.0	50.0	20.0		

Bypass

Leg	Leg has bypass	Bypass utilisation (%)
SB		
EB	✓	100
NB		

Unsignalled Pedestrian Crossing Crossings

Leg	Space between crossing and intersection entry (Unsignalled Pedestrian Crossing) (PCE)	Vehicles queueing on exit (Unsignalled Pedestrian Crossing) (PCE)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
SB	1.00	1.00	✓	Distance	7.00	5.00	4.00	2.86
EB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86
NB	1.00	1.00	✓	Distance	7.00	5.00	4.00	2.86

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Final slope	Final intercept (PCE/hr)
SB	0.512	1115
EB	0.512	1115
NB	0.512	1115

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

Traffic Demand

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

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
SB		PHF	✓	234	100.000
EB		PHF	✓	582	100.000

NB		PHF	✓	684	100.000

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
SB	234	0.92	SecondQuarter
EB	582	0.92	SecondQuarter
NB	684	0.92	SecondQuarter

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
SB	[PHF]	5.00
EB	[PHF]	5.00
NB	[PHF]	5.00

Peak Hour Factor Data (Pedestrians)

Leg	Hourly volume (Ped/hr)	Peak hour factor	Peak time segment
SB	5.00	1.00	SecondQuarter
EB	5.00	1.00	SecondQuarter
NB	5.00	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To		
		SB	EB	NB
From	SB	0	5	229
	EB	25	0	557
	NB	333	351	0

Vehicle Mix

Truck Percentages

		To		
		SB	EB	NB
From	SB	5	5	5
	EB	5	5	5
	NB	5	5	5

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Intersection Arrivals (Veh)
SB	0.30	6.18	0.4	1.7	A	234	234
EB	0.03	4.03	0.0	0.5	A	582	25
NB	0.74	13.14	2.7	11.3	B	684	684

Main Results for each time segment

16:00 - 16:15

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
SB	220	220	55	0	0	327	5.00	870	0.253	219	334	0.0	0.3	5.516	A
EB	548	24	6	525	0	214	5.00	942	0.025	23	332	0.0	0.0	3.919	A
NB	644	644	161	0	525	23	5.00	1022	0.631	638	214	0.0	1.7	9.228	A

16:15 - 16:30

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
SB	254	254	64	0	0	379	5.00	836	0.304	254	387	0.3	0.4	6.183	A
EB	633	27	7	605	0	249	5.00	921	0.030	27	385	0.0	0.0	4.027	A
NB	743	743	186	0	605	27	5.00	1009	0.737	739	249	1.7	2.7	13.143	B

16:30 - 16:45

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
SB	241	241	60	0	0	362	5.00	848	0.284	241	369	0.4	0.4	5.937	A
EB	599	26	6	573	0	236	5.00	929	0.028	26	367	0.0	0.0	3.987	A
NB	704	704	176	0	573	26	5.00	1014	0.694	705	236	2.7	2.3	11.724	B

16:45 - 17:00

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
SB	220	220	55	0	0	332	5.00	867	0.254	221	338	0.4	0.3	5.568	A
EB	548	24	6	525	0	216	5.00	941	0.025	24	337	0.0	0.0	3.923	A
NB	644	644	161	0	525	24	5.00	1021	0.631	647	216	2.3	1.8	9.688	A

Queue Variation Results for each time segment

16:00 - 16:15

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
SB	0.34	0.00	0.00	0.34	0.34			N/A	N/A
EB	0.03	0.03	0.25	0.45	0.48			N/A	N/A
NB	1.66	0.08	1.10	3.65	4.99			N/A	N/A

16:15 - 16:30

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
SB	0.43	0.03	0.25	0.46	0.48			N/A	N/A
EB	0.03	0.00	0.00	0.03	0.03			N/A	N/A
NB	2.66	0.03	0.30	2.66	11.28			N/A	N/A

16:30 - 16:45

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
SB	0.40	0.03	0.30	1.17	1.75			N/A	N/A
EB	0.03	0.00	0.00	0.03	0.03			N/A	N/A
NB	2.35	0.03	0.27	2.35	2.35			N/A	N/A

16:45 - 17:00

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
SB	0.34	0.00	0.00	0.34	0.34			N/A	N/A
EB	0.03	0.00	0.00	0.03	0.03			N/A	N/A
NB	1.76	0.05	0.53	4.57	7.08			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Arcady_23_NewConnICHwy102NB.j10
Path: C:\Users\copel\OneDrive\Desktop\GRIFFIN\Projects\2023\2323 - East Hants Traffic Study\Analysis\Opt 2 - North IC\Arcady
Report generation date: 3/28/2024 9:35:05 AM

Summary of intersection performance

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Future Geometry - 2053 Total Opt 2																	
Leg WB	D5	0.6	1.7	4.93	0.39	A	4.46	A	142 % [Leg WB]	D6	0.3	1.4	3.97	0.25	A	3.53	A	287 % [Leg WB]
Leg EB		0.0	0.5	3.11	0.04	A					0.1	0.5	3.40	0.12	A			
Leg NB		0.0	0.5	3.06	0.00	A					0.0	0.5	3.22	0.00	A			

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

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

File summary

File Description

Title	East Hants Traffic Study
Location	MEH - Trunk 2
Site number	23
Date	3/26/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	SURFACEPRO7\copel
Description	Option 2

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Analysis Set Details

ID	Name	Description	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Future Geometry	Single lane entries	✓	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2053 Total Opt 2	PM Vols	PHF	00:00	01:00	15	✓

Future Geometry - 2053 Total Opt 2, PM Vols

Data Errors and Warnings

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

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
23	NewConn&Hwy102NB	Standard Roundabout		WB, SB, EB, NB	3.53	A

Intersection Network

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold	Network delay (s)	Network LOS
Right	Normal/unknown	287	Leg WB	3.53	A

Legs

Legs

Leg	Name	Description	No yield line
WB	LantzWB		
SB	OnRampSB		
EB	LantzEB		
NB	OffRampNB		

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
WB	3.50	4.00	30.0	30.0	45.0	20.0		
SB								✓
EB	3.50	4.00	30.0	30.0	45.0	20.0		
NB	3.50	4.00	30.0	30.0	45.0	20.0	✓	

Bypass

Leg	Leg has bypass	Bypass utilisation (%)
WB	✓	100
SB		
EB		
NB	✓	100

Unsignalled Pedestrian Crossing Crossings

Leg	Space between crossing and intersection entry (Unsignalled Pedestrian Crossing) (PCE)	Vehicles queueing on exit (Unsignalled Pedestrian Crossing) (PCE)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
WB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86
SB		1.00	✓	Distance			4.00	2.86
EB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86
NB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Final slope	Final intercept (PCE/hr)
WB	0.558	1266
SB		
EB	0.558	1266
NB	0.558	1266

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

Traffic Demand

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

✓	✓	Truck Percentages	2.00

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
WB		PHF	✓	356	100.000
SB					
EB		PHF	✓	134	100.000
NB		PHF	✓	449	100.000

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
WB	356	0.92	SecondQuarter
SB			
EB	134	0.92	SecondQuarter
NB	449	0.92	SecondQuarter

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB	[PHF]	5.00
SB	[PHF]	5.00
EB	[PHF]	5.00
NB	[PHF]	5.00

Peak Hour Factor Data (Pedestrians)

Leg	Hourly volume (Ped/hr)	Peak hour factor	Peak time segment
WB	5.00	1.00	SecondQuarter
SB	5.00	1.00	SecondQuarter
EB	5.00	1.00	SecondQuarter
NB	5.00	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To			
		WB	SB	EB	NB
From	WB	0	82	274	0
	SB	0	0	0	0
	EB	134	0	0	0
	NB	448	1	0	0

Vehicle Mix

Truck Percentages

		To			
		WB	SB	EB	NB
From	WB	5	5	5	5
	SB	5	5	5	5
	EB	5	5	5	5
	NB	5	5	5	5

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Intersection Arrivals (Veh)
WB	0.25	3.97	0.3	1.4	A	356	274
SB							
EB	0.12	3.40	0.1	0.5	A	134	134
NB	0.00	3.22	0.0	0.5	A	449	1

Main Results for each time segment

00:00 - 00:15

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	335	258	65	77	422	0.94	5.00	1205	0.214	257	126	0.0	0.3	3.795	A
SB						257	5.00				0.94				
EB	126	126	32	0	0	0	5.00	1205	0.105	126	257	0.0	0.1	3.332	A
NB	423	0.94	0.24	422	0	126	5.00	1132	0.001	0.94	0	0.0	0.0	3.183	A

00:15 - 00:30

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	387	298	74	89	487	1	5.00	1205	0.247	298	146	0.3	0.3	3.967	A
SB						298	5.00				1				
EB	146	146	36	0	0	0	5.00	1205	0.121	146	298	0.1	0.1	3.396	A
NB	488	1	0.27	487	0	146	5.00	1119	0.001	1	0	0.0	0.0	3.218	A

00:30 - 00:45

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	366	282	70	84	461	1	5.00	1205	0.234	282	138	0.3	0.3	3.901	A
SB						282	5.00				1				
EB	138	138	34	0	0	0	5.00	1205	0.114	138	282	0.1	0.1	3.371	A
NB	462	1	0.26	461	0	138	5.00	1124	0.001	1	0	0.0	0.0	3.205	A

00:45 - 01:00

Leg	Total Demand (Veh/hr)	Intersection demand (Veh/hr)	Intersection Arrivals (Veh)	Bypass demand (Veh/hr)	Bypass exit flow (Veh/hr)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	335	258	65	77	422	0.94	5.00	1205	0.214	258	126	0.3	0.3	3.802	A
SB						258	5.00				0.94				
EB	126	126	32	0	0	0	5.00	1205	0.105	126	258	0.1	0.1	3.338	A
NB	423	0.94	0.24	422	0	126	5.00	1131	0.001	0.94	0	0.0	0.0	3.186	A

Queue Variation Results for each time segment

00:00 - 00:15

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.27	0.00	0.00	0.27	0.27			N/A	N/A
SB									
EB	0.12	0.00	0.00	0.12	0.12			N/A	N/A
NB	0.00	0.00	0.25	0.45	0.48			N/A	N/A

