OCTOBER 18, 2022

PROJECT NO: 1101-4125

MTO Central Region Engineering Office Corridor Management Section 159 Sir William Hearst Ave., 7th Floor Toronto, ON M3M 0B7

Attention: Peter Dorton

Senior Project Manager, Corridor Management

RE: 7723 HIGHWAY 89 (PILLA LANDS)

TOWNSHIP OF ADJALA-TOSORONTIO, COUNTY OF SIMCOE

TRANSPORATION LETTER OF SUPPORT

Dear Peter,

C.F. Crozier & Associates (Crozier) was retained by Pilla Investments Incorporated (the proponent) to prepare documentation in support of the Draft Plan application for the development of 7723 Highway 89, known as the Pilla Lands, in the Township of Adjala-Tosorontio.

Crozier completed a Highway Access Management Plan (HAMP), dated November 2017, in support of the development. The HAMP reviewed the horizon years of 2026, 2031 and 2036. At the time of the report, individual uses for the site had not been specified, and the Institute of Transportation Engineers (ITE) Trip Generation Manual was used to forecast the trip generation of the site assuming general employment/industrial uses. Land Use Code (LUC) 130 – Industrial Park was utilized for the 73 acres site, and it was forecasted that 512 a.m., 508 p.m. and 344 Saturday two-way trips would be generated by the development. The HAMP concluded that the addition of site traffic was expected to have minimal impact on the boundary road network.

Additionally, the HAMP concluded that the preferred site access to Highway 89 would be 400 m west of Concession Road 7. A secondary access would be provided through the existing connection to Concession Road 7, south of the Home Hardware. This access (Street A) has been built to the Township of Adjala-Tosorontino Engineering Standards and could be assumed by the municipality. A future connection to County Road 50 (Street C), through lands not owned by the proponent, was also reviewed.

The detailed analysis contained within the HAMP resulted in the following recommendations:

- Signalization and construction of an exclusive westbound left-turn lane with 15 m of storage at the intersection of Highway 89 and Street B.
 - Recommended for completion by 2026 by the applicant.
- A southbound left-turn lane with 40 m of storage at the intersection of Country Road 50 and Street C.
 - Recommended for completion by 2036 by a future applicant for 7845 Highway 89.



- Signalization of the intersection of Highway 89 and Concession Road 7/ Dean Drive.
 - o Recommended for completion by 2026 by the MTO/Township of Adjala-Tosorontio.
- Signalization of the intersection of Highway 89 and Concession Road 7/ Elizabeth Street
 - o Recommended for completion by 2026 by the MTO/Township of Adjala-Tosorontio.

The current Draft Plan remains consistent with the previous version, proposing 73 acres of development area. The plan proposes a single connection (20 m ROW) to Highway 89 and a single connection (30 m ROW) to Concession Road 7. As consistent with the HAMP, the connection to Highway 48 is to be 400 m from Concession Road 7 and the existing connection to Concession Road 7 will be utilized. The Draft Plan does not illustrate the proposed future connection to Country Road 50 that was reviewed as part of the HAMP as the connection relies on the use of lands not owned by the proponent.

As the proposed uses of the individual lots is still unknown at this time, the assumptions made to forecast trip generation and the future operations remain appropriate. At the time when the individual lots are proposed for development and undergo Site Plan Approval, updated reports can be prepared to reflect the trip generation associated with the confirmed use.

In conclusion the analysis presented in the November 2017 Highway Access Management Plan is still applicable. The report has been attached to this Letter for your reference.

Should you have any questions or require any further information, please do not hesitate to contact the undersigned.

Sincerely,

C.F. CROZIER & ASSOCIATES INC.

Madeleine Ferguson, P.Eng. Manager of Transportation

MF/kh

C.F. CROZIER & ASSOCIATES INC.

Kerianne Hagan, E.I.T

Engineering Intern, Transportation

Enclosure:

Highway Access Management Plan (Crozier, November 2017)

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HIGHWAY ACCESS MANAGEMENT PLAN

7723 HIGHWAY 89
TOWNSHIP OF ADJALA-TOSORONTIO
COUNTY OF SIMCOE

PREPARED FOR:
PILLA INVESTMENTS INCORPORATED

PART 1 OF 3

PREPARED BY:

C.F. CROZIER & ASSOCIATES INC. 40 HURON STREET, SUITE 301 COLLINGWOOD, ONTARIO L9Y4R3

NOVEMBER 2017

CFCA FILE NO. 1101-4125

The material in this report reflects best judgment in light of the information available at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. C.F. Crozier & Associates Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.



Identification	Date	Description of Work
Draft Submission	October 2017	Project Team Review
Final Submission	November 2017	Submission to MTO and Township

1.0 EXECUTIVE SUMMARY

1.1 Introduction

CF Crozier & Associates Inc. (Crozier) was retained by Pilla Investments Incorporated to complete a Highway Access Management Plan (HAMP) for the Highway 89 corridor between County Road 50 and Industrial Parkway. The majority of this portion of Highway 89 is within the Township of Adjala-Tosorontio, and under the jurisdiction of the Ontario Ministry of Transportation (MTO). The Town of New Tecumseth town line is approximately 240 metres west of the intersection of Highway 89/Young Street and Industrial Parkway. At this point Highway 89 becomes a Connecting Link Road through the Town of New Tecumseth and transitions into Young Street, King Street and then Victoria Street for 5.30 kilometers.

The subject lands are approximately 73 acres in size, and are located on the south side of Highway 89, west of Concession Road 7, as illustrated in **Figure 1**. The property is currently zoned as Employment (E1) per the Township of Adjala-Tosorontio Zoning By-law No. 13-14, Schedule 'A', included in **Appendix J.** Prior to further development on the subject lands, the MTO has requested a HAMP be completed to evaluate the potential impacts of the subject lands to the boundary road network, as well as the impact of any proposed access to Highway 89 from an access management perspective. This study also recommends any mitigation measures required to accommodate future developments in the area.

The study analyzes the operations of the boundary road intersections, as well as the proposed accesses to the subject lands. The future traffic operations with and without the addition of the site generated vehicular trips are also analyzed. In addition, a sensitivity analysis was completed for the property located at 7845 Highway 89 for the ultimate horizon year.

1.2 Existing Conditions

Analysis of traffic operations at the study intersections under existing traffic conditions indicate the following:

- Highway 89 and Concession Road 7/Dean Drive (unsignalized) operates at a LOS "F" during the Saturday peak hour, with heavy delays on the minor approaches;
- Highway 89 and Concession Road 7/Elizabeth Street (unsignalized) operates at a LOS "F" during the Saturday peak hour, with heavy delays on the minor approaches; and,
- All other intersections within the study area operate at a LOS "C" or better during the weekday a.m., p.m. and Saturday peak hours.

Currently, the subject lands have one newly constructed access off Concession Road 7, approximately 240 metres south of Highway 89. This access has been constructed to serve the planned Home Hardware development adjacent to the north-east quadrant of the subject lands.

1.3 Study Assumptions

1.3.1. Horizon Years

The study horizons comprised of 10, 15 and 20 years beyond the date of completion of the HAMP (2026, 2031, and 2036) were established in the approved HAMP Workplan dated January 16, 2017.

1.3.2. Growth Rate

Using the historical Average Annual Daily Traffic Volumes provided by the MTO for Highway 89, a conservative growth rate of **3%** was calculated. This growth rate was also supported by Statistics Canada data, which calculated a similar population growth rate in Adjala-Tosorontio from 2011 to 2016.

1.3.3. Access Locations

As shown in **Figure 25**, access locations to the subject lands will consist of the existing access off of Concession Road 7, and the proposed access off of Highway 89.

1.3.4. Land Use

Due to the unknown nature of the development, it was assumed that general employment/industrial would occupy the remaining subject lands. For this reason, Industrial Park (ITE LUC 130) was assumed for trip generation purposes. This use aligns with the Township of Adjala-Tosorontio By-Law, which states both the subject lands and adjacent properties are designated as employment lands.

1.4 Future Background Conditions

Analysis of traffic operations at the study intersections under future background traffic conditions indicate the following:

- The intersection of Highway 89 and Concession Road 7/Dean Drive is warranted for signal implementation by the 2026 future background conditions;
- The intersection of Highway 89 and Concession Road 7/Elizabeth Street is warranted for signal implementation by the 2031 future background conditions. It was assumed that signals would be implemented by 2026 due to the existing LOS "F" in the 2017 Saturday peak hour;
- The intersection of Highway 89 and County Road 50 is expected to operate at an acceptable LOS "C" or better during the 2036 future background weekday a.m., p.m. and Saturday peak hours. Additionally, the intersection is expected to reach capacity with a volume-to-capacity ratio of 1.00 for the northbound-right movement, however, this is considered a background issue and is minimally impacted by the potential development; and,
- All other intersections are expected to operate at an acceptable LOS during all horizon years.

1.5 Highway Access Management

1.5.1. Preferred Access Locations

As shown in **Figure 25**, the preferred access from Highway 89 (Street B) is located approximately 400 metres west of Concession Road 7. This will result in only one access on the south side over the 700 metre segment of Highway 89, which is preferable from a Highway Access Management perspective.

Furthermore, the future potential Street C and County Road 50 intersection should be located a minimum of 400 metres south of Highway 89 in order to adhere to the MTO's Highway Access Management Guidelines.

It is expected that Street A, B, and C ultimately connect in order to provide a through connection from Concession Road 7 to County Road 50, as shown in **Figure 25.**

1.5.2. Constraints and Restrictions

Within the subject lands, there are minimal expected constraints that would provide difficulties when constructing Street A westerly across the site.

If Street A is ultimately going to connect to County Road 50 via Street C, detailed design will need to consider the stream traversing diagonally across 7845 Highway 89. For reference, Street C is the extended portion of Street A through 7845 Highway 89, ultimately connecting to County Road 50.

1.5.3. Street A Classification

The recently constructed access to Concession Road 7 has been built to Adjala-Tosorontio Engineering Standards, thereby supporting the ability for Street A to be assumed by the Township upon development completion.

1.6 Future Total Conditions

Analysis of traffic operations at the study intersections indicate that in addition to the requirements previously stated for the future background operations, future total traffic conditions additionally result in the following:

- The intersection of Highway 89 and Street B is not warranted for signal implementation during any horizon year, however, due to the heavy through volumes on Highway 89, the traffic operations support the implementation of a traffic signal. This is expected to be implemented at the same time as the development in 2026;
- The intersection of Highway 89 and Street B warrants a left-turn lane with a minimum of 30 metres storage under unsignalized conditions, and warrants a left-turn lane with a minimum of 15 metres storage under signalized conditions; and,
- Overall, the addition of site traffic to the boundary road network is expected to have minimal impact to the intersection operations.

1.7 Sensitivity Analysis

- In the 2036 future total sensitivity analysis, the boundary road network is expected to have very similar operations with minor increases to the volume to capacity ratios and control delay, when compared to the 2036 future total operations; and,
- The potential Street C and County Road 50 intersection warrants a left turn lane with minimum 40 metres storage in the 2036 Future Total Sensitivity Conditions. However, this should be reevaluated when further development details are known.

1.8 Access Safety

- Analysis of sight distance at the future Street C connection to County Road 50 indicates that limited sight distance is available to the south. Accordingly, minor adjustments should be considered during detailed design to locate the intersection such that the sight distance is maximized for vehicles exiting the property; and,
- All other analyses of sight distance at the site accesses indicate that there is sufficient sight distance for vehicles exiting the property. The future development is supportable from a sight distance perspective.

1.9 Findings and Recommendations

The detailed analysis contained within this report has resulted in the recommendations described in Table 1, with further recommendations noted below.

Table 1: Recommended Mitigation Measures and Responsibilities

Location	Improvement	Timeline	Responsibility
Highway 89 and Street B	Signalization, and construction of an exclusive westbound left-turn lane with 15 metres of storage	2026	Applicant
County Road 50 and Street C	Southbound left-turn lane with 40 metres of storage	2036	Future Applicant (7845 Highway 89)
Highway 89 and Concession Road 7/ Dean Drive	Signalization	2026	MTO/Township of Adjala-Tosorontio
Highway 89 and Concession Road 7/ Elizabeth Street	Signalization	2026	MTO/Township of Adjala-Tosorontio

1.9.1. Auxiliary Turn-Lanes

 An auxiliary left-turn lane is not warranted at the intersection of Concession Road 7 and Street A;

1.9.2. Signal Warrants

 Signals are not warranted at the intersections of Concession Road 7 and Street A, and County Road 50 and Street C. The intersections were found to operate with acceptable levels of service and delay under 2036 future total conditions, accordingly signals are not recommended at these intersections.

1.9.3. Optimized Signal Timings

• The operations of all signalized intersections were analyzed under optimized signal timings. It is therefore recommended that the signal timings be updated to accommodate the future growth in the area. These improvements should be completed in coordination with the Township of Adjala-Tosorontio and the Ontario Ministry of Transportation.

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2.0 Introduction

2.1 Background

CF Crozier & Associates Inc. (Crozier) was retained by Pilla Investments Incorporated to complete a Highway Access Management Plan (HAMP) for the Highway 89 corridor between County Road 50 and Industrial Parkway. The majority of this portion of Highway 89 is within the Township of Adjala-Tosorontio, and under the jurisdiction of the Ontario Ministry of Transportation (MTO). The Town of New Tecumseth town line is approximately 240 metres west of the intersection of Highway 89/Young Street and Industrial Parkway. At this point Highway 89 becomes a Connecting Link Road through the Town of New Tecumseth and transitions into Young Street, King Street and then Victoria Street for 5.30 kilometers.

The subject lands are approximately 73 acres in size, and are located on the south side of Highway 89, west of Concession Road 7, as illustrated in **Figure 1**. Prior to further development on the subject lands, the MTO has requested a HAMP be completed to evaluate the potential impacts of the subject lands to the boundary road network, as well as the impact of any proposed access to Highway 89 from an access management perspective. This study also recommends any mitigation measures required to accommodate future developments in the area.

The study analyzes the operations of the boundary road intersections, as well as the proposed accesses to the subject lands. The future traffic operations with and without the addition of the site generated vehicular trips are also analyzed. In addition, a sensitivity analysis was completed for the property located at 7845 Highway 89 for the ultimate horizon year.

The work plan for the study was confirmed with Township of Adjala-Tosorontio and MTO staff, with correspondence included in **Appendix A**.

The study has been completed in accordance with the procedures set out in the MTO "Highway Access Management Guidelines" (December, 2013), the MTO "Traffic Impact Study Guidelines" (September, 2014) and agreed upon Work Plan with the Township and MTO, with the associated analyses and findings outlined therein.

2.2 Study Area

The study area includes the Highway 89 corridor between County Road 50 and Industrial Parkway, as shown in **Figure 1.** The majority of this portion of Highway 89 is within the Township of Adjala-Tosorontio, and under the jurisdiction of the Ontario Ministry of Transportation (MTO). The property is currently zoned as Employment (E1) per the Township of Adjala-Tosorontio Zoning By-law No. 13-14, Schedule 'A', included in **Appendix J.**

The Town of New Tecumseth town line is approximately 240 metres west of the intersection of Highway 89/Young Street and Industrial Parkway. At this point Highway 89 becomes a Connecting Link Road through the Town of New Tecumseth and transitions into Young Street, King Street and then Victoria Street for a length of 5.30 kilometers. Land uses in the study area are characterized by commercial, industrial and residential uses. East of the Town of New Tecumseth town line there is an increased presence of commercial, retail and residential developments.

2.3 Evaluation Practices

The level of service of a signalized intersection is based on the average control delay per vehicle and the level of service of a stop-controlled intersection is based on the delay associated with the critical

minor road approach; i.e., Elizabeth Street, Concession Road 6, etc. According to MTO Guidelines, critical volume-to-capacity ratios include values greater than 0.85 for any movement or approach. The level of service tables included in this report identify the critical volume-to-capacity ratios for the governing movement of each intersection, as well as the maximum volume-to-capacity ratio for any intersection not exceeding the critical threshold noted above.

3.0 Existing Conditions

3.1 Development Lands

The subject property is an approximate 73-acre undeveloped lot located in the Township of Adjala-Tosorontio. The subject property is bound by Concession Road 7 to the east, Highway 89 to the north, agricultural uses to the south and industrial uses to the west. The subject property itself currently contains agricultural lands, and has one direct access to Highway 89.

3.2 Boundary Road Network

Table 2: Boundary Road Network Summary

Road Lanes Posted Speed (km/h)		Classification	Jurisdiction	Pedestrian Infrastructure	
Industrial Parkway	strial Parkway 2 50 km/h		Local Roadway	Town of New Tecumseth	Concrete sidewalks (east and west)
Highway 89	4	80 km/h (until 320 m west of Concession Road 7)	Provincial Highway	Ontario Ministry of Transportation	None
Highway 89 4		60 km/h (320 m west of Concession Road 7 to 240 m west of Industrial Street)	Provincial Highway	Ontario Ministry of Transportation	None
Highway 89/Young Street	4	50 km/h (240 m west of Industrial Street)	Connecting Link	Town of New Tecumseth	Concrete sidewalks (south)
Concession Rd 7 (N)	2	60 km/h	Local Roadway	Township of Adjala- Tosorontio	None
Concession Rd 7 (S)	2	60km/h	Local Roadway	Township of Adjala- Tosorontio	None
Dean Drive	2	50 km/h	Local Roadway	Township of Adjala- Tosorontio	None
Concession Rd 6	2	80km/h	Local Roadway	Township of Adjala- Tosorontio	None
County Road 50	2	80 km/h	Primary Arterial	County of Simcoe	None
Elizabeth Street	2	Not posted	Local Roadway	Township of Adjala- Tosorontio	None

As noted in Table 2, Highway 89 is under the jurisdiction of the Ontario Ministry of Transportation until the Town of New Tecumseth town line, at which point Highway 89 transitions into Young Street and becomes a Connecting Link, as noted in the MTO Connecting Links Program Guide (August 2017). The Connecting Link is 5.30 kilometers in length, and is comprised of Young Street, King Street, and Victoria Street.

3.3 Key Intersections

The following are the key intersections contained within the study area. **Figure 2** illustrates the existing lane configuration and control type of each intersection.

- Highway 89/Young Street & Industrial Parkway
- Highway 89 & Elizabeth Street East
- Highway 89 & Concession Road 7 North Elizabeth Street West
- Highway 89 & Concession Road 7 South Dean Drive
- Highway 89 & Concession Road 6
- Highway 89 & County Road 50

3.4 Active Transportation Network

3.4.1. Cycling Facilities

No cycling facilities exist within the study area.

3.4.2. Transit Facilities

No public transit facilities exist within the study area.

3.5 Road and Access Spacing

Along Highway 89, there are a number of existing private accesses, most of which permit full-moves. To simplify the inventory, these accesses have been divided into four quadrants. The Highway 89 North-West quadrant extends from County Road 50 to Concession Road 7; the Highway 89 North-East quadrant extends from Concession Road 7 to Industrial Parkway; the Highway 89 South-West quadrant extends from County Road 50 to Concession Road 7; the Highway 89 South-East quadrant extends from Concession Road 7 to Industrial Parkway. The existing access locations are illustrated in **Figures 3 and 4.**

Table 3: Road and Access Spacing

Location Entrance As labelled in Land Use Figure 3/4			Distance to	
		Distance From County Road 50	Previous Access	Entrance Width
A1	Concession Road 6	195 m	195 m	4 m
A2	Auto Repair	280 m	85 m	12.5 m
A3	Religious	440 m	160 m	9 m
A4	Residential	585 m	145 m	6 m
A5	Residential	735 m	150 m	6 m
A6	Agricultural	838 m	103 m	4 m
A7	Storage	885 m	150 m	7.5 m

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	Location			Entrance Width	
Entrance As labelled in Figure 3/4	Land Use	Distance From County Road 50	Distance to Previous Access		
A8	Storage	925 m	40 m	10.5 m	
Α9	Auto Repair	1000 m	75 m	9 m	
A10	Hydro	1005 m	5 m	28 m	
A11	Dean Drive	1230 m	25 m	11.5 m	
A12	Concession Road 7	1560 m	30 m	11.5 m	
	Highwa	y 89 North-East Quad	lrant		
В1	Auto Service	1740 m	180 m	8 m	
B2	Auto Service	1780 m	40 m	11 m	
В3	Residential	1830 m	80 m	11 m	
B4	Residential	1850 m	20 m	5.75 m	
B5	Veterinary Clinic	1880 m	30 m	7 m	
В6	Residential	1920 m	40 m	10.5 m	
В7	Residential	1970 m	50 m	9.5 m	
B8	Residential	2010 m	40 m	5 m	
В9	Residential	2040 m	30 m	4 m	
B10	Residential	2050 m	10 m	6 m	
B11	Residential	2080 m	30 m	5.5 m	
B12	Residential	2110 m	30 m	5 m	
B13	Residential	2130 m	20 m	5.5 m	
B14	Residential	2150 m	20 m	7 m	
	Highwa	y 89 North-East Quad	<u>Irant</u>		
B15	Residential	2170 m	20 m	7 m	
B16	Residential	2190 m	20 m	6 m	
B17	Residential	2220 m	30 m	10 m	
B18	Residential	2260 m	40 m	6 m	
B19	Commercial Plaza	2330 m	70 m	9.5 m	
	Highway	/ 89 South-West Quad	drant		
C1	Industrial	260 m	260 m	10 m	
C2	Residential	375 m	115 m	6 m	
C3	Residential	430 m	55 m	8 m	
C4	Residential	450 m	20 m	7 m	
C5	Residential	485 m	35 m	6 m	
C6	Residential	520 m	35 m	17 m	
C7	Residential	840 m	20 m	6 m	
C8	Concession Road 7	1230 m	90 m	9 m	
	Highway	y 89 South-East Quad	Irant		
D1	Auto Repair	1270 m	40 m	9.5 m	
D2	Auto Repair	1300 m	30 m	11 m	
D3	Garden Centre	1380 m	80 m	15 m	
D4	U Haul	1460 m	80 m	13 m	
D5	Elizabeth Street West	1560 m	100 m	15 m	
D6	Elizabeth Street East	1820 m	60 m	10 m	
D7	Residential	1880 m	60 m	6 m	
D8	Residential	1910 m	30 m	7 m	
D9	Residential	1930 m	20 m	10 m	

Location			Distance to	
Entrance As labelled in Figure 3/4	Land Use	Distance From County Road 50	Previous Access	Entrance Width
D10	Residential	2000 m	70 m	6 m
D11	Residential	2030 m	30 m	10 m
D12	Residential	2060 m	30 m	6 m
D13	Residential	2080 m	220 m	5 m
D14	Commercial Plaza	2200 m	120 m	9 m
D15	Industrial Parkway	2330 m	130 m	20 m

3.6 Traffic Data

Turning movement counts for the boundary road intersections were undertaken by Ontario Traffic Inc. on Tuesday, June 13, 2017 from 6:00 a.m. to 10:00 a.m. and 3:00 p.m. to 7:00 p.m. and on Saturday, June 10, 2017 from 11:00 a.m. to 2:00 p.m. Peak Hour Factors (PHFs) were calculated from the traffic data and used in the traffic modelling. The traffic count data is summarized in **Appendix C. Figure 5** illustrates the 2017 existing traffic volumes.