00:15 - 00:30

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.33	0.03	0.25	0.45	0.48			N/A	N/A
SB									
EB	0.14	0.03	0.26	0.46	0.49			N/A	N/A
NB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

00:30 - 00:45

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.31	0.03	0.31	1.09	1.42			N/A	N/A
SB									
EB	0.13	0.03	0.25	0.45	0.48			N/A	N/A
NB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

00:45 - 01:00

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.27	0.00	0.00	0.27	0.27			N/A	N/A
SB									
EB	0.12	0.00	0.00	0.12	0.12			N/A	N/A
NB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Arcady_24_NewConnICHwy102SB.j10
Path: C:\Users\copel\OneDrive\Desktop\GRIFFIN\Projects\2023\2323 - East Hants Traffic Study\Analysis\Opt 2 - North IC\Arcady
Report generation date: 3/28/2024 9:38:39 AM

Summary of intersection performance

	AM Vols									PM Vols								
	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Set ID	Queue (Veh)	95% Queue (Veh)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
	Existing Geometry - 2053 Total Opt 2																	
Leg WB	D5	0.6	1.8	4.92	0.39	A	4.86	A	143 % [Leg WB]	D6	0.3	1.4	3.96	0.25	A	4.02	A	208 % [Leg SB]
Leg SB		0.1	0.5	4.29	0.06	A					0.2	0.5	4.13	0.14	A			

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

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

File summary

File Description

Title	East Hants Traffic Study
Location	MEH - Trunk 2
Site number	23
Date	3/26/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	SURFACEPRO7\copel
Description	Option 2

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	V/C Ratio Threshold	Average Delay threshold (s)	Queue threshold (PCE)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓				✓	Delay	0.85	36.00	20.00		500

Analysis Set Details

ID	Name	Description	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Existing Geometry	Single lane entries	✓	100.000	100.000

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2053 Total Opt 2	PM Vols	PHF	00:00	01:00	15	✓

Existing Geometry - 2053 Total Opt 2, PM Vols

Data Errors and Warnings

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

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Intersection Delay (s)	Intersection LOS
24	NewConn&Hwy102SB	Standard Roundabout		WB, SB, NB	4.02	A

Intersection Network

Driving side	Lighting	Network residual capacity (%)	First leg reaching threshold	Network delay (s)	Network LOS
Right	Normal/unknown	208	Leg SB	4.02	A

Legs

Legs

Leg	Name	Description	No yield line
WB	LantzWB		
SB	OffRampSB		
NB	OnRampNB		

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
WB	3.50	4.00	30.0	30.0	45.0	20.0		
SB	3.50	4.00	30.0	30.0	45.0	20.0	✓	
NB								✓

Unsignalled Pedestrian Crossing Crossings

Leg	Space between crossing and intersection entry (Unsignalled Pedestrian Crossing) (PCE)	Vehicles queueing on exit (Unsignalled Pedestrian Crossing) (PCE)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
WB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86
SB	1.00	1.00	✓	Distance	4.00	2.86	4.00	2.86
NB		1.00	✓	Distance			4.00	2.86

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Final slope	Final intercept (PCE/hr)
WB	0.558	1266
SB	0.558	1266
NB		

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

Traffic Demand

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

Demand overview (Traffic)

Leg	Linked leg	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
WB		PHF	✓	274	100.000
SB		PHF	✓	135	100.000
NB					

Peak Hour Factor Data (Traffic)

Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
WB	274	0.92	SecondQuarter
SB	135	0.92	SecondQuarter

NB			

Demand overview (Pedestrians)

Leg	Profile type	Average pedestrian flow (Ped/hr)
WB	[PHF]	5.00
SB	[PHF]	5.00
NB	[PHF]	5.00

Peak Hour Factor Data (Pedestrians)

Leg	Hourly volume (Ped/hr)	Peak hour factor	Peak time segment
WB	5.00	1.00	SecondQuarter
SB	5.00	1.00	SecondQuarter
NB	5.00	1.00	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

		To		
		WB	SB	NB
From	WB	0	0	274
	SB	134	0	1
	NB	0	0	0

Vehicle Mix

Truck Percentages

		To		
		WB	SB	NB
From	WB	5	5	5
	SB	5	5	5
	NB	5	5	5

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Intersection Arrivals (Veh)
WB	0.25	3.96	0.3	1.4	A	274	274
SB	0.14	4.13	0.2	0.5	A	135	135
NB							

Main Results for each time segment

00:00 - 00:15

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	258	65	0	5.00	1205	0.214	257	126	0.0	0.3	3.793	A
SB	127	32	257	5.00	1046	0.122	127	0	0.0	0.1	3.913	A
NB			126	5.00				258				

00:15 - 00:30

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	298	74	0	5.00	1205	0.247	298	146	0.3	0.3	3.964	A
SB	147	37	298	5.00	1018	0.144	147	0	0.1	0.2	4.133	A
NB			146	5.00				299				

00:30 - 00:45

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	282	70	0	5.00	1205	0.234	282	138	0.3	0.3	3.898	A
SB	139	35	282	5.00	1029	0.135	139	0	0.2	0.2	4.046	A
NB			138	5.00				283				

00:45 - 01:00

Leg	Total Demand (Veh/hr)	Intersection Arrivals (Veh)	Circulating flow (Veh/hr)	Pedestrian demand (Ped/hr)	Capacity (Veh/hr)	V/C Ratio	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
WB	258	65	0	5.00	1205	0.214	258	126	0.3	0.3	3.800	A
SB	127	32	258	5.00	1045	0.122	127	0	0.2	0.1	3.924	A
NB			126	5.00				259				

Queue Variation Results for each time segment

00:00 - 00:15

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.27	0.00	0.00	0.27	0.27			N/A	N/A
SB	0.14	0.00	0.00	0.14	0.14			N/A	N/A
NB									

00:15 - 00:30

Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.33	0.03	0.25	0.45	0.48			N/A	N/A
SB	0.17	0.03	0.25	0.46	0.48			N/A	N/A
NB									

00:30 - 00:45

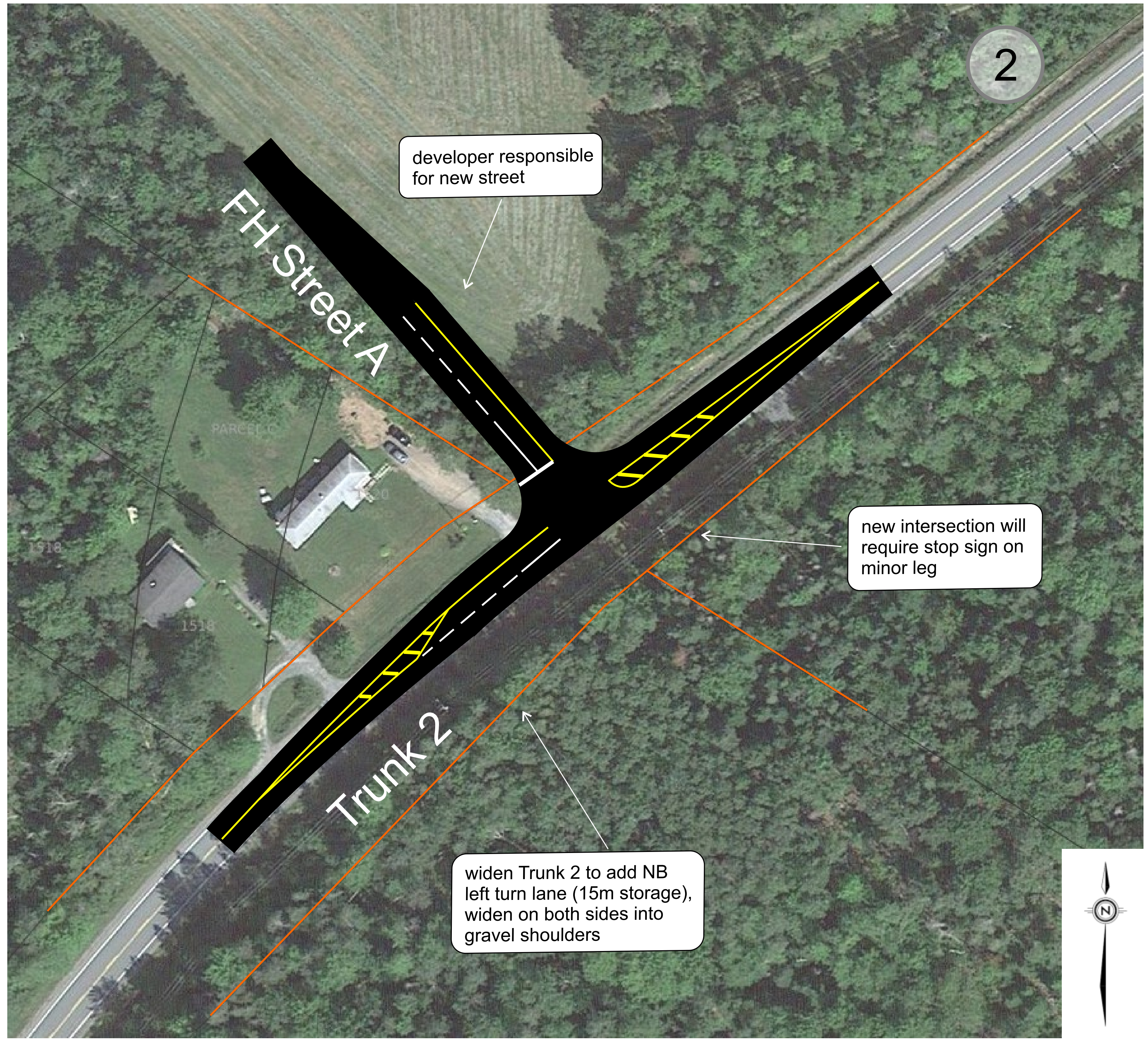
Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.31	0.03	0.31	1.09	1.42			N/A	N/A
SB	0.16	0.03	0.25	0.45	0.48			N/A	N/A
NB									