3.7 Intersection Operations

The operations of the critical intersections were analyzed on the basis of the traffic volumes illustrated in **Figure 5**.

The 2017 traffic levels of service (LOS) are summarized in Table 4 for the counts taken at the study intersections under existing conditions. Signal timing plans for the intersections of Highway 89 and County Road 50 and Highway 89/Young Street and Industrial Parkway/ Commercial Plaza Access were made available to Crozier for modelling purposes. LOS definitions for signalized and unsignalized intersections are contained in **Appendix B**. Detailed capacity analyses are included in **Appendix F**. Signal timings have been included in **Appendix G**.

Table 4: 2017 Existing Levels of Service

Intersection	Control	Peak Hour	Level of Service	Control Delay	Critical V/C Ratios
		A.M.	Α	7.1 s	0.38 (NBR)
Highway 89 and County Road 50	Signal	P.M.	В	13.1 s	0.72 (NBR)
,		Saturday	В	10.3 s	0.58 (NBR)
		A.M.	В	11.6 s	0.11 (SB)
Highway 89 and Concession Road 6	Stop	P.M.	С	15.6 s	0.09 (SB)
		Saturday	С	15.2 s	0.09 (SB)
Highway 89 and	Stop	A.M.	С	19.0 s	0.24 (SB)
Concession Road		P.M.	D	33.4 s	0.34 (SB)
7/ Dean Drive		Saturday	F	111.8 s	0.94 (SB)
Highway 89 and	Stop	A.M.	В	14.3s	0.13 (SB)
Concession Road		P.M.	D	30.8 s	0.44 (SB)
7/ Elizabeth Street		Saturday	F	76.6 s	0.84 (SB)
		A.M.	В	10.2 s	0.02 (NB)
Highway 89 and Elizabeth Street	Stop	P.M.	В	11.1 s	0.02 (NB)
		Saturday	В	11.6 s	0.01 (NB)
Highway 89/Young Street and Industrial		A.M.	В	11.8 s	0.45 (NBL)
Parkway/	Signal	P.M.	В	16.5 s	0.66 (NBL)
Commercial Plaza Access		Saturday	В	14.3 s	0.56 (WBL)

The metrics listed in Table 3 above indicate that the study intersections are operating efficiently with minor delays and reserve capacity in the weekday a.m., p.m. and Saturday peak hours, except for two instances. Additionally, the 95th percentile queues are contained with the available storage.

The intersection of Highway 89 and Concession Road 7/ Dean Drive is currently operating at a LOS "F" in the Saturday peak hour. The control delay of 111.8 seconds and maximum individual volume-to-capacity ratio of 0.94 (SB) indicate that the intersection is operating near capacity with heavy delays. This supports future intersection improvements, which is discussed further in Section 4.6.

The intersection of Highway 89 and Concession Road 7/ Elizabeth Street is currently operating at a LOS "F" in the Saturday peak hour. The control delay of 76.6 seconds and maximum individual volume-to-capacity ratio of 0.84 (SB) in the Saturday peak hour indicate that the intersection is approaching capacity with heavy delays. This supports future intersection improvements, which is discussed further in Section 4.6.

4.0 Future Background Conditions

4.1 Horizon Years

Although the specific phasing of the commercial development is yet to be determined at the time of writing this report, the adjacent Home Hardware development is expected to be completed by the end of 2018. The remaining portion of these lands are then expected to be developed in 2020.

Adhering to the MTO TIS Guidelines – September 2014, both the 5 and 10-year horizons of 2026 and 2031 will be analyzed. Additionally, the 15-year study horizon will be analyzed to account for the uncertainty of the commercial development completion date.

4.2 Growth Rate

The MTO provides Average Annual Daily Traffic Volumes on all provincial highways. These volumes were used to calculate an average growth rate of 3.1% as summarized in Table 4. Additionally, Statistics Canada data shows an increase in population of 3.5% from 2011 to 2016. As such, a background growth rate of 3% was used to forecast future background traffic volumes for all horizon years. This growth rate is greater than the industry standard of 2%, reflecting an overall conservative analysis.

Table 5: Background AADT Volumes

Corridor	2013	2013 2012		2011
Town of New Tecumseth (W Limit) to Simcoe Road 50	11, 900	11, 900 11, 500		11, 200
Growth Rate (%)	2.7		3.5	

4.3 Future Roadway Improvements

No capacity improvements have been identified for the boundary roads within the study horizons. As a result of the recent Home Hardware development, a new access to Concession Road 7 has been constructed. This access provides the opportunity to create a new east-west (Street A) roadway which would improve connectivity for future developments in the area.

4.4 Background Trip Generation

At the time of writing this report, the only known background development within the study area is the Home Hardware, which is currently being relocated to the south-west quadrant of the intersection of Highway 89 and Concession Road 7/Dean Drive. The existing facility is generating trips under its current operations. These trips were not removed from the boundary road network as information on the specific travel paths could not be tracked, resulting in a conservative analysis.

The trip generation for the Home Hardware was forecasted using the fitted curve equations (where available) from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 8th Edition, under Land Use Category 816 "Hardware/Paint Store". Per the Site Plan dated August 28, 2017, the proposed Home Hardware will have a gross floor area (GFA) of approximately 33,000 square feet. This GFA includes the main retail area as well as the ground floor office area. This is also consistent with the GFA of the existing Home Hardware.

As defined by the ITE Trip Generation Handbook, 3rd Edition, primary trips are trips made for the specific purpose of visiting the generator and pass-by trips are made as intermediate stops on the way from an origin to a primary trip destination without a route diversion. Accordingly, these trips do not increase the volume of vehicles on the roadway.

Table F.8 of the ITE Trip Generation Handbook estimates a 26 percent pass-by trip rate for Category 816 "Hardware/Paint Store" during the weekday p.m. peak period. This percentage was applied to the weekday a.m., p.m. and Saturday peak hours.

The forecasted total, pass-by and primary trips are outlined in Table 6 below.

Table 6: Background Generated Traffic

Calculation Method	Size	Peak Hour	Trip Type	In	Out	Total
	33,000 ft²	Weekday A.M.	Primary	14	12	26
			Pass-By	5	5	10
Hardware/ Paint		Weekday P.M.	Primary	62	56	118
Store (Category 816)			Pass-By	22	20	42
		Carlo malan	Primary	148	125	273
		Saturday	Pass-By	52	44	96

Note: Saturday split percentages were not provided so Weekday P.M. values were used

It should be noted that the data used for the Hardware/Paint Store trip generation was derived from a small sample size, which may lead to a higher degree of variance. Additionally, the weekday peak hour of the generator used for the Hardware/Paint Store varied between 10:00 a.m. and 4:00 p.m. while the weekend peak hour varied between 11:00 a.m. and 2:00 p.m.

4.5 Background Trip Distribution and Assignment

The primary trips generated by the Home Hardware were distributed to the boundary road network using Transportation Tomorrow Survey data. Due to the proximity of the Town of New Tecumseth, additional trips were assigned to the east. For a detailed illustration on background primary trip distribution and assignment, refer to **Figures 6 and 8**, respectively.

The pass-by trips generated by the Home Hardware were distributed to the boundary road network based on existing travel patterns. The background primary pass-by distribution and assignment are illustrated in **Figures 7 and 9**, respectively.

4.6 Intersection Operations

The operations of the subject intersections were analyzed on the basis of the future background traffic volumes illustrated in **Figures 11 through 13**. Tables 8, 9 and 10 outline the 2026, 2031, and 2036 future background traffic levels of service, respectively. Detailed capacity analysis worksheets are included in **Appendix F**.

4.6.1. Existing Roadway Conditions

Analysis of the future background traffic volumes under existing roadway conditions indicated operational issues at the intersections of Highway 89 and Concession Road 7/Dean Drive and Highway 89 and Concession Road 7/Elizabeth Street.

Table 7 below summarizes the operations of the noted intersections under 2036 future background traffic conditions.

Table 7: 2036 Future Background Levels of Service Existing Roadway Conditions

Intersection	Control	Peak Hour	Level of Service	Control Delay	Critical V/C Ratios
Highway 89 and		A.M.	F	248.2 s	1.28 (SB)
Concession Road	Stop	P.M.	F	Error	13.48 (SB)
7/ Dean Drive		Saturday	F	Error	Error
Highway 89 and	Stop	A.M.	Е	40.4 s	0.55 (SB)
Concession Road		P.M.	F	Error	3.96 (SB)
7/ Elizabeth Street		Saturday	F	Error	Error

A signal warrant analysis was undertaken for the intersections of Highway 89 and Concession Road 7/Dean Drive and Highway 89 and Concession Road 7/Elizabeth Street for the horizon years. The analysis followed the procedures specified in Chapter 4 of the "Ontario Traffic Manual – Book 12", March 2012. Justifications 1 (Minimum Vehicular Volume), 2 (delay to Cross Traffic), 3 (Combination of Justifications 1 and 2), and 4 (4-Hour Volume) were selected as the most appropriate warrants with which to assess the intersections.

The average hour volume was determined using the following formula from OTM Book 12:

$$AHV = \frac{amPHV + pm\ PHV}{4}$$

Where:

AHV = Average Hour Volume PHV = Peak Hour Volume

Table 8 below outlines the results of the signal warrant analysis. **Appendix G** contains the signal warrant sheets.

Table 8: Signal Warrant Analysis Results – Future Background

	and to or orginal frame		~	
Location	Time Period	Warranted	Year	Justification
Highway 89 and Concession Road	Weekday	✓	2036	3
7/ Dean Drive	Saturday	✓	2026	1-4
Highway 89 and	Weekday	*	-	N/A
Concession Road 7/ Elizabeth Street	Saturday	✓	2031	2-4

The analysis determined that in the future background conditions, traffic signals are warranted at the intersections of Highway 89 and Concession Road 7/Dean Drive and Highway 89 and Concession Road 7/Elizabeth Street. Accordingly, the intersections were modeled as signals in all horizon years. The intersections were modelled with a cycle-length of 90 seconds and the same inter-green times as the intersection of Highway 89/Young Street and Industrial Parkway.

As signals are warranted under future background conditions, and existing conditions indicate poor

operations in the Saturday peak hour, the design and implementation of the signals should be considered by the MTO and Township of Adjala-Tosorontio. The primary purpose of the modelling is to illustrate the improved traffic operations of the intersection under signalized conditions.

4.6.2. Proposed Roadway Conditions

Table 9: 2026 Future Background Levels of Service

Intersection	Control	Peak Hour	Level of Service	Control Delay	Critical V/C Ratios
		A.M.	Α	8.3 s	0.46 (NBR)
Highway 89 and County Road 50	Signal	P.M.	С	15.1 s	0.78 (NBR/NBL)
		Saturday	В	11.4 s	0.64 (NBR)
		A.M.	В	13.6 s	0.17 (SB)
Highway 89 and Concession Road 6	Stop	P.M.	С	22.0 s	0.17 (SB)
geneessien Read e		Saturday	С	19.3 s	0.15 (SB)
Highway 89 and		A.M.	Α	8.0 s	0.55 (SB)
Concession Road	Future Signal	P.M.	Α	9.8 s	0.69 (NB)
7/ Dean Drive		Saturday	В	19.3 s	0.76 (SB)
	Stop	A.M.	Α	9.4 s	0.02 (EB)
Concession Road 7/ Street A		P.M.	В	10.8 s	0.12 (EB)
,,		Saturday	В	13.4 s	0.30 (EB)
Highway 89 and		A.M.	Α	4.7 s	0.38 (SB)
Concession Road	Future	P.M.	Α	6.7 s	0.53 (SB)
7/ Elizabeth Street	Signal	Saturday	Α	9.4 s	0.65 (SB)
		A.M.	В	10.7 s	0.02 (NB)
Highway 89 and Elizabeth Street	Stop	P.M.	В	11.1 s	0.02 (NB)
Liizabeiii Siieei		Saturday	В	10.8 s	0.01 (NB)
Highway 89/Young		A.M.	В	14.4 s	0.54 (NBL)
Street and Industrial Parkway/	Signal	P.M.	С	20.3 s	0.75 (NBL)
Commercial Plaza Access		Saturday	С	22.2 s	0.82 (WBL)

Table 10: 2031 Future Background Levels of Service

Intersection	Control	Peak Hour	Level of Service	Control Delay	Critical V/C Ratios
		A.M.	Α	9.1 s	0.55 (WBL)
Highway 89 and County Road 50	Signal	P.M.	В	17.0 s	0.87 (NBL)
l		Saturday	В	12.2 s	0.68 (NBR)
		A.M.	С	15.6 s	0.23 (SB)
Highway 89 and Concession Road 6	Stop	P.M.	D	30.6 s	0.27 (SB)
Corresponding of		Saturday	С	22.1 s	0.19 (SB)
Highway 89 and		A.M.	Α	8.7 s	0.57 (SB)
Concession Road	Future Signal	P.M.	В	10.8 s	0.71 (NB)
7/ Dean Drive		Saturday	С	21.9 s	0.82 (SB)
	Stop	A.M.	Α	9.5 s	0.02 (EB)
Concession Road 7/ Street A		P.M.	В	11.2 s	O.14 (EB)
.,		Saturday	В	14.0 s	0.32 (EB)
Highway 89 and		A.M.	Α	5.0 s	0.41 (SB)
Concession Road	Future Signal	P.M.	Α	7.3 s	0.57 (SB)
7/ Elizabeth Street	3.13	Saturday	В	10.5 s	0.71 (SB)
		A.M.	В	10.8 s	0.03 (NB)
Highway 89 and Elizabeth Street	Stop	P.M.	В	11.2 s	0.03 (NB)
		Saturday	В	10.9 s	0.02 (NB)
Highway 89/Young Street and Industrial		A.M.	В	16.6 s	0.59 (NBL)
Parkway/	Signal	P.M.	С	24.9 s	0.81 (NBL)
Commercial Plaza Access		Saturday	С	30.4 s	0.96 (WBL)

Table 11: 2036 Future Background Levels of Service

Intersection	Control	Peak Hour	Level of Service	Control Delay	Critical V/C Ratios
		A.M.	В	10.8 s	0.70 (WBL)
Highway 89 and County Road 50	Signal	P.M.	С	26.6 s	0.99 (NBL) 1.00 (NBR)
		Saturday	В	13.3 s	0.72 (NBR)
		A.M.	С	18.8 s	0.31 (SB)
Highway 89 and Concession Road 6	Stop	P.M.	F	50.0 s	0.43 (SB)
		Saturday	D	26.0 s	0.23 (SB)
Highway 89 and		A.M.	А	9.5 s	0.62 (SB)
Concession Road	Future Signal	P.M.	В	12.2 s	0.74 (NB)
7/ Dean Drive		Saturday	С	25.9 s	0.86 (SB)
	Stop	A.M.	Α	9.7 s	0.02 (EB)
Concession Road 7/ Street A		P.M.	В	11.6 s	0.13 (EB)
.,		Saturday	В	14.9 s	0.34 (EB)
Highway 89 and		A.M.	Α	5.9 s	0.46 (SB)
Concession Road	Future Signal	P.M.	Α	8.8 s	0.63 (SB)
7/ Elizabeth Street	9	Saturday	В	12.1 s	0.77 (SB)
		A.M.	В	10.8 s	0.03 (NB)
Highway 89 and Elizabeth Street	Stop	P.M.	В	11.1 s	0.03 (NB)
		Saturday	В	10.9 s	0.02 (NB)
Highway 89/Young		A.M.	С	21.2 s	0.71 (WBL)
Street and Industrial	Signal	P.M.	С	33.4 s	0.92 (EBT)
Parkway/ Commercial Plaza Access	Signal	Saturday	D	52.4 s	1.15 (WBL) 1.08 (EBL) 1.06 (EBT)

The stop controlled intersection of Highway 89 and Concession Road 6 operates at a LOS "F" in the weekday p.m. peak hour under 2036 future background traffic conditions. This is primarily due to the heavy through volumes on Highway 89 that create a 50 second control delay on Concession Road 6. The capacity of the road itself has a maximum volume-to-capacity ratio of 0.43 (SB). Since the 2036 traffic volumes are forecasted approximately 20 years into the future, there is a high degree of uncertainty and traffic operations at this intersection should be reassessed when new development applications are submitted in the future.

While the intersection of Highway 89 and County Road 50 is operating at an acceptable level of service, the maximum volume-to-capacity ratios for the northbound left and right turning movements are at 0.99 and 1.00, respectively. This indicates that the intersection is anticipated to operate at capacity during the p.m. peak hour.

The intersection of Highway 89/Young Street and Industrial Parkway/Commercial Plaza Access is operating at an acceptable level of service with maximum volume-to-capacity ratios exceeding 1.00 for the westbound left, eastbound left, and eastbound through movements. This indicates that the intersection is anticipated to operate at capacity during the Saturday peak hour. The intersection currently operates with a westbound protected phase, however the intersection may benefit from an advanced eastbound left-turn phase as well.

All other intersections operate at a satisfactory level of service for all peak periods.

5.0 Development Proposal

The subject lands are approximately 73 acres in size. At this time, the specific uses proposed for the lands are unknown, however, the potential uses envisioned for the site are of a commercial/industrial nature.

The subject lands currently have one full-moves access to Concession Road 7 (Street A), which operates as the only access to the Home Hardware development at this time. The development proposes one full-moves access to Highway 89 (Street B) which would connect to Street A. Additionally, there is an opportunity to extend Street A westerly to ultimately connect to County Road 50, with the future development of the 7845 Highway 89 lands (not owned by the applicant). For reference, Street C is the extended portion of Street A through 7845 Highway 89, ultimately connecting to County Road 50. Refer to **Figure 25**, which illustrates the location of the subject lands as well as the potential access configuration.

6.0 Highway Access Management

The goal of this Highway Access Management Plan (HAMP) is to outline the strategy required to manage access to Highway 89 between Concession Road 50 and the Industrial Parkway. This HAMP aims to maintain the optimum balance between providing acceptable traffic operations and levels of service to Highway 89 site accesses while maintaining optimal access density and facilitating the Township's Land Use Planning vision in the subject corridor. This HAMP also aims to provide comprehensive guidelines for any potential accesses to Highway 89 that may be proposed in the future. This HAMP will address the current and future function of the corridor.

6.1 Road and Access Spacing

There are six existing intersections and 44 accesses within the study area. Most of the lands within the study area have existing uses and therefore limit new potential accesses when considering the requirements outlined in the MTO Highway Access Management Guidelines. Relevant excerpts are included in **Appendix K**.

According to Table 4 in the Highway Access Management Guidelines, the maximum number of accesses suggested for an arterial roadway (2B) is four per side, per kilometre. The study area being considered in this report is approximately 2.4 kilometres long. The nearest public roads relative to the subject site are Concession Road 7 and Concession Road 6. The distance between these two public roads is approximately 1 km. Within these limits, there are 7 and 8 accesses on the south and north sides, respectively. These existing conditions do not comply with current spacing standards, thereby having no allowance for additional accesses.

Reviewing the spacing distribution on the south side of Highway 89, the majority of the accesses are closer to Concession Road 6. The distance between Concession Road 7 and the nearest access to the west is approximately 700 metres. The potential access to the subject property would be located

within this segment. This spacing distribution would adhere to the access guidelines. Additionally, there is an existing residential access which would be decommissioned or converted into a roadway access for the subject lands, if approved. Existing access locations are outlined in **Figure 1**.

6.2 Constraints and Restrictions

Within the study area, the most significant constraints to probable accesses are the many adjacent existing accesses. As discussed above, the proposed access to the subject lands should be located such that it maintains sufficient spacing relative to adjacent accesses.

If Street A is planned to ultimately connect to County Road 50 through Street C, cooperation with the adjacent landowner(s) would be required. Furthermore, there is a stream running diagonal across the neighbouring property (7845 Highway 89). Although this would pose constraints, it is possible to create a crossing to facilitate vehicular travel.

6.3 Preferred Access Locations

As mentioned previously, the proposed access to the subject property on Highway 89 (Street B) should be located within the 700 metre segment between Concession Road 7 and the nearest access to the west. Accordingly, the preferred access location is approximately 400 metres to the west of Concession Road 7 as illustration in **Figure 25**. This coincides with the existing residential access, and also provides the opportunity to tie into the agricultural lands on the north side of Highway 89 by forming a north leg to the proposed three-legged intersection, should these lands ever be developed.

In order to ensure proper intersection spacing, Street C should be located a minimum of 400 metres south of the intersection of County Road 50 and Highway 89, per MTO Highway Access Guidelines. As noted previously, this would require a development application on the lands not owned by the applicant.

6.4 Street A Classification

This recently constructed access to Concession Road 7 has been built to Adjala-Tosorontio Engineering Standards, thereby supporting the ability for Street A to be assumed by the Township upon development completion.

If Street A is assumed by the Township with the intention to connect to County Road 50, this approximate 400 metre extension would act as secondary collector road parallel to Highway 89. This is expected to reduce traffic impacts to this segment of Highway 89, while concurrently improving connectivity to the future employment lands.

7.0 Site Generated Traffic

7.1 Trip Generation

Site generated traffic of the subject lands was calculated using the fitted curve equation (if available) provided in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 8th Edition. Due to the lack of specific information regarding the intended land uses, Industrial Park (ITE LUC 130) was assumed for trip generation purposes.

Table 12: Site Generated Traffic

Calculation Method	Size	Peak Hour	Trip Type	In	Out	Total
Industrial Park		Weekday A.M.	Primary	425	87	512
ITE Trip Generation Manual	73 Acres	Weekday P.M.	Primary	107	401	508
(Category 130)		Saturday	Primary	110	234	344

7.2 Trip Distribution and Assignment

The trips generated by the development were distributed to the boundary road network based on the trip distribution described in Section 4.4. This trip distribution considered vehicle ingress and egress through Street A only, however, given the proposed connection with Street B, the trips were divided between the two accesses. All inbound trips from the west enter the subject lands via Street B. All inbound trips from the east, as well as all outbound trips, were distributed evenly between the two streets.