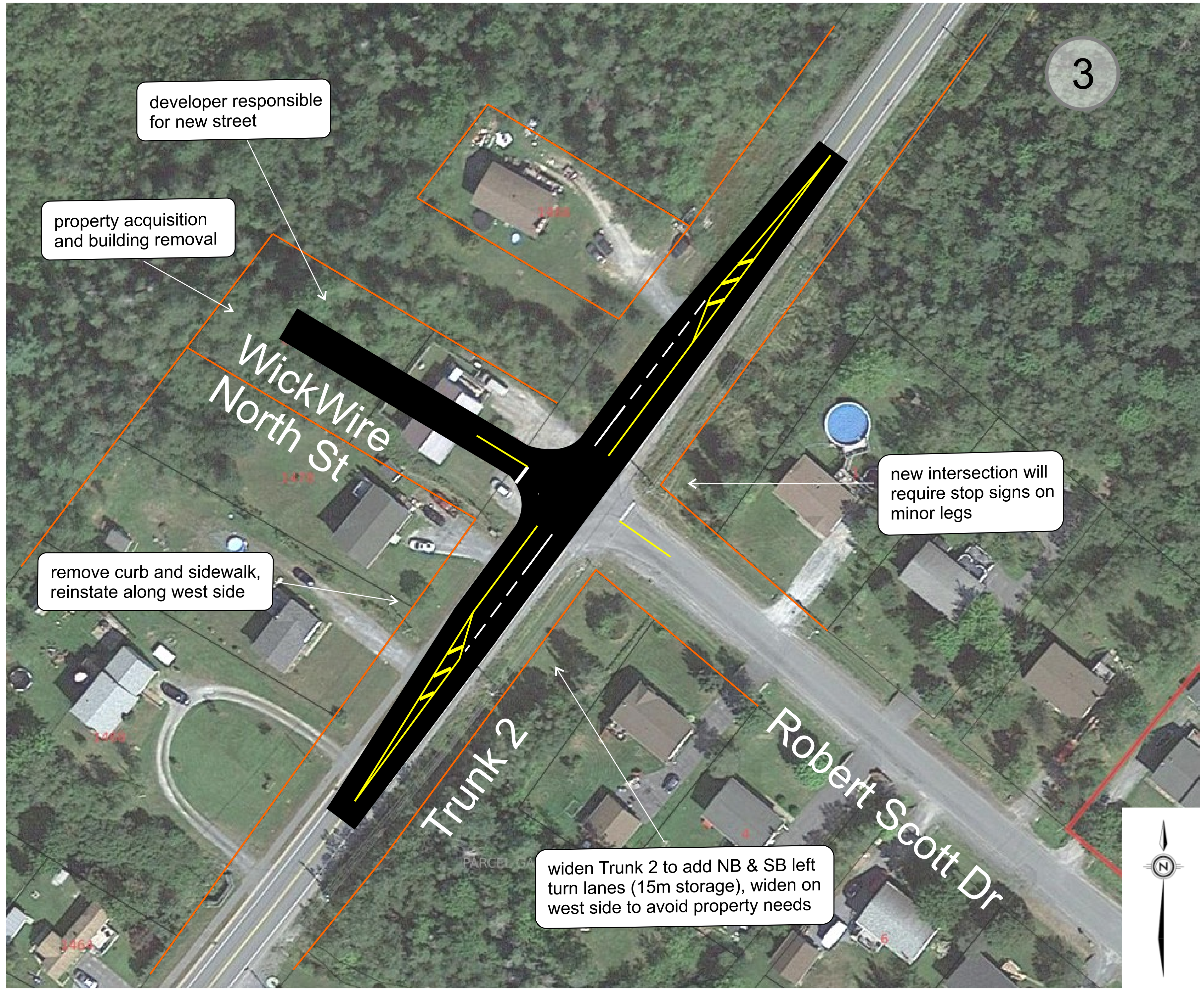
00:45 - 01:00

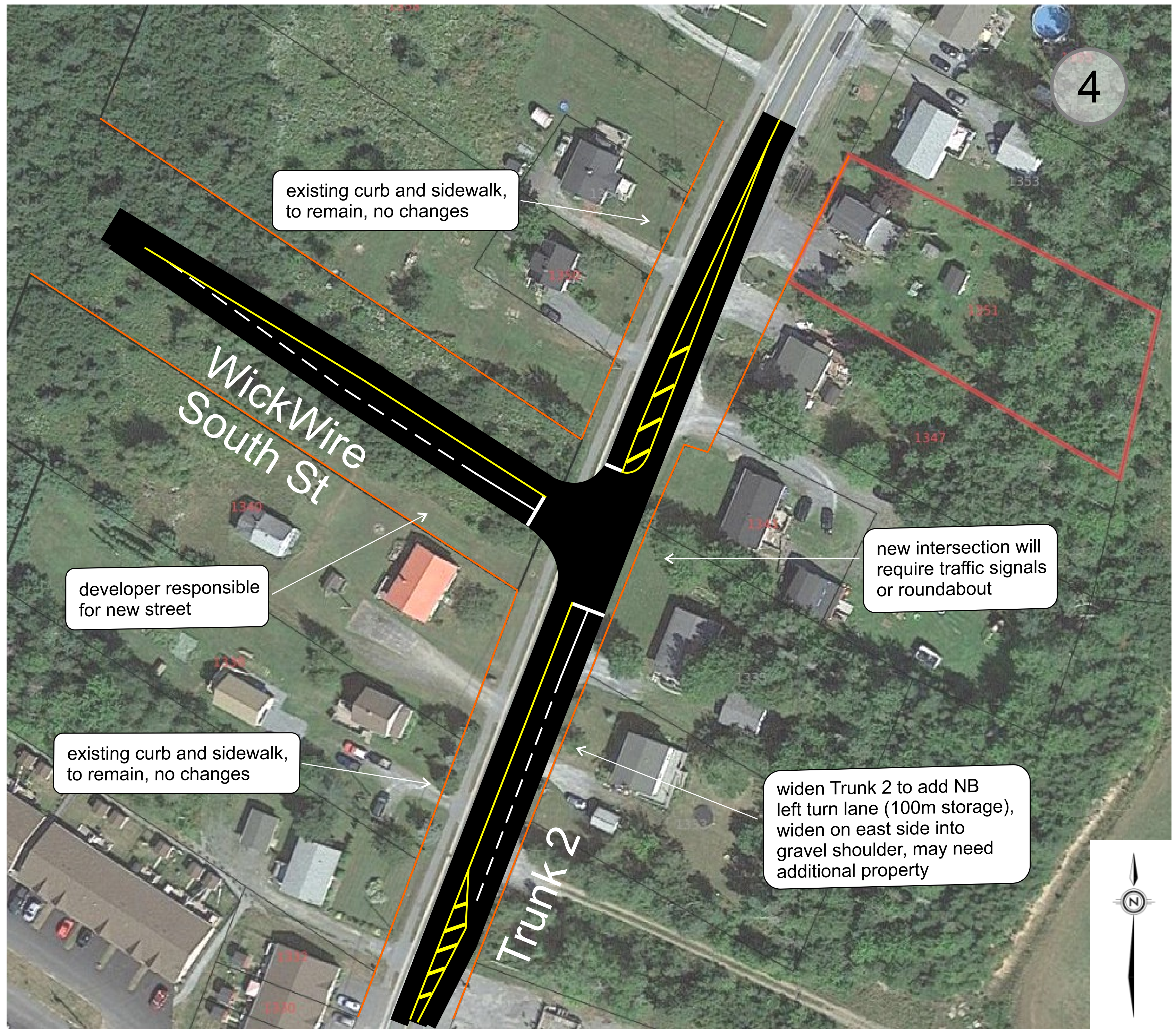
Leg	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
WB	0.27	0.00	0.00	0.27	0.27			N/A	N/A
SB	0.14	0.00	0.00	0.14	0.14			N/A	N/A
NB									

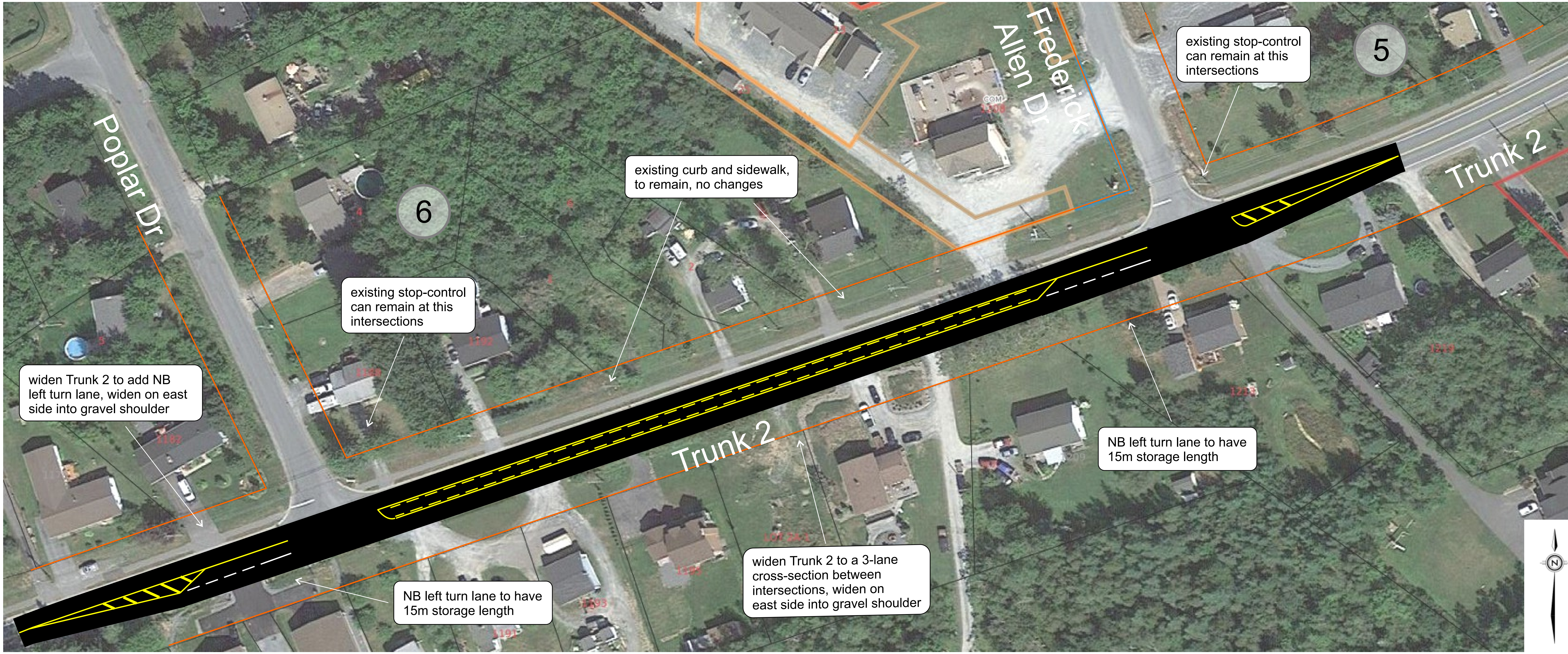
Appendix VII

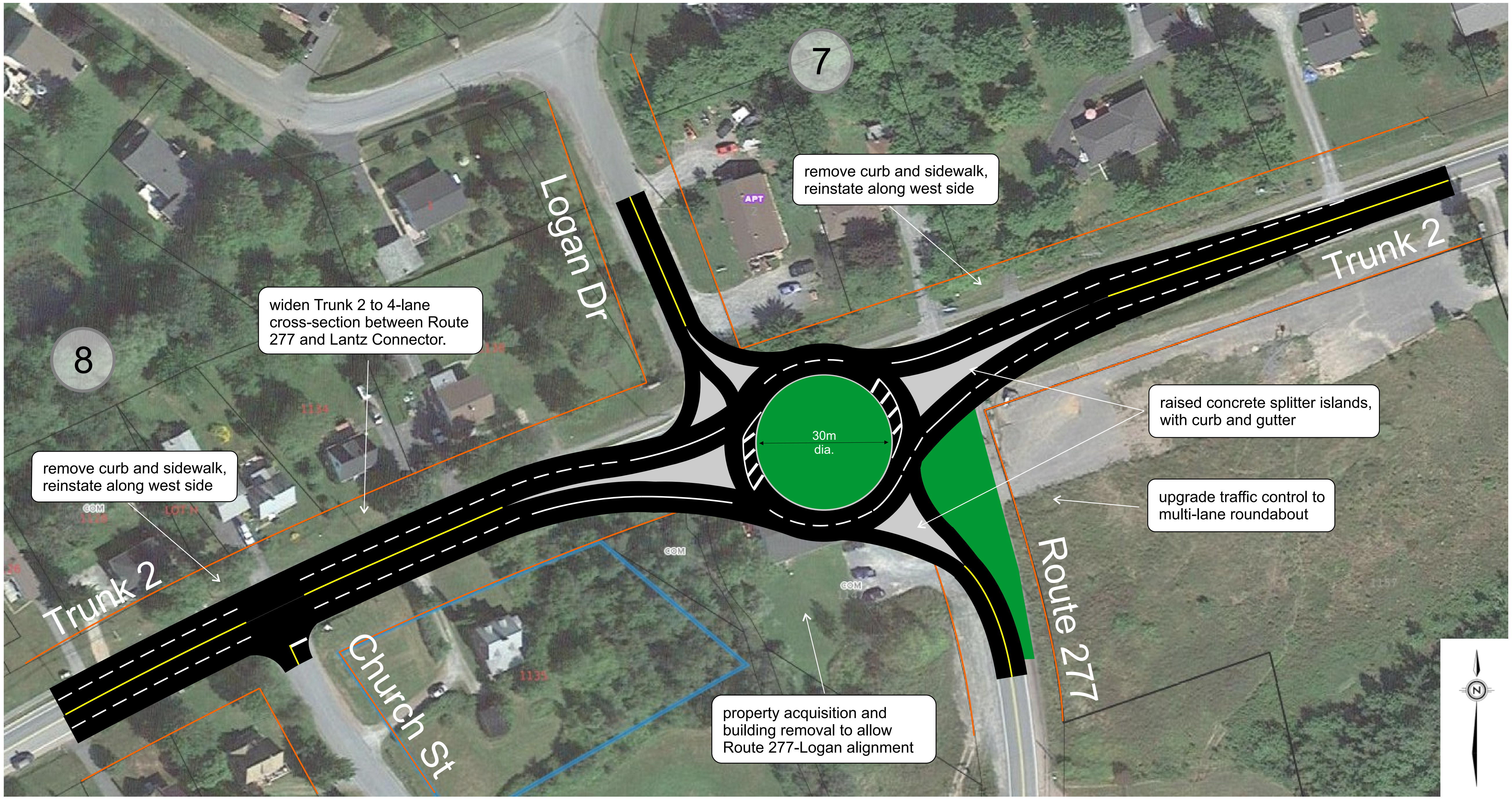
Roadway Infrastructure Concept Diagrams

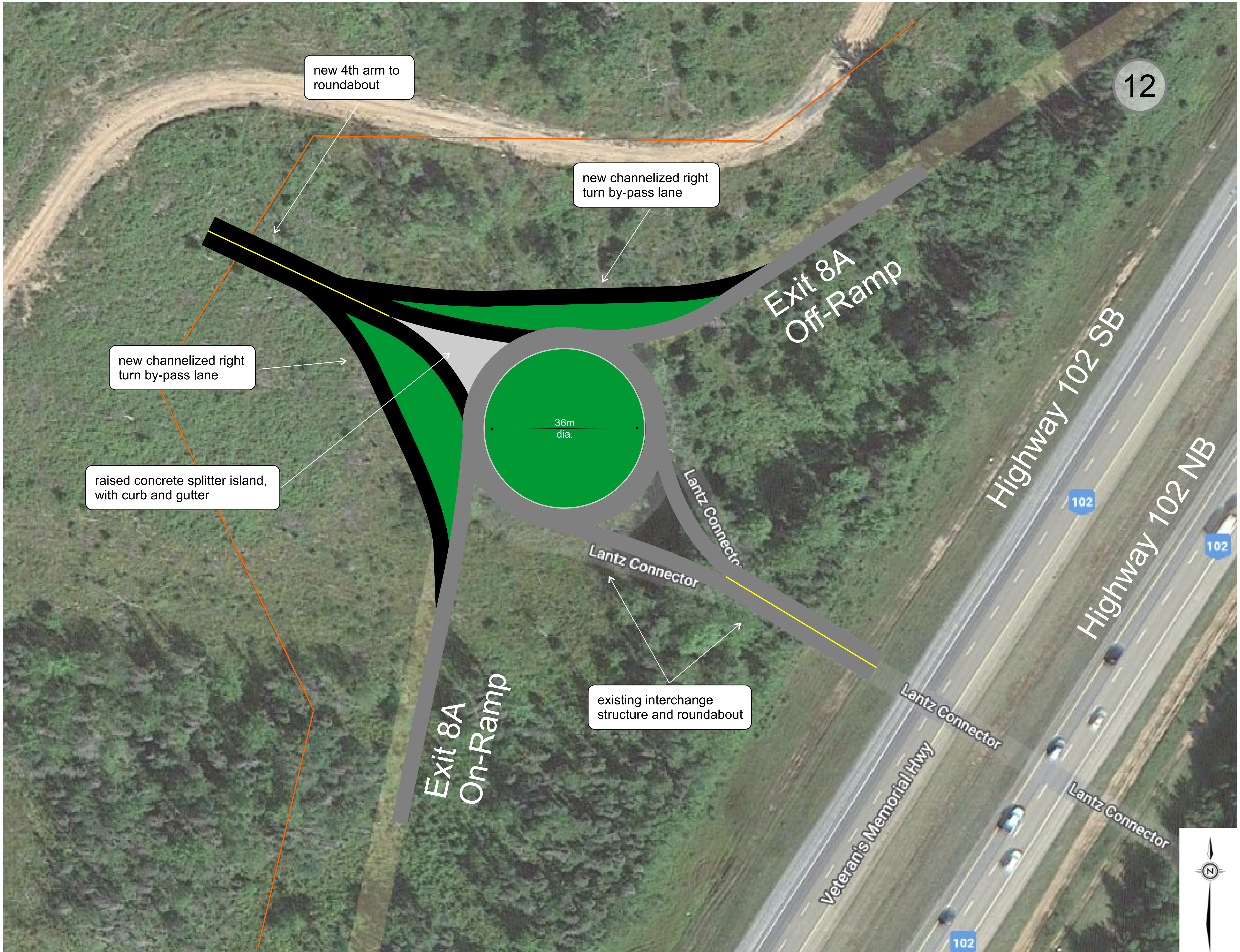

2
developer responsible
for new street
FH Street A
new intersection will
require stop sign on
minor leg
Trunk 2
widen Trunk 2 to add NB
left turn lane (15m storage),
widen on both sides into
gravel shoulders
N


3
developer responsible for new street
property acquisition and building removal
WickWire North St
remove curb and sidewalk, reinstate along west side
new intersection will require stop signs on minor legs
Trunk 2
Robert Scott Dr
widen Trunk 2 to add NB & SB left turn lanes (15m storage), widen on west side to avoid property needs
N