Given the addition of Street B, the trips generated by the re-located Home Hardware were redistributed to the boundary road network, as described above.

The trips generated by the subject lands, as well as the primary trips generated by the Home Hardware were assigned to the boundary road network per the distributions in **Figure 14**. The pass-by trips generated by the Home Hardware were distributed to the boundary road network per the distributions in **Figure 15**. The trip assignment for the primary trips generated by the Home Hardware and Industrial Park are illustrated in **Figure 16** and **Figure 18**, respectively. The trip assignment for the pass-by trips generated by the Home Hardware are illustrated in **Figure 17**.

8.0 Total Future Conditions

8.1 Basis of Assessment

The traffic impacts arising from the potential development were assessed based on the site generated traffic illustrated in **Figures 16 through 18** being superimposed on the future background traffic volumes in **Figures 11 through 13**. The resulting total traffic volumes for the 2026, 2031 and 2036 weekday a.m., p.m. and Saturday peak hours are illustrated in **Figures 19 through 21**.

8.2 Auxiliary Lane Assessment

Left-turn lane warrants were undertaken for a northbound left-turn lane at the intersection of Concession Road 7 and Street A using the Ontario Ministry of Transportation (MTO) Geometric Design Standards for Ontario Highways (GDSOH). The warrants were undertaken for the weekday a.m., p.m. and Saturday peak hours under future total conditions. In keeping with the traffic engineering convention of design speeds 10 km/h in excess of the posted speed limit for lower speed roads, a 70 km/h design speed at the subject site was assumed.

The left-turn lane warrant charts for 70 km/h design speed roads have been included in Appendix I.

Table 13 below summarizes the results of the left-turn lane warrants assuming a design speed of 70 km/h, under 2036 future traffic volume conditions. It can be seen that a left-turn lane is not warranted under 2036 future traffic volume conditions.

Table 13: Left-Turn Lane Warrant Concession Road 7 and Street A

Intersection	Peak Hour	VA	V o	%LT in V _A	Warranted	Source
Concession	A.M.	101	245	22%	*	EA-11
Road 7 and	P.M.	162	213	5%	*	EA-10
Street A	Saturday	187	270	10%	*	EA-10

Left-turn lane warrants were undertaken for a westbound left-turn lane at the intersection of Highway 89 and Street B using the MTO GDSOH Figure EB-1 "Left Turn Storage Lanes – Four-lane Undivided Highways". The results are summarized in Table 14 below.

Table 14: Left-Turn Lane Warrant Highway 89 and Street B

Intersection	Peak Hour	VL	V o	Warranted	Storage	Source
	A.M.	137	889	✓	30 m	EB-1
Highway 89 and Street B	P.M.	68	978	✓	25 m	EB-1
0301 B	Saturday	107	983	✓	30 m	EB-1

It can be seen that under unsignalized conditions, a westbound left-turn lane with a minimum storage of 30 metres is required. As discussed in the following sections, it is recommended that the intersection be signalized as it is expected to experience heavy delay under unsignalized future total conditions. When modelling this intersection, a 15 metres westbound left-turn lane was included and deemed sufficient, as described in Section 8.3 below.

8.3 Traffic Signal Warrants

As discussed in Section 4.6, traffic signals are warranted at the intersections of Highway 89 and Concession Road 7/Dean Drive and Highway 89 and Concession Road 7/Elizabeth Street under future background traffic conditions. Accordingly, the future total traffic operations at these locations were analyzed as signalized intersection.

Analysis of the future total traffic volumes under unsignalized conditions indicated operational issues at the intersections of Highway 89 and Street B. Table 15 below summarizes the operations of the intersection of Highway 89 and Street B under 2026 future total traffic conditions.

Table 15: 2026 Future Total Level of Service – Stop Controlled

Intersection	Control	Peak Hour	Level of Service	Control Delay	Critical V/C Ratios
Highway 89 and Street B		A.M.	С	20.6 s	0.19 (NB)
	Stop	P.M.	F	117.3 s	1.05 (NB)
		Saturday	F	97.0 s	0.96 (NB)

As summarized in Table 15, the intersection operates at a LOS "F" in the weekday p.m. and Saturday peak hours. The control delay of 117.3 seconds and maximum volume-to-capacity ratio of 1.05 (NB)

in the weekday p.m. peak hour indicates that the intersection is operating over capacity with heavy delays. Accordingly, a signal warrant analysis was undertaken for the intersection of Highway 89 and Street B for the 2036 horizon year. The analysis followed the procedures outlined in "OTM – Book 12" for justifications 1-4 and 7.

The signal warrant analysis is summarized in Table 16. **Appendix G** contains the signal warrant sheets.

Table 16: Signal Warrant Analysis Results – Future Total

Location	Time Period	Warranted	Year	Justification
Highway 89 and	Weekday	*	2036	N/A
Street B	Saturday	×	2036	N/A

The analysis determined that in the future total conditions, a traffic signal is not warranted at the intersection of Highway 89 and Street B. However, signalizing the intersection is found to improve the operations, as detailed in Table 17 below. Accordingly, the intersection was modeled as signalized in all horizon years. The intersection was modelled with a cycle-length of 90 seconds and the same intergreen times as the intersection of Highway 89/Young Street and Industrial Parkway. The intersection was also modeled with a 15 metre left-turn lane, and it was found that all 95th percentile queues were contained within the available storage.

Table 17: 2036 Future Total Level of Service – Signalized

Intersection	Control	Peak Hour	Level of Service	Control Delay	Critical V/C Ratios
		A.M.	Α	6.5 s	0.47 (EB)
Highway 89 / Street B	Signal	P.M.	В	13.4 s	0.71 (NBL)
555. 2		Saturday	В	11.9 s	0.67 (NBL)

The exact design specifications of the signalized intersections can be confirmed during detailed design. The primary purpose of the modelling is to illustrate the improved traffic operations of the intersection under signalized conditions.

8.4 Intersection Operations

The 2026 through 2036 future total traffic conditions associated with the boundary road network are outlined in Table 18 through Table 20, with detailed capacity analyses included in **Appendix F.**

Analysis of the signalized intersections were based on optimized signal timings, as determined in Synchro modeling software.

The intersection of Highway 89 and Street B was modeled to include a westbound left-turn lane with approximately 15 metres of storage and a protected/permissive phase. The turning lane and protected/permissive phase were included to account for the increase in traffic volumes at the intersection due to the trips generated by the site.

Table 18: 2026 Future Total Level of Service

Intersection	Control	Peak Hour	Level of Service	Control Delay	Critical V/C Ratios	
		A.M.	Α	9.4 s	0.50 (WBL)	
Highway 89 and County Road 50	Signal	P.M.	В	14.8 s	0.78 (NBR/NBL)	
l coom, node		Saturday	В	11.2 s	0.64 (NBR)	
		A.M.	С	15.5 s	0.23 (SB)	
Highway 89 and Concession Road 6	Stop	P.M.	D	29.2 s	0.23 (SB)	
Corresponding of		Saturday	С	22.7 s	0.18 (SB)	
Highway 89 and		A.M.	Α	8.0 s	0.55 (SB)	
Concession Road	Signal	P.M.	В	16.7 s	0.84 (NB)	
7/ Dean Drive		Saturday	С	21.5 s	0.78 (NB/SB)	
	Signal	A.M.	Α	5.4 s	0.34 (EB)	
Highway 89 / Street B		P.M.	В	12.5 s	0.71 (NBL)	
011001 5		Saturday	В	11.2 s	0.67 (NBL)	
		A.M.	В	10.5 s	0.09 (EB)	
Concession Road 7/ Street A	Stop	P.M.	В	13.5 s	0.40 (EB)	
77 01100171		Saturday	В	13.8 s	0.37 (EB)	
Highway 89 and		A.M.	Α	4.6 s	0.38 (SB)	
Concession Road	Signal	P.M.	Α	6.8 s	0.53 (SB)	
7/ Elizabeth Street		Saturday	Α	9.6 s	0.66 (SB)	
		A.M.	В	10.8 s	0.02 (NB)	
Highway 89 and Elizabeth Street	Stop	P.M.	В	11.3 s	0.02 (NB)	
2.12.3.2.3.11.011.007		Saturday	В	10.9 s	0.01 (NB)	
Highway 89/Young		A.M.	В	14.0 s	0.55 (NBL)	
Street and Industrial Parkway/	Signal	P.M.	С	23.2 s	0.75 (NBL)	
Commercial Plaza Access	,	Saturday	С	24.8 s	0.88 (WBL)	

Table 19: 2031 Future Total Level of Service

Table 17. 2001 Total Level of Service								
Intersection	Control	Peak Hour	Level of Service	Control Delay	Critical V/C Ratios			
Highway 89 and County Road 50	Signal	A.M.	В	10.5 s	0.63 (WBL)			
		P.M.	В	16.9 s	0.87 (NBL)			
		Saturday	В	12.1 s	0.68 (NBR)			
		A.M.	С	17.9 s	0.29 (SB)			
Highway 89 and Concession Road 6	Stop	P.M.	Е	44.4 s	0.37 (SB)			
l concession Road o		Saturday	D	26.2 s	0.23 (SB)			
Highway 89 and	Signal	A.M.	Α	8.8 s	0.59 (SB)			
Concession Road		P.M.	В	18.2 s	0.86 (NB)			
7/ Dean Drive		Saturday	С	26.7 s	0.80 (SB)			
	Signal	A.M.	Α	6.1 s	0.39 (EB)			
Highway 89 / Street B		P.M.	В	13.2 s	0.70 (NBL)			
		Saturday	В	11.5 s	0.67 (NBL)			
	Stop	A.M.	В	10.7 s	0.09 (EB)			
Concession Road 7/ Street A		P.M.	В	14.1 s	0.42 (EB)			
,, 666.7		Saturday	В	14.4 s	0.38 (EB)			
Highway 89 and	Signal	A.M.	Α	4.9 s	0.41 (SB)			
Concession Road		P.M.	Α	7.6 s	0.57 (SB)			
7/ Elizabeth Street		Saturday	В	10.8 s	0.71 (SB)			
	Stop	A.M.	В	10.9 s	0.03 (NB)			
Highway 89 and Elizabeth Street		P.M.	В	11.3 s	0.03 (NB)			
		Saturday	В	10.9 s	0.02 (NB)			
Highway 89/Young	Signal	A.M.	В	16.7 s	0.60 (NBL/WBL)			
Street and Industrial Parkway/		P.M.	С	29.8 s	0.89 (EB)			
Commercial Plaza Access		Saturday	D	35.7 s	0.99 (EB)			