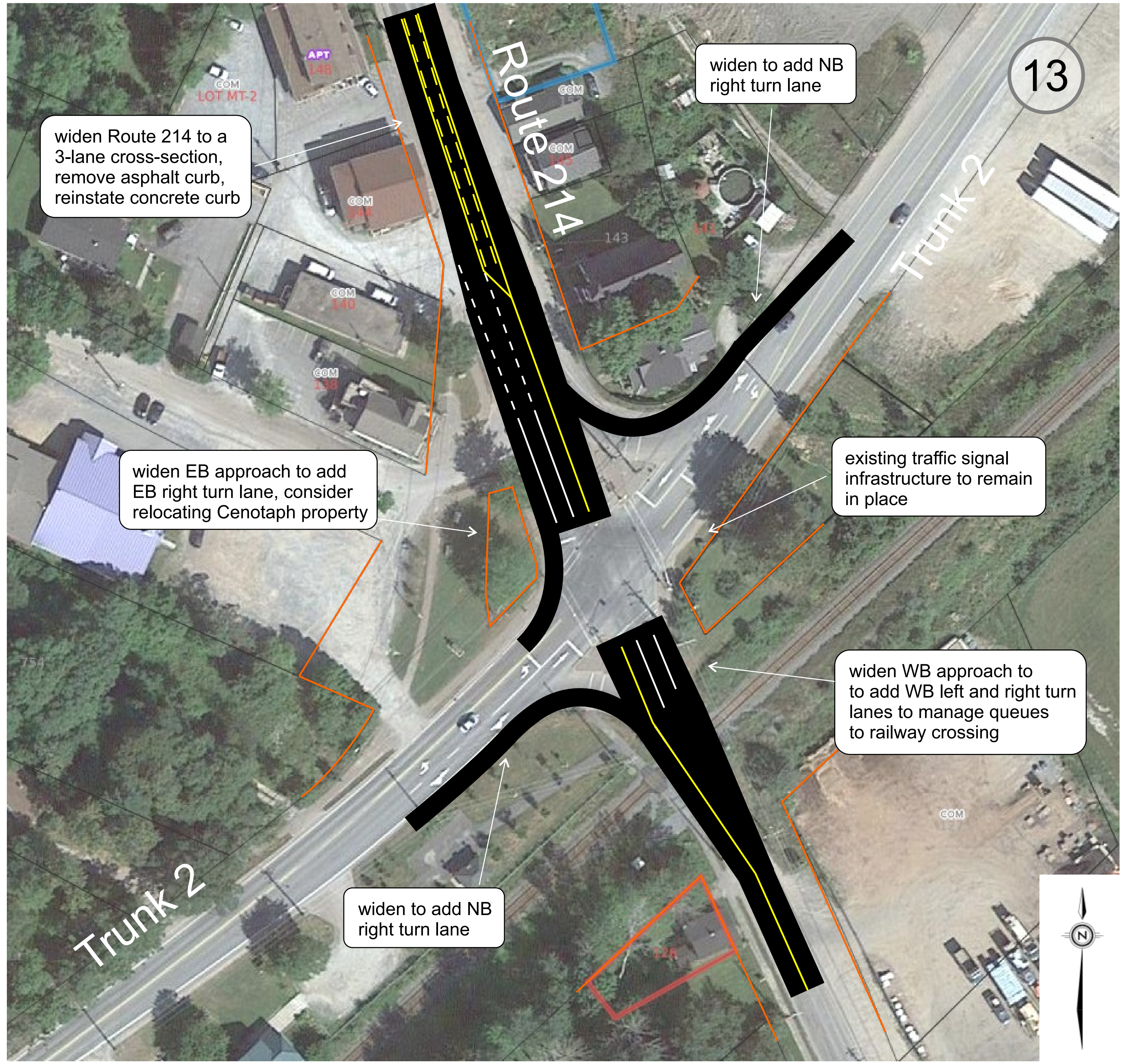

4
existing curb and sidewalk, to remain, no changes
WickWire South St
developer responsible for new street
existing curb and sidewalk, to remain, no changes
new intersection will require traffic signals or roundabout
widen Trunk 2 to add NB left turn lane (100m storage), widen on east side into gravel shoulder, may need additional property
Trunk 2
N

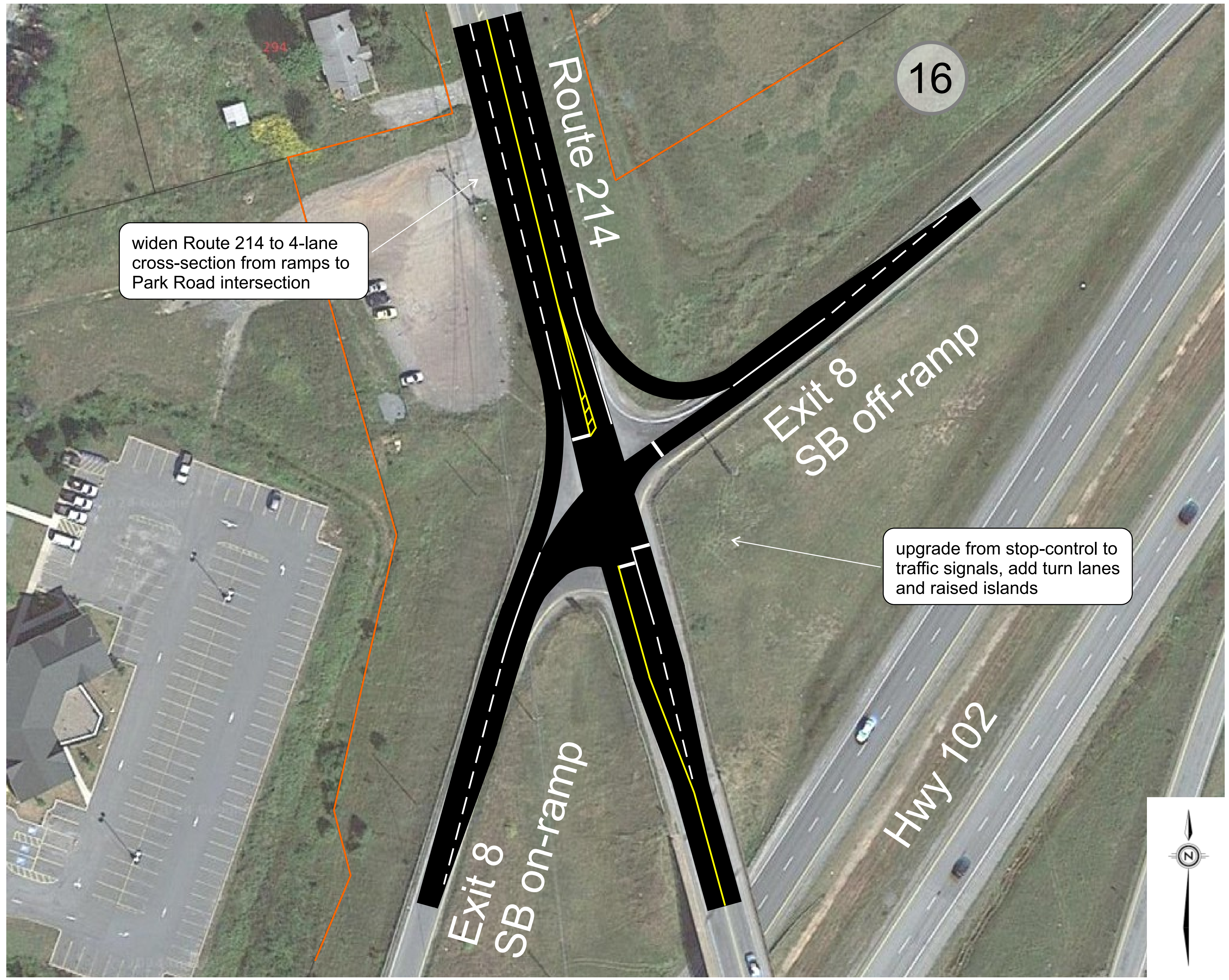

Poplar Dr
6
Frederick Allen Dr
5
Trunk 2
Trunk 2
existing stop-control can remain at this intersections
existing curb and sidewalk, to remain, no changes
existing stop-control can remain at this intersections
widen Trunk 2 to add NB left turn lane, widen on east side into gravel shoulder
NB left turn lane to have 15m storage length
widen Trunk 2 to a 3-lane cross-section between intersections, widen on east side into gravel shoulder
NB left turn lane to have 15m storage length
N

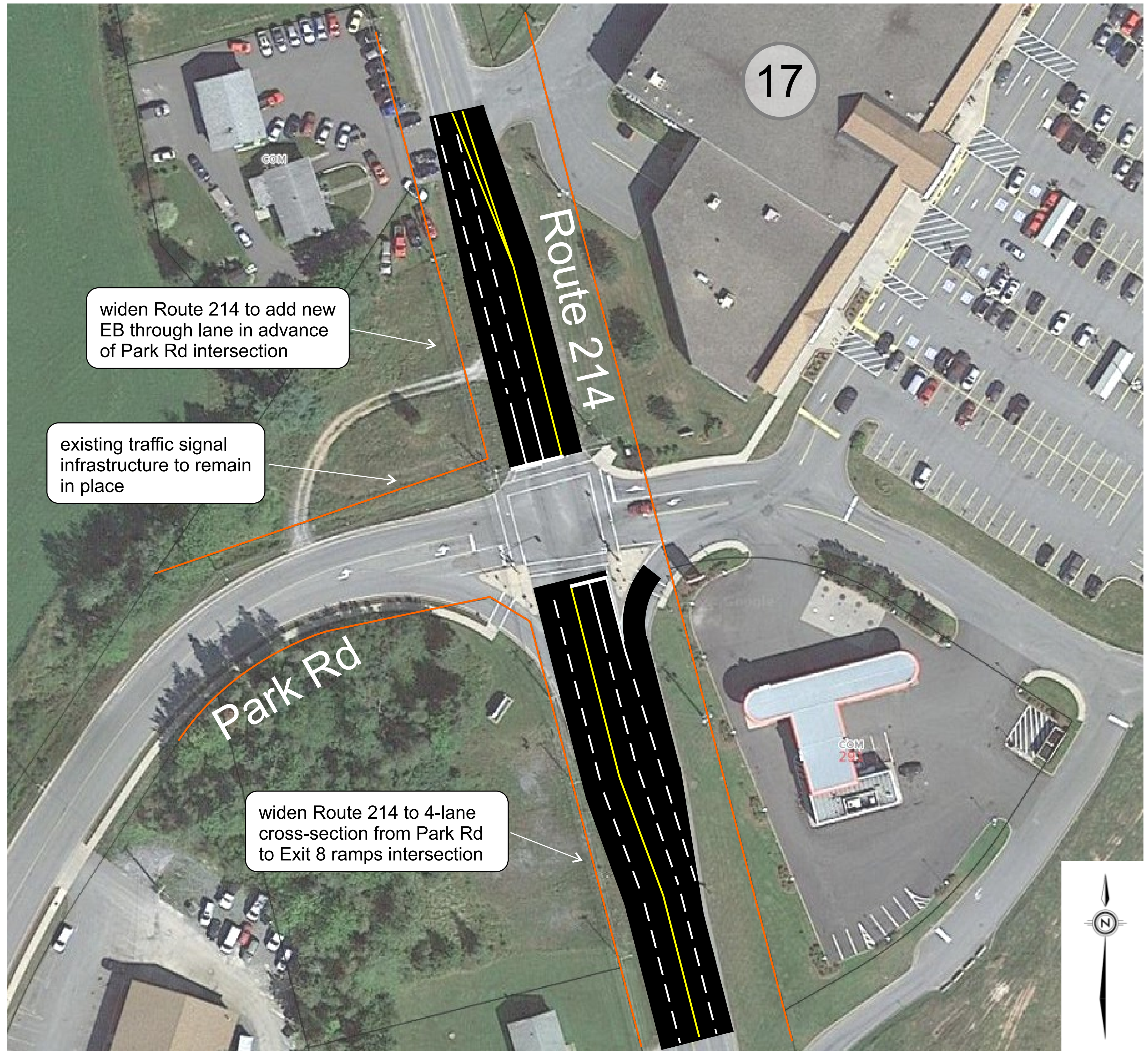

7
8
Logan Dr
Trunk 2
Trunk 2
Church St
Route 277
30m
dia.
remove curb and sidewalk, reinstate along west side
widen Trunk 2 to 4-lane cross-section between Route 277 and Lantz Connector.
remove curb and sidewalk, reinstate along west side
raised concrete splitter islands, with curb and gutter
upgrade traffic control to multi-lane roundabout
property acquisition and building removal to allow Route 277-Logan alignment
N