Table 20: 2036 Future Total Level of Service

Intersection	Control	Peak Hour	Level of Service	Control Delay	Critical V/C Ratios			
Highway 89 and County Road 50		A.M.	В	13.0 s	0.79 (WBL)			
	Signal	P.M.	С	26.8 s	0.97 (NBL) 1.02 (NBR)			
		Saturday	В	13.3 s	0.72 (NBR)			
		A.M.	С	22.0 s	0.38 (SB)			
Highway 89 and Concession Road 6	Stop	P.M.	F	85.8 s	0.61 (SB)			
Corresponding of		Saturday	D	31.5 s	0.29 (SB)			
Highway 89 and		A.M.	В	10.3 s	0.67 (SB)			
Concession Road	Signal	P.M.	С	20.0 s	0.88 (NB)			
7/ Dean Drive		Saturday	С	28.2 s	0.87 (SB)			
	Signal	A.M.	Α	6.5 s	0.47 (EB)			
Highway 89 / Street B		P.M.	В	13.4 s	0.71 (NBL)			
0002		Saturday	В	11.9 s	0.67 (NBL)			
	Stop	A.M.	В	10.9 s	0.10 (EB)			
Concession Road 7/ Street A		P.M.	С	15.2 s	0.44 (EB)			
7, 01100171		Saturday	С	15.5 s	0.41 (EB)			
History on O. and d	Signal	A.M.	Α	6.0 s	0.46 (SB)			
Highway 89 and Concession Road		P.M.	Α	9.3 s	0.63 (SB)			
7/ Elizabeth Street		Saturday	В	12.7 s	0.77 (SB)			
	Stop	A.M.	В	10.9 s	0.03 (NB)			
Highway 89 and Elizabeth Street		P.M.	В	10.9 s	0.03 (NB)			
LIIZUDƏIII SIIGGI		Saturday	В	10.7 s	0.04 (NB)			
Highway 89/Young	Signal	A.M.	С	26.6 s	0.87 (EB)			
Street and Industrial Parkway/ Commercial Plaza Access		P.M.	С	33.4 s	0.92 (EB)			
		Saturday	Е	66.2 s	1.19 (EBL) 1.16 (EB) 1.15 (WBL)			

The stop controlled intersection of Highway 89 and Concession Road 6 operates at a LOS "F" in the weekday p.m. peak hour under future total traffic conditions. This is primarily due to the heavy through volumes that previously existed in the 2036 future background conditions. The control delay is anticipated to increase by 35.8 seconds and the maximum volume-to-capacity ratio is expected to increase by 0.18 (SB) when compared to future background conditions. At this time, no recommendations are being made to improve this intersection due to the low volume of southbound vehicles, and the anticipation that some vehicles may redirect to County Road 7, if signalized.

The intersection of Highway 89 and County Road 50 is expected to continue operating at a LOS "C" in the p.m. peak hour. The control delay is expected to increase by 0.2 seconds and the maximum volume-to-capacity ratio is expected to increase by 0.02 or less when compared to the 2036 future background traffic conditions. These metrics indicate that while the intersection is approaching capacity, the site generated traffic is expected to have a negligible impact on the operations.

The intersection of Highway 89/Young Street and Industrial Parkway/Commercial Plaza Access is expected to operate at a reduced LOS "E" in the Saturday peak hour. The control delay is expected to increase by 13.8 seconds and the maximum volume-to-capacity ratio is expected to increase by 0.09 or less when compared to the 2036 future background traffic conditions. These metrics indicate that while this intersection is exceeding capacity, the site generated traffic is expected to have minimal impacts on the operations. As noted previously, the intersection operates with an advance westbound left-turn phase and may benefit from the addition of an advance eastbound left-turn phase.

All other intersections are expected to continue operating at a satisfactory level of service for all peak periods.

Since the 2036 traffic volumes are forecasted approximately 20 years into the future, there is a high degree of uncertainty and traffic operations at this intersection should be confirmed when new development applications are submitted in the future.

9.0 Sensitivity Analysis

9.1 Trip Generation

At the time of writing this report, there is no proposed development for the property located at 7845 Highway 89. Due to the absence of this data, the assumed use of *Industrial Park* has been made to provide a sensitivity analysis for future potential development within the study area. This aligns with the potential areas of employment growth, as described in By-Law 13-14. Site generated traffic for this property was calculated using the fitted curve equation (if available) provided in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 8th Edition.

Table 21: Sensitivity Analysis Trip Generation

Address	Calculation Method	Size (acres)	Peak Hour	In	Out	Total
7845 Highway 89	Industrial Park ITE Trip Generation 44 Manual (Category 130)		Weekday A.M.	286	59	345
		44	Weekday P.M.	74	279	353
			Saturday	66	141	207

The 44 acres estimated in the table above represents the parcel area. Due to a watercourse traversing the property, the developable area will likely be less than what has been assumed. Accordingly, this represents a conservative estimation.

9.2 Trip Distribution and Assignment

The trips generated by the future development were distributed to the boundary road network based on the trip distribution described in Section 4.4. This trip distribution considered vehicle ingress and egress through Street A only, however, given the proposed connection with Street B and Street C, the trips were divided between the three accesses. All inbound trips from the west enter the subject lands

via Street C. All inbound trips from the east, were distributed evenly between the three streets. All trips from the south enter via Street C.

The trips generated by the subject lands were assigned to the boundary road network per the distributions in **Figure 22**. The trip assignment for the primary trips are illustrated in **Figure 23**.

9.3 Basis of Assessment

The traffic impacts arising from the potential development were assessed based on the site generated traffic illustrated in **Figure 22** being superimposed on the 2036 future total traffic volumes in **Figure 21**. The resulting total traffic volumes for the 2036 weekday a.m., p.m. and Saturday peak hours are illustrated in **Figure 24**.

9.4 Auxiliary Lane Assessment

Left-turn lane warrants were undertaken for northbound and southbound left-turn lanes at the intersections of Concession Road 7 and Street A and County Road 50 and Street C, respectively. The warrants were completed using the Ontario Ministry of Transportation (MTO) Geometric Design Standards for Ontario Highways (GDSOH). The warrants were undertaken for the weekday a.m., p.m. and Saturday peak hours under future total conditions. In keeping with the traffic engineering convention of design speeds 10 km/h in excess of the posted speed limit for lower speed roads, a 70 km/h design speed at Street A was assumed for Concession Road 7. Furthermore, a design speed of 100 km/h was selected for County Road 50 at Street C in order to reflect the traffic engineering convention of design speeds 20 km/h in excess of the posted speed limit for higher speed roads.

The left-turn lane warrant charts for 70 km/h and 100 km/h design speed roads have been included in **Appendix I**. Table 22 below summarizes the results of the left-turn lane warrants under 2036 future traffic volume conditions.

Table 22: Sensitivity Analysis Left-Turn Lane Warrant

Table 22: Sensitivity Analysis Left-Turn Lane Warrant								
Intersection	Peak Hour	VA	V _o	%LT in V _A	Warranted	Source		
Design Speed = 70 km/h								
Concession Road 7 and Street A	A.M.	101	305	22%	*	EA-11		
	P.M.	162	231	5%	*	EA-10		
	Saturday	187	287	10%	*	EA-10		
Design Speed = 100 km/h								
County Road 50 and Street C	A.M.	723	280	20%	40 m	EA-23		
	P.M.	350	738	9%	25 m	EA-22		
	Saturday	386	466	8%	15 m	EA-22		

Based on the results summarized in Table 22, a left-turn lane is not warranted at the intersection of Concession Road 7 and Street A and a left-turn lane with a minimum storage of 40 metres is required at the intersection of County Road 50 and Street C. As discussed previously, this analysis has been completed on the basis of a conservative 3% growth rate, as well as conservative assumptions regarding the proposed future land uses at the site. As such, the requirement for a left-turn lane on

County Road 50 should be re-evaluated when, and if a development application is being advanced for 7845 Highway 89.

9.5 Traffic Signal Warrants

A signal warrant analysis was undertaken for the intersections of Concession Road 7 and Street A and County Road 50 and Street C for the 2036 horizon year. The analysis followed the procedures outlined in "OTM – Book 12" for justifications 1-4 and 7.

Table 23 below outlines the results of the signal warrant analysis. **Appendix G** contains the signal warrant sheets.

Table 23: Sensitivity Analysis Signal Warrant

Location	Time Period	Warranted	Justification
Concession Road 7 and Street A	Weekday	×	N/A
	Saturday	*	N/A
County Road 50 and Street B	Weekday	×	N/A
	Saturday	*	N/A

As noted above, traffic signals are not warranted at Street A or Street C in the 2036 horizon year including the additional trips generated by 7845 Highway 89. Accordingly, the intersections were analyzed as two-way stop-controlled.

9.6 Intersection Operations

The 2036 future total traffic conditions associated with the boundary road network are outlined in Table 24, with detailed capacity analyses included in **Appendix F**.

Analysis of the signalized intersections were based on optimized signal timings, as determined in Synchro modeling software.

The intersection of Highway 89 and Street B was modeled to include a westbound left-turn lane with approximately 15 metres of storage and a protected/permissive phase. The turning lane and protected/permissive phase were included to account for the increase in traffic volumes at the intersection due to the trips generated by the site.

The intersection of County Road 50 and Street C was modeled to include a southbound left-turn lane with approximately 40 metres of storage.

Table 24: Sensitivity Analysis 2036 Future Total Level of Service

Tuble 24. Selisilivity Analysis 2000 folde foldi Level of Service								
Intersection	Control	Peak Hour	Level of Service	Control Delay	Critical V/C Ratios			
Highway 89 and County Road 50	Signal	A.M.	В	18.2 s	0.90 (WBL)			
		P.M.	D	39.1 s	0.89 (NBL) 1.18 (NBR)			
		Saturday	В	15.4 s	0.74 (NBR)			
		A.M.	D	28.8 s	0.49 (SB)			
Highway 89 and Concession Road 6	Stop	P.M.	F	115.6 s	0.71 (SB)			
		Saturday	D	34.0 s	0.31 (SB)			
High year 90 and		A.M.	В	10.9 s	0.70 (SB)			
Highway 89 and Concession Road 7/ Dean Drive	Signal	ession Road Signal		С	28.8 s	1.02 (NB) 1.04 (WBL)		
77 Dean blive		Saturday	С	30.0 s	0.89 (SB)			
	Signal	A.M.	Α	7.9 s	0.52 (EB)			
Highway 89 / Street B		P.M.	В	15.0 s	0.75 (NBL)			
22		Saturday	В	13.1 s	0.70 (NBL)			
	Stop	A.M.	В	11.4 s	0.12 (EB)			
Concession Road 7/ Street A		P.M.	С	17.3 s	0.54 (EB)			
77 31133171		Saturday	С	16.7 s	0.47 (EB)			
Highway 89 and	Signal	A.M.	Α	6.2 s	0.46 (SB)			
Concession Road		P.M.	Α	9.9 s	0.63 (SB)			
7/ Elizabeth Street		Saturday	В	12.8 s	0.81 (SB)			
	Stop	A.M.	В	10.9 s	0.03 (NB)			
Highway 89 and Elizabeth Street		P.M.	В	10.6 s	0.03 (NB)			
Elizado III o II o o I		Saturday	В	12.0 s	0.02 (NB)			
Highway 89/Young Street and Industrial Parkway/ Commercial Plaza Access	Signal	A.M.	С	27.7 s	0.91 (EB)			
		P.M.	Е	55.6 s	1.11 (EB) 1.02 (WBL)			
		Saturday	Е	67.4 s	1.21 (EBL) 1.18 (EB) 1.12 (WBL)			

The stop controlled intersection of Highway 89 and Concession Road 6 is expected to continue operating at a LOS "F" in the weekday p.m. peak hour when compared with future background and future total traffic conditions. The control delay is anticipated to increase 29.8 seconds and the maximum volume-to-capacity ratio is expected to increase by 0.10 (SB) when compared to future total conditions.