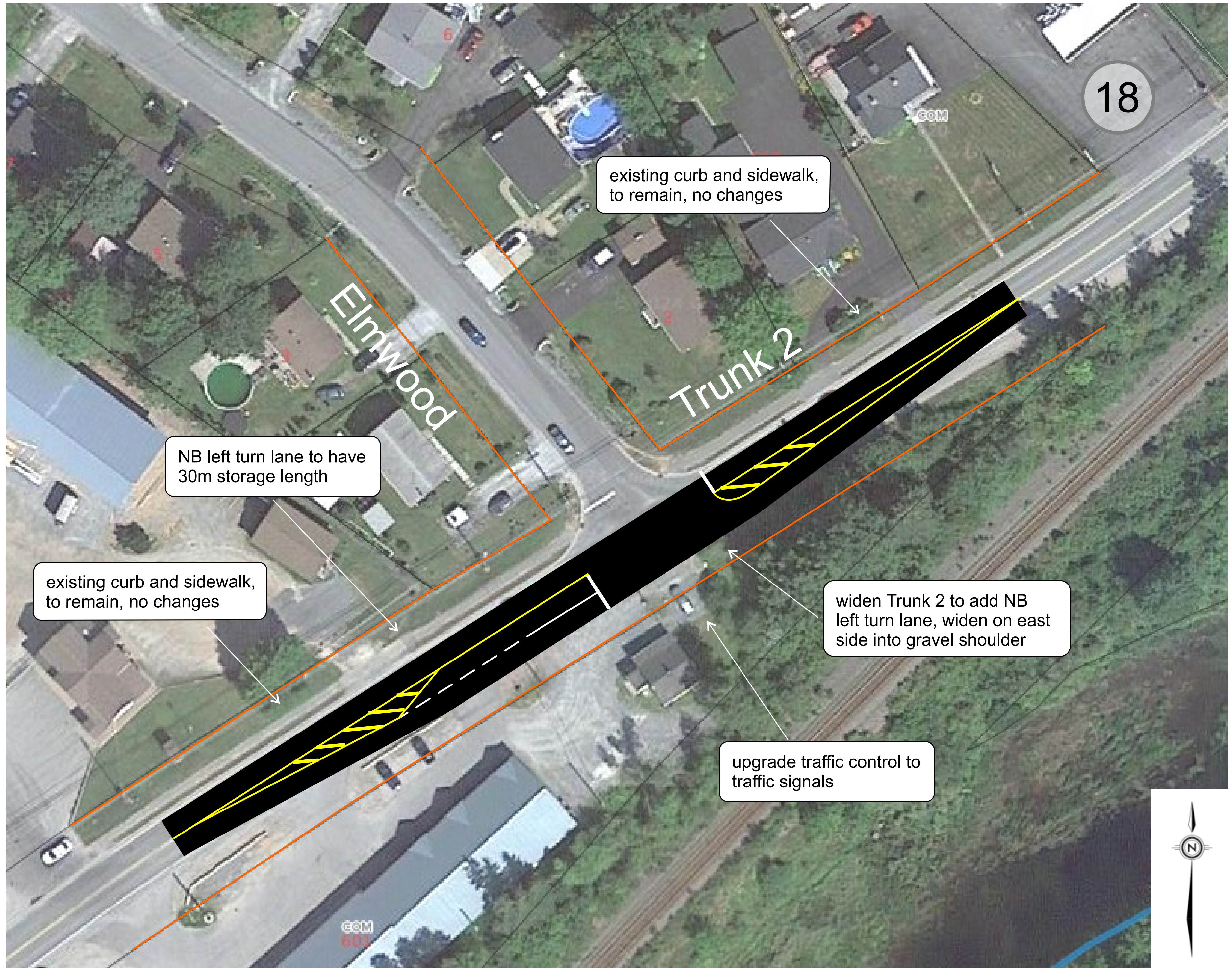


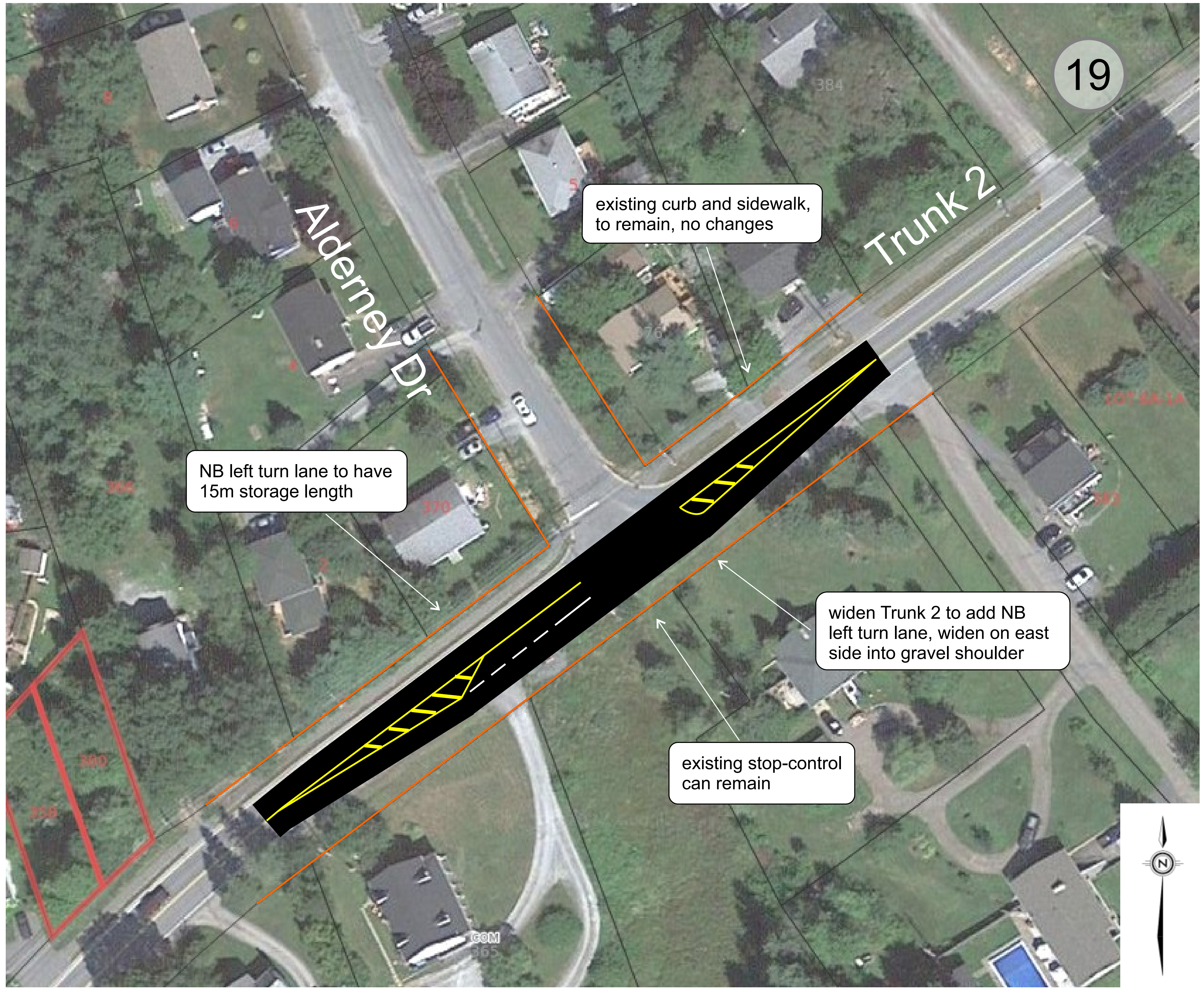
12
new 4th arm to roundabout
new channelized right turn by-pass lane
new channelized right turn by-pass lane
raised concrete splitter island, with curb and gutter
36m dia.
Exit 8A Off-Ramp
Exit 8A On-Ramp
Highway 102 SB
Highway 102 NB
102
102
102
Lantz Connector
Lantz Connector
Lantz Connector
Lantz Connector
Veteran's Memorial Hwy
existing interchange structure and roundabout
N

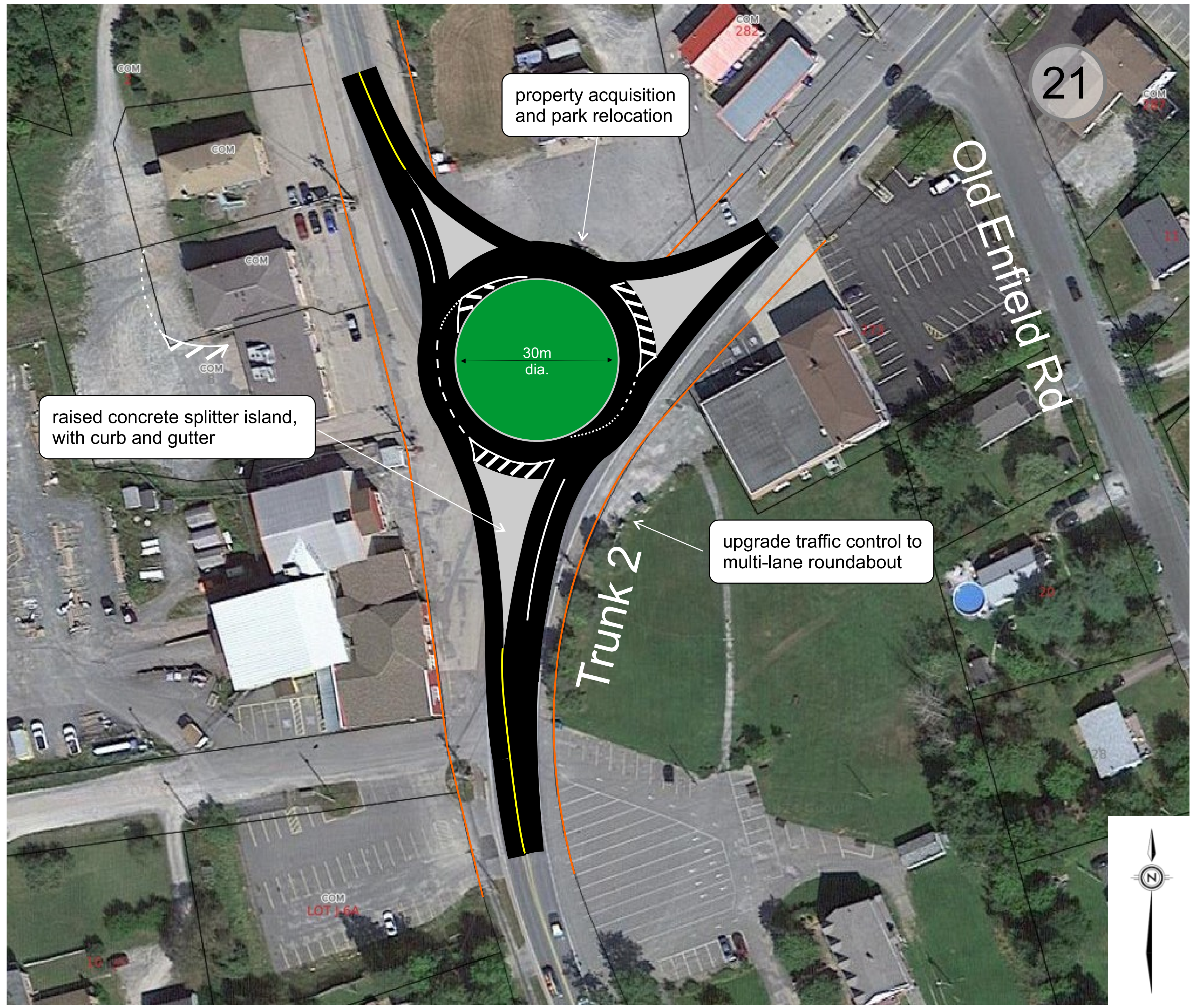

13
widen Route 214 to a 3-lane cross-section, remove asphalt curb, reinstate concrete curb
Route 214
widen to add NB right turn lane
Trunk 2
widen EB approach to add EB right turn lane, consider relocating Cenotaph property
existing traffic signal infrastructure to remain in place
widen WB approach to to add WB left and right turn lanes to manage queues to railway crossing
widen to add NB right turn lane
Trunk 2
APT
COM
LOT MT-2
143
N


16
Route 214
widen Route 214 to 4-lane cross-section from ramps to Park Road intersection
Exit 8 SB off-ramp
upgrade from stop-control to traffic signals, add turn lanes and raised islands
Exit 8 SB on-ramp
Hwy 102
N


17
Route 214
Park Rd
widen Route 214 to add new EB through lane in advance of Park Rd intersection
existing traffic signal infrastructure to remain in place
widen Route 214 to 4-lane cross-section from Park Rd to Exit 8 ramps intersection
N


18
existing curb and sidewalk, to remain, no changes
Elmwood
Trunk 2
NB left turn lane to have 30m storage length
existing curb and sidewalk, to remain, no changes
widen Trunk 2 to add NB left turn lane, widen on east side into gravel shoulder
upgrade traffic control to traffic signals
N


19
Alderney Dr
Trunk 2
existing curb and sidewalk, to remain, no changes
NB left turn lane to have 15m storage length
widen Trunk 2 to add NB left turn lane, widen on east side into gravel shoulder
existing stop-control can remain
N



21
property acquisition
and park relocation
Old Enfield Rd
30m
dia.
raised concrete splitter island,
with curb and gutter
upgrade traffic control to
multi-lane roundabout
Trunk 2
N

Appendix VIII

Interchange Location Assessment Notes

	New I/C - Candidate Locations			
	Enfield South Old Enfield Road		Lantz North Near Lantz-Milford Boundary	
A. Transportation Demand				
1 Vehicle travel times / road network delay	B	expected congestion along Trunk 2 in Lantz	A	manages Trunk 2 demand reducing congestion
2 Vehicle utilization of new interchange	B	moderate utilization in Enfield area - splits traffic	A	moderate utilization in Lantz north, long-term ability
3 Ability to manage demand in Trunk 2 corridor	B	Sufficient Trunk 2 capacity in Enfield - results in	A	Best manages future demand along Trunk 2 in Lantz
B. Geometric Design				
4 I/C spacing along Hwy 102	A	>2km to nearest I/C (2.5km to Exit 7)	A	>2km to nearest I/C (3.3km to Exit 8A)
5 Access-controlled Connector Road	B	existing 2-lane road with access proliferation	A	new greenfield road - no accesses
6 Implementation constraints	B	development adjacent to existing bridge structure	A	vacant lands - no contraints
C. Land Use / Settlement Impacts				
7 Promotes efficient settlement pattern	B	promotes housing in rural/unserviced area	A	promotes housing in serviced area (Lantz north)
8 New I/C serves greater population/employment	B	located in established/built area of Enfield	A	located near greatest concentration of new development
D. Environment				
9 Estimate of watercourse/wetland impacts	A	reduced watercourse/wetland impacts	B	increased watercourse/wetland impacts
10 Estimate of network fuel consumption	B	inefficient location creates congestion	A	efficient location minimizes congestion
E. Socio-Economic				
11 Existing property/building impacts	B	requires removal of existing buildings	A	greenfield area - little to no impacts
12 Opportunity to create highway commercial businesses	B	minimal opportunity - limited frontage along Hwy 102	A	ability to service new commerical / industrial businesses along Hwy 102
TOTAL SCORE	**Mostly B's (least preferred)**		**Mostly A's (most preferred)**	
RANK ORDER	**2**	**2nd CHOICE**	**1**	**1st CHOICE**

Evaluation / Scoring Method:

A	**Most Preferred**
B	**Least Preferred**

Appendix IX

Class D Road Infrastructure Cost Estimates

Volume/Layout Assumptions

Radius	12	m
Asphalt Lane Width	3.3	m
Gravel Shoulder	1.2	m
Storage Bay (unless otherwise)	15	m
Taper	15:1 -36:1	Dual-side expansion 36:1, single side expansion 15:1
Culvert Dia.	600	mm
Asphalt Thickness	0.15	m
Granulars Thickness	0.45	m
Landscaped Mound Height	1.2	m
Granular Surrounding Curb	0.135	sq.m/m

Unit Prices

Asphalt - Supply Install	$	400	$/tonne
Asphalt - Removal Full Depth	$	15	$/sq.m
Granulars	$	60	$/cu.m
Curb	$	120	$/m
Culvert (600mm)	$	800	$/m
Common Excavation	$	50	$/ cu.m
Topsoil (10cm depth)	$	10	$/ sq.m
Hydroseed	$	5	$/sq.m
Borrow A	$	20	$/cu.m
Sidewalk	$	200	$/m
Concrete Island	$	240	$/sq.m
Traffic Control	$	30,000	LS
Guiderail	$	125	$/m
Signage	$	10,000	LS
Light Standard/Signals	$	200,000	LS
Mobilization	$	30,000	LS
Traffic Control	$	70,000	LS
H&S Planning	$	5,000	LS
Construction Contingency		20%	
Engineering		18%	

Volumes/Areas		**#2 - Trunk 2 / FH Street A**	**#3 - Trunk 2 to Robert Scott / Armco North**	**#4 - Trunk 2 / Armco South**	**#5 - Trunk 2 / Frederick Allen**	**#6 - Trunk 2 / Poplar**	**#7 - Trunk 2 / Route 277-Logan**	**#8 - Trunk 2 / Church**
Asphalt	m^2	1499	1449	2255	1760	1941	4144	1170
	tonne	528.3975	510.7725	794.8875	620.4	684.2025	1460.76	412.425
Granulars	m^2	1910	1840	2850	2139	2304	5455	1367
	m^3	859.5	878.355	1315.845	962.55	1036.8	2613.51	625.545
Curb (total length)	m	0	373	247			1176	77
Culvert	m	0		31	73	70		22
Sidewalk	m	0	373				255	77
Concrete Island	m^2	0					500	
Landscaped Area (mound)	m^2	0					706	
	m^3	0	0	0	0	0	847.2	0
Landscaped Area (flat)	m^2						319	
Guiderail	m							
Signage	ea	1	1				1	
Signals	ea			1				
Cost								
Asphalt - Supply Install		$ 211,359	$ 204,309	$ 317,955	$ 248,160	$ 273,681	$ 584,304	$ 164,970
Asphalt - Removal Full Depth		$ 22,485	$ 21,735	$ 33,825	$ 26,400	$ 29,115	$ 62,160	$ 17,550
Granulars		$ 51,570	$ 52,701	$ 78,951	$ 57,753	$ 62,208	$ 156,811	$ 37,533
Curb		$ -	$ 44,760	$ 29,640	$ -	$ -	$ 141,120	$ 9,240
Culvert (600mm)		$ -	$ -	$ 24,800	$ 58,400	$ 56,000	$ -	$ 17,600
Common Excavation		$ 42,975	$ 43,918	$ 65,792	$ 48,128	$ 51,840	$ 130,676	$ 31,277
Topsoil (10cm depth)		$ -	$ -	$ -	$ -	$ -	$ 10,250	$ -
Hydroseed		$ -	$ -	$ -	$ -	$ -	$ 5,125	$ -
Borrow A		$ -	$ -	$ -	$ -	$ -	$ 16,944	$ -
Concrete Island		$ -	$ -	$ -	$ -	$ -	$ 120,000	$ -
Sidewalk		$ -	$ 74,600	$ -	$ -	$ -	$ 51,000	$ 15,400
Traffic Control		$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Guide Rail		$ -	$ -	$ -	$ -	$ -	$ -	$ -
Signage		$ 10,000	$ 10,000	$ -	$ -	$ -	$ 10,000	$ -
Light Standards/Signals		$ -	$ -	$ 200,000	$ -	$ -	$ -	$ -
Mobilization		$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Traffic Control		$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000
H&S Planning		$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Sub Total		**$ 474,000**	**$ 588,000**	**$ 886,000**	**$ 574,000**	**$ 608,000**	**$ 1,424,000**	**$ 429,000**
Construction Contingency		$ 94,800	$ 117,600	$ 177,200	$ 114,800	$ 121,600	$ 284,800	$ 85,800
Engineering Design		$ 86,000	$ 106,000	$ 160,000	$ 104,000	$ 110,000	$ 257,000	$ 78,000
Total		$ 654,800	$ 811,600	$ 1,223,200	$ 792,800	$ 839,600	$ 1,965,800	$ 592,800
Notes								
Power Pole Relocate		No	Yes	Yes	Yes	No	Yes	yes
Property Acquistion		No	Residential	Residential	No	No	Residential	no