The intersection of Highway 89 and County Road 50 is expected to operate at a LOS "D" in the p.m. peak hour. The control delay is expected to increase by 12.3 seconds and the maximum volume-to-capacity ratio is expected to increase by 0.16 or less when compared to the 2036 future total traffic conditions. The addition of the traffic generated by 7845 Highway 89 is expected to reduce operations at the intersection due to the increased northbound turning movements.

The intersection of Highway 89/Young Street and Industrial Parkway/Commercial Plaza Access is expected to continue operating at a LOS "E" in the Saturday peak hour. The control delay is expected to increase by 1.2 seconds and the maximum volume-to-capacity ratio is expected to increase by 0.02 or less when compared to the 2036 future total traffic conditions. These metrics indicate that while this intersection is exceeding capacity, the traffic generated by 7845 Highway 89 is expected to have minimal impacts on the operations.

The intersection of Highway 89 and Concession Road 7/Dean drive is expected to continue operating at a LOS "C" in the future. The westbound left and northbound movements are expected to operate at capacity given the additional traffic generated by 7845 Highway 89.

All other intersections are expected to continue operating at a satisfactory level of service for all peak periods.

Due to the uncertainty associated with the proposed development at 7845 Highway 89, and given the 20 year study horizon, the traffic operations of the boundary road network should be reassessed when a development application is submitted in the future.

10.0 Safety

10.1 Sight Distance Assessment

Sight distance measurements were conducted using the requirements outlined in The County of Simcoe By-Law No. 5544, as well as the Transportation Association of Canada's (TAC) Geometric Design Guide for Canadian Roads (GDGCR). With the future Street C connecting to County Road 50, available sight distances are compared to Simcoe County requirements, whereas available sight distance for Street A and Concession Road 7 are compared to the TAC guidelines. Available sight distances are shown in the table below.

County Road 50 has a posted speed limit of 80km/h, which was used to determine the sight distance requirements, as described in By-Law No. 5544. Concession Road 7 has a posted speed limit 60km/h. Therefore, a 70 km/h design speed was selected to reflect the traffic engineering convention of a 10 km/h increase to the posted speed limit for lower speed roads. Using this speed in combination with Figure 2.3.3.4b, the required sight distances were determined, as shown in Table 25.

Table 25: Available Sight Distance

Looplion	Paguirad Sight Distance	Available Si	ght Distance
Location	Required Sight Distance	Northerly	Southerly
Concession Road 7 and Street A	200m (left turn) / 150m (right turn)	240m	400m+
County Road 50 and Street C	230m	400m	200m

Although the available sight distance for Street C does not meet the County's requirement, the location of Street C is currently an estimate with a high likelihood of change. Accordingly, minor adjustments should be considered during detailed design to locate the street such that the sight distance is maximized for vehicles exiting the property.

Refer to **Appendix H** for the relevant TAC GDGCR and Simcoe County By-Law excerpts have been attached for reference

11.0 Findings and Recommendations

The detailed analysis contained within this report has resulted in the recommendations described in Table 26, with further recommendations noted below.

Table 26: Recommended Mitigation Measures and Responsibilities

13.0.0	v. kecommenaca mingan		
Location	Improvement	Timeline	Responsibility
Highway 89 and Street B	Signalization, and construction of an exclusive westbound left-turn lane with 15 metres of storage	2026	Applicant
County Road 50 and Street C	Southbound left-turn lane with 40 metres of storage	2036	Future Applicant (7845 Highway 89)
Highway 89 and Concession Road 7/ Dean Drive	Signalization	2026	MTO/Township of Adjala-Tosorontio
Highway 89 and Concession Road 7/ Elizabeth Street	Signalization	2026	MTO/Township of Adjala-Tosorontio

11.1 Auxiliary Turn-Lanes

 An auxiliary left-turn lane is not warranted at the intersection of Concession Road 7 and Street A;

11.2 Signal Warrants

 Signals are not warranted at the intersections of Concession Road 7 and Street A, and County Road 50 and Street C. The intersections were found to operate with acceptable levels of service and delay under 2036 future total conditions, accordingly signals are not recommended at these intersections.

11.3 Optimized Signal Timings

The operations of all signalized intersections were analyzed under optimized signal timings. It is
therefore recommended that the signal timings be updated to accommodate the future
growth in the area. These improvements should be completed in coordination with the
Township of Adjala-Tosorontio and the Ontario Ministry of Transportation.

11.4 Future Analysis

- The enclosed analysis was completed based on assumptions related to the proposed land
 uses at the subject property and at 7845 Highway 89. It is recommended that operations be
 confirmed when further development information is available; and,
- The future background traffic volumes were calculated based on a conservative 3% growth rate. This growth rate is greater than the industry standard 2% and as such, it is recommended that operations be confirmed when further development information is available.

12.0 Conclusions

The detailed analysis contained within this report has resulted in the following key findings:

- Analysis of 2017 existing traffic operations indicate that the intersections of Highway 89 and Concession Road 7/Dean Drive, and Highway 89 and Concession Road 7/Elizabeth Street operate at LOS "F" during the Saturday peak hour;
- The remaining boundary road network operates at a LOS "D' or better in the weekday a.m., p.m., and Saturday peak hours under 2017 existing traffic conditions;
- The intersection of Highway 89 and County Road 50 is expected to continue operating at a LOS "C" in the p.m. peak hour. The control delay and volume-to-capacity ratio is expected to minimally increase as a result of the site generated traffic. The metrics described in section 8.4 indicate that while the intersection is approaching capacity, the site generated traffic is expected to have a negligible impact on the operations.
- The intersection of Highway 89/Young Street and Industrial Parkway/Commercial Plaza Access is expected to operate at a reduced LOS "E" in the Saturday peak hour. The control delay and volume-to-capacity ratio is expected to minimally increase as a result of the site generated traffic. The intersection was analyzed with a protective/permissive westbound left-turn phase, and may also benefit from a protective/permissive eastbound left-turn phase. These metrics indicate that while this intersection is exceeding capacity, the site generated traffic is expected to have minimal impacts on the operations.
- The stop controlled intersection of Highway 89 and Concession Road 6 operates at a LOS "F" in the weekday p.m. peak hour under future total traffic conditions. This is primarily due to the heavy through volumes that previously existed in the 2036 future background conditions. The control delay and volume-to-capacity ratio is expected to minimally increase as a result of the site generated traffic.
- All other intersections are expected to continue operating at a satisfactory level of service for all peak periods.
- Since the 2036 traffic volumes are forecasted approximately 20 years into the future, there is a high degree of uncertainty and traffic operations at this intersection should be confirmed when new development applications are submitted in the future.
- In the 2036 future total sensitivity analysis, the boundary road network is expected to have very similar operations with minor increases to the volume to capacity ratios and control delay, when compared to the 2036 future total operations.
- Analysis of sight distance at Street A indicates that there is sufficient sight distance to the north

and south of the access for vehicles exiting the property. Accordingly, the future development is supportable from a sight distance perspective.

Analysis of sight distance at the future Street C connection to County Road 50 indicates that limited sight distance is available to the south. Accordingly, minor adjustments should be considered during detailed design to locate the street such that the sight distance is maximized for vehicles exiting the property.

In conclusion, the future potential development can be supported from a traffic operations perspective and a safety perspective, with the implementation of the recommendations noted Prepared by,

C.F. CROZIER & ASSOCIATES NO OFESSIONAL CROZIER & A.J. W. FLEMING above.

Associate

Alexander J.W. Fleming,

C.F. CROZIER & ASSQ

R.W.J.MACLAUGHLAN 100201141

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Ryan MacLaughla Project Engineer

C.F. CROZIER & ASSOCIATES INC.

Madeleine N. Ferguson, B.Eng.Scty.

E.I.T.

/MF.RM

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APPENDIX A

Correspondence

From: Dorton, Peter (MTO) [mailto:Peter.Dorton@ontario.ca]

Sent: Tuesday, September 13, 2016 12:25 PM **To:** Alex Fleming <a fleming@cfcrozier.ca>

Cc: Michael Linton <mlinton@cfcrozier.ca>; Eric Terro <eric.terro@ontario.ca>; Polus, Asia (MTO)

<<u>Asia.Polus@ontario.ca</u>>; Venneri, Rita (MTO) <<u>Rita.Venneri@ontario.ca</u>>

Subject: RE: Highway Access Management Plan Proposed Work Plan (Our #1101-4125), Highway 89 Adjala-Tosorontio

Hi Alex:

We have reviewed the proposed HAMP Workplan and offer the following:

- Please ensure that the focus is on the entire Highway 89 Employment Zone, from CR50 to the Alliston (Town of New Tecumseth) border, as opposed to focusing on the 7723 Highway 89 site. A drawing showing the study limits should be included in the work plan.
- Due to its proximity to the border, potential Employment Zone impacts on the intersection of Highway 89 (Young St.) / Industrial Parkway should be taken into consideration in the Traffic Impact Study and HAMP.
- Specific impacts associated with the 7723 Hwy 89 development proposal could be addressed under separate cover, with background info taken from the HAMP, or alternatively, included as a separate section in the HAMP.
- Hwy 89 / Elizabeth St. intersections should also be included in the HAMP.
- Please confirm that the Township of Adjala Tosorontio has reviewed and commented on this proposed work plan.
- We would suggest that the Town of New Tecumseth be included as a potential stakeholder, or at least be provided with an opportunity to comment on the HAMP.

Please feel free to contact me if you have any questions.

Thanks,
Peter Dorton
Senior Project Manager
MTO Central Region Engineering Office
Corridor Management Section
159 Sir William Hearst Ave., 7th Floor
Toronto, ON M3M 0B7

Ph: 416-235-4280 Fx: 416-235-4267

Email: peter.dorton@ontario.ca

From: Alex Fleming [mailto:afleming@cfcrozier.ca]

Sent: September 1, 2016 3:25 PM

To: Dorton, Peter (MTO) **Cc:** Michael Linton

Subject: Highway Access Management Plan Proposed Work Plan (Our #1101-4125)

Hello Peter,

We had discussed earlier this summer a HAMP workplan for the area on the west side of Alliston (Highway 89) that would examine access arrangements for lands in the area of 7723 Highway 89 (the property that is being put forth for planning applications). Attached is a proposed work plan for MTO's review. If acceptable, we would proceed, or incorporate changes to the work plan from MTO.

If there any questions, please feel free to give me a call. Thanks, Alex

| ALEXANDER FLEMING, MBA, P.Eng. | ASSOCIATE | C.F. CROZIER & ASSOCIATES

| 40 Huron Street, Suite 301 | Collingwood, ON L9Y 4R3 | cfcrozier.ca | afleming@cfcrozier.ca | tel 705 446 3510



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Ryan MacLaughlan

From: Jacquie Tschekalin < jtschekalin@adjtos.ca>

Sent: Tuesday, June 20, 2017 1:37 PM

To: Ryan MacLaughlan

Subject: RE: requested information

Follow Up Flag: Follow up Flag Status: Flagged

I'm checking with our clerk to see if we can provide you with a generated list of property owners, and should have an answer for you in the next few days.

As far as the zoning goes, the property is zoned "Employment Lands" (see the by-law I sent earlier for the list of permitted uses). The zoning is similar to a light-industrial zone, but slightly different uses are permitted.

As far as Mr. Pilla's lands go, whatever he envisions is what is likely to be there, although it would be nice if he could come up with an overall concept for the HAMP. It would be particularly helpful for him to determine whether access to the balance of the lands are to be accessed by a private road or whether the Township will be expected to assume the road that will hook up with the 7th Concession.