#12 - Lantz Connector / Exit 8A SB Ramps	#13 - Route 214 / Trunk 2	#16 - Route 214 / Exit 8 SB Ramps	#17 - Route 214 / Park Rd	#18 - Trunk 2 / Elmwood Dr	#19 - Trunk 2 / Alderney Dr	#21 - Trunk 2 / Old Enfield Rd
1137	2683	2882	1998	1360	1217	1994
400.7925	945.7575	1015.905	704.295	479.4	428.9925	702.885
1640	3269	3727	2352	1545	1385	2764
824.4	1562.445	1677.15	1080	695.25	623.25	1336.41
640	677		160			686
					25	
	190					136
181						1251
						706
0	0	0	0	0	0	847.2
1388		184				
250						
						1
		1		1		
$ 160,317	$ 378,303	$ 406,362	$ 281,718	$ 191,760	$ 171,597	$ 281,154
$ 17,055	$ 40,245	$ 43,230	$ 29,970	$ 20,400	$ 18,255	$ 29,910
$ 49,464	$ 93,747	$ 100,629	$ 64,800	$ 41,715	$ 37,395	$ 80,185
$ 76,800	$ 81,240	$ -	$ 19,200	$ -	$ -	$ 82,320
$ -	$ -	$ -	$ -	$ -	$ 20,000	$ -
$ 41,220	$ 78,122	$ 83,858	$ 54,000	$ 34,763	$ 31,163	$ 66,821
$ 13,880	$ -	$ 1,840	$ -	$ -	$ -	$ 7,060
$ 6,940	$ -	$ 920	$ -	$ -	$ -	$ 3,530
$ -	$ -	$ -	$ -	$ -	$ -	$ 16,944
$ 43,440	$ -	$ -	$ -	$ -	$ -	$ 300,240
$ -	$ 38,000	$ -	$ -	$ -	$ -	$ 27,200
$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
$ 31,250	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ 10,000
$ -	$ -	$ 200,000	$ -	$ 200,000	$ -	$ -
$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000
$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
$ 576,000	**$ 845,000**	**$ 972,000**	**$ 585,000**	**$ 624,000**	**$ 414,000**	**$ 1,041,000**
$ 115,200	$ 169,000	$ 194,400	$ 117,000	$ 124,800	$ 82,800	$ 208,200
$ 104,000	$ 153,000	$ 175,000	$ 106,000	$ 113,000	$ 75,000	$ 188,000
$ 795,200	$ 1,167,000	$ 1,341,400	$ 808,000	$ 861,800	$ 571,800	$ 1,437,200
no	yes	yes	no	no	no	yes
no	no	no	no	no	no	Commercial

Volume/Layout Assumptions			
Radius	12	m	
Asphalt Lane Width	3.3	m	
Gravel Shoulder	1.2	m	
Storage Bay (unless otherwise)	15	m	
Taper	15:1 -36:1	Dual-side expansion 36:1, single side expansion 15:1	
Culvert Dia.	600	mm	
Asphalt Thickness	0.15	m	
Granulars Thickness	0.45	m	
Landscaped Mound Height	1.2	m	
Granular Surrounding Curb	0.135	sq.m/m	

	Unit Prices		
Asphalt - Supply Install	$	400	$/tonne
Asphalt - Removal Full Depth	$	15	$/sq.m
Granulars	$	60	$/cu.m
Curb	$	120	$/m
Culvert (600mm)	$	800	$/m
Common Excavation	$	50	$/ cu.m
Topsoil (10cm depth)	$	10	$/ sq.m
Hydroseed	$	5	$/sq.m
Borrow A	$	20	$/cu.m
Sidewalk	$	200	$/m
Concrete Island	$	240	$/sq.m
Clearing	$	80,000	ha
Traffic Control	$	30,000	LS
Guiderail	$	125	$/m
Signage	$	10,000	LS
Light Standard/Signals	$	200,000	LS
Mobilization	$	30,000	LS
Traffic Control	$	70,000	LS
H&S Planning	$	5,000	LS
Construction Contingency		20%	
Engineering		18%	

Volumes/Areas		#22 - Trunk2 / New Connector	#23 - Hwy 102 / New Connector W RB	#24 - Hwy 102 / New Connector E RB	1600M CONNECTOR
Asphalt	m^2	1,348	3,265	3,581	10,736
	tonne	475	1,151	1,262	3,784
Granulars	m^2	1,719	6,248	6,672	14,646
	m^3	863	2,870	3,067	6,591
Curb (total length)	m	662	429	480	
Culvert	m				
Sidewalk	m				
Concrete Island	m^2	371	201	211	
Landscaped Area (mound)	m^2	706	706	706	
	m^3	847	847	847	-
Landscaped Area (flat)	m^2	706			
Area to be Cleared	ha		3	3	1
Guiderail	m		1,750	1,836	
Signage	ea	1	1	1	
Signals	ea		1	1	
Site Fill	m^3		75,930	88,119	10,736

Cost	#22 - Trunk2 / New Connector	#23 - Hwy 102 / New Connector W RB	#24 - Hwy 102 / New Connector E RB	1600M CONNECTOR
Asphalt - Supply Install	$ 190,068	$ 460,365	$ 504,921	$ 1,513,776
Asphalt - Removal Full Depth	$ 20,220	$ 48,975	$ 53,715	$ 161,040
Granulars	$ 51,775	$ 172,171	$ 184,032	$ 395,442
Curb	$ 79,440	$ 51,480	$ 57,600	$ -
Culvert (600mm)	$ -	$ -	$ -	$ -
Common Excavation	$ 43,146	$ 143,476	$ 153,360	$ 329,535
Topsoil (10cm depth)	$ 14,120	$ 7,060	$ 7,060	$ -
Hydroseed	$ 7,060	$ 3,530	$ 3,530	$ -
Borrow A	$ 16,944	$ 1,535,544	$ 1,779,324	$ 214,720
Concrete Island	$ 89,040	$ 48,240	$ 50,640	$ -
Sidewalk	$ -	$ -	$ -	$ -
Clearing	$ -	$ 200,000	$ 224,000	$ 80,000
Traffic Control	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Guide Rail	$ -	$ 218,750	$ 229,500	$ -
Signage	$ 10,000	$ 10,000	$ 10,000	$ -
Light Standards/Signals	$ -	$ 200,000	$ 200,000	$ -
Mobilization	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Traffic Control	$ 70,000	$ 70,000	$ 70,000	$ 70,000
H&S Planning	$ 5,000	$ 5,000	$ 5,000	$ 5,000
Sub Total	**$ 657,000**	**$ 3,235,000**	**$ 3,593,000**	**$ 2,830,000**
Construction Contingency	$ 131,400	$ 647,000	$ 718,600	$ 566,000
Engineering Design	$ 119,000	$ 583,000	$ 647,000	$ 510,000
Total	$ 907,400	$ 4,465,000	$ 4,958,600	$ 3,906,000

Notes				
Power Pole Relocate	no	no	no	no
Property Acquistion	yes	yes	yes	yes

102732.001

Cost Estimate

Contractor Items

Item #	Description	UOM	Quantity	Unit Price	Total
	NEBT1800 girder	ea	8	$ 70,000.00	$ 560,000.00
	Deck concrete	m3	215.775	$ 2,500.00	$ 539,437.50
	Barrier concrete	m3	46.5	$ 2,500.00	$ 116,250.00
	Sidewalk	m3	11.25	$ 2,500.00	$ 28,125.00
	Abutments	m3	82.2	$ 2,500.00	$ 205,500.00
	Wingwalls	m3	22.896	$ 2,500.00	$ 57,240.00
	Approach Slab	m3	34.2	$ 2,500.00	$ 85,500.00
	Piers	m3	13.6	$ 2,500.00	$ 33,929.20
	Pier Bent	m3	19.728	$ 2,500.00	$ 33,929.20
	Spread footing	m3	49.32	$ 2,500.00	$ 123,300.00
	Reinforcing	kg	117805	$ 4.50	$ 530,123.04
	Steel H-Piles	m	675	$ 500.00	$ 337,500.00
	wearing surface	t	115.5	$ 50.00	$ 5,775.00
	Waterproofing	m2	825	$ 50.00	$ 41,250.00
	Mobilization	LS	1	$ 50,000.00	$ 50,000.00
	Sub-total				$ 2,747,858.94
	20% for additional miscellaneaous				$ 549,571.79
	Sub-total				$ 3,297,430.73
	20% contingency				$ 494,614.61
	Sub-total				$ 3,792,045.33
	Engineering (8%)				$ 303,363.63
	Grand Total				$ 4,095,408.96