As far as the other uses go, I think your assumptions will be fine as we don't have any data to assist you.

I'll let you know about the list as soon as I can. Let me know if you need anything else.

Jacquie

Jacquie Tschekalin, MCIP, RPP

Director of Planning

Township of Adjala-Tosorontio 7855 Sideroad 30, R.R. #1 Alliston, ON L9R 1V1 Ph: (705)434-5055 Fax: (705)434-5051

From: Ryan MacLaughlan [mailto:rmaclaughlan@cfcrozier.ca]

Sent: Monday, June 19, 2017 5:03 PM

To: Jacquie Tschekalin < jtschekalin@adjtos.ca>

Subject: RE: requested information

Hey Jacquie,

Thanks for the response.

Stakeholder consultation will form an integral part of the Highway Access Management process. Consultation with the Ministry, Town and relevant property owners north and south of Highway 89 between Concession 7 and County Road 50 will provide the framework for considerations and limitations of the study. If you are able to provide the mailing addresses within those limits, it would be a great help.

I appreciate you sharing this information. We will be sure to keep that document confidential.

Our client, Joe Pilla, is the owner of the entire parcel of land shown below. The "subject property" is where the new Home Hardware is going. The remainder of the land may consist of a few car dealerships, although this has not yet been determined.



It is my understanding that the outlined property above is zoned as light-industrial? As for the information on the surrounding lands, we will just have to make some assumptions for our trip generation and analysis.

Look forward to hearing back from you.

Thanks,

| RYAN MACLAUGHLAN P.Eng. | C.F. CROZIER & ASSOCIATES

| 40 Huron Street, Suite 301 | Collingwood, ON L9Y 4R3

| cfcrozier.ca | rmaclaughlan@cfcrozier.ca | tel 705 446 3510



Land development engineering, from the ground up.

Water Resources . Transportation . Structural . Mechanical . Electrical . Building Science

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From: Jacquie Tschekalin [mailto:jtschekalin@adjtos.ca]

Sent: Monday, June 19, 2017 3:05 PM

To: Ryan MacLaughlan < rmaclaughlan@cfcrozier.ca **Subject:** requested information

Hi Ryan,

Here's the information you requested:

- 1. Re. contact info of residents I'm not sure what you are looking for; we don't have phone numbers, but I can get you a mailing list of all property owners (not just residents). If this is what you are looking for, please confirm what you need the information for and what addresses you want. It's a little tricky for us due to FOI requirements, but I think I can get it for you if it is for a 'required' circulation.
- 2. I have attached a copy of the Zoning By-law for the area; this will give you an idea of the types of uses in the area, but it won't tell you what land is vacant. If you are looking for vacant land (there are 2 large parcels plus several smaller ones) you can probably get this on the Simcoe County website maps (which show property boundaries and locations of structures). In addition to that information, the Home Hardware store is re-locating within the adjacent property (which will leave the existing building vacant) and the ambulance station at the corner of Con 7 and Dean Drive has now been converted to a fitness centre.
- 3. Future developments we are not sure of what will end up being in our 'Employment lands', but I have attached a draft report we recently received please be advised that this is in draft form, and has not been reviewed by Council, so it should be treated as confidential this is also the 'Ec Dev update'. The intent is that the existing residences will change to a mixed use type of activity (ie. maintain the residential component but add a business component) and that general commercial/retail is not anticipated.

I hope this is the information you are looking for – let me know if you need anything else.

Jacquie

Jacquie Tschekalin, MCIP, RPP Director of Planning

Township of Adjala-Tosorontio 7855 Sideroad 30, R.R. #1 Alliston, ON L9R 1V1 Ph: (705)434-5055

Fax: (705)434-5051

Ryan MacLaughlan

From: Jacquie Tschekalin < jtschekalin@adjtos.ca>

Sent: Monday, June 19, 2017 3:05 PM

To: Ryan MacLaughlan **Subject:** requested information

Attachments: Empl Lands ZBL w map.pdf; CONFIDENTIAL Review of Highway 89 Lands.docx

Hi Ryan,

Here's the information you requested:

- 1. Re. contact info of residents I'm not sure what you are looking for; we don't have phone numbers, but I can get you a mailing list of all property owners (not just residents). If this is what you are looking for, please confirm what you need the information for and what addresses you want. It's a little tricky for us due to FOI requirements, but I think I can get it for you if it is for a 'required' circulation.
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Director of Planning

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Fax: (705)434-5051

APPENDIX B

Level of Service Definitions

Level of Service Definitions

Two-Way Stop Controlled Intersections

Level of Service	Control Delay per Vehicle (seconds)	Interpretation
	.10	EXCELLENT. Large and frequent gaps in
A	≤ 10	traffic on the main roadway. Queuing on the minor street is rare.
		VERY GOOD. Many gaps exist in traffic on
В	> 10 and ≤ 15	the main roadway. Queuing on the minor
		street is minimal.
		GOOD. Fewer gaps exist in traffic on the
С	> 15 and ≤ 25	main roadway. Delay on minor approach
		becomes more noticeable.
		FAIR. Infrequent and shorter gaps in traffic
D	> 25 and ≤ 35	on the main roadway. Queue lengths
		develop on the minor street.
_	05 50	POOR. Very infrequent gaps in traffic on
E	> 35 and ≤ 50	the main roadway. Queue lengths
		become noticeable.
		UNSATISFACTORY. Very few gaps in traffic
F	> 50	on the main roadway. Excessive delay
		with significant queue lengths on the
		minor street.

Adapted from Highway Capacity Manual 2000, Transportation Research Board

Level of Service Definitions

Signalized Intersections

Level of Service	Control Delay per Vehicle (seconds)	Interpretation
А	≤ 10	EXCELLENT. Extremely favourable progression with most vehicles arriving during the green phase. Most vehicles do not stop and short cycle lengths may contribute to low delay.
В	> 10 and ≤ 20	VERY GOOD. Very good progression and/or short cycle lengths with slightly more vehicles stopping than LOS "A" causing slightly higher levels of average delay.
С	> 20 and ≤ 35	GOOD. Fair progression and longer cycle lengths lead to a greater number of vehicles stopping than LOS "B".
D	> 35 and ≤ 55	FAIR. Congestion becomes noticeable with higher average delays resulting from a combination of long cycle lengths, high volume-to-capacity ratios and unfavourable progression.
E	> 55 and ≤ 80	POOR. Lengthy delays values are indicative of poor progression, long cycle lengths and high volume-to-capacity ratios. Individual cycle failures are common with individual movement failures also common.
F	> 80	UNSATISFACTORY. Indicative of oversaturated conditions with vehicular demand greater than the capacity of the intersection.

Adapted from Highway Capacity Manual 2000, Transportation Research Board

APPENDIX C Turning Movement Counts

Ontario Traffic Inc. **Morning Peak Diagram Specified Period One Hour Peak** From: 7:00:00 **From:** 6:00:00 To: 10:00:00 To: 8:00:00 Municipality: Alliston Weather conditions: Site #: 1717000001 Intersection: Hwy 89 & CR 50 Person(s) who counted: TFR File #: Count date: 13-Jun-17 ** Signalized Intersection ** Major Road: Hwy 89 runs W/E East Leg Total: 771 East Entering: 427 East Peds: 0 \mathbb{X} Peds Cross: Trucks Heavys Totals Heavys Trucks Cars Totals Cars 50 218 268 222 181 0 197 0 205 378 0 Hwy 89 Heavys Trucks Cars Totals Hwy 89 40 198 238 0 19 102 121 Trucks Heavys Totals Cars 291 0 344 300 \mathbb{X} Peds Cross: 130 Peds Cross: \bowtie Cars 299 Cars 37 93 0 22 West Peds: Trucks 27 Trucks 9 13 South Peds: 0 West Entering: 359 Heavys 0 Heavys 0 0 0 South Entering: 152 West Leg Total: 627 Totals 326 Totals 46 106 South Leg Total: 478 **Comments**

Ontario Traffic Inc. **Afternoon Peak Diagram Specified Period One Hour Peak From:** 16:15:00 **From:** 15:00:00 To: 19:00:00 To: 17:15:00 Municipality: Alliston Weather conditions: Site #: 1717000001 Intersection: Hwy 89 & CR 50 Person(s) who counted: TFR File #: Count date: 13-Jun-17 ** Signalized Intersection ** Major Road: Hwy 89 runs W/E East Leg Total: 1149 East Entering: 603 East Peds: 0 \mathbb{X} Peds Cross: Trucks Heavys Totals Heavys Trucks Cars Totals Cars 37 595 632 468 441 0 122 135 563 Hwy 89 Heavys Trucks Cars Totals Hwy 89 36 255 291 0 4 42 46 Trucks Heavys Totals Cars 500 0 546 40 297 46 \mathbb{X} Peds Cross: 399 Peds Cross: \bowtie Cars 164 Cars 154 245 West Peds: 0 South Peds: Trucks 17 Trucks 10 10 20 0 West Entering: 337 Heavys 0 Heavys 0 0 0 South Entering: 419 West Leg Total: 969 Totals 181 Totals 164 255 South Leg Total: 600 **Comments**

Total Count Diagram

Municipality: Alliston

Site #: 1717000001

Intersection: Hwy 89 & CR 50

TFR File #:

Count date: 13-Jun-17 Weather conditions:

Person(s) who counted:

** Signalized Intersection ** Major Road: Hwy 89 runs W/E

> East Leg Total: 7043 East Entering: 3471 East Peds: 0 \mathbb{X}

Peds Cross:

Trucks Heavys Totals Heavys Trucks Cars Totals Cars 300 2751 3051 2162 2388 226 0 1007 76 1083 3169 302 Hwy 89 Heavys Trucks Cars Totals Hwy 89

271 1958 2229 0 75 527 602 346 2485

 \mathbb{X} Peds Cross: West Peds: 0 West Entering: 2831 West Leg Total: 5882

Cars 1534 Trucks 151 Heavys 0 Totals 1685

1852 Cars 589 1263 154 Trucks 74 80 0 Heavys 0 Totals 663 1343

Peds Cross: \bowtie South Peds: 2 South Entering: 2006 South Leg Total: 3691

Cars 3221

351

Trucks Heavys Totals

3572

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection:	Hwy 89	& CR 50)		Count D	^{late:} 13-Jun-17		Munic	ipality: Alli	ston			
	North	Appro	ach Tot	als					South	h Appro	ach Tot	als	
	Include	es Cars, T	rucks, & H	eavys		North/South					rucks, & H		
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	Total Approaches	Hou Endi		Left	Thru	Right	Grand Total	Total Peds
6:00:00	0	0	0	0	0	0	6:00	0:00	0	0	0	0	0
7:00:00	0	0	0	0	0	121	7:00	0:00	21	0	100	121	0
8:00:00	0	0	0	0	0	152	8:00		46	0	106	152	0
9:00:00	0	0	0	0	0	185	9:00		52	0	133	185	0 2 0
10:00:00	0	0	0	0	0		10:00 15:00		47	0	138	185	2
15:00:00 16:00:00	0	0	0	0	0	247	16:00		0 100	0	0 147	0 247	0
17:00:00	0	0	0	ő	0		17:00		147	0	251	398	0
18:00:00	ő	Ő	ő	ő	ŏ		18:00		158	Ö	272	430	Ö
19:00:00	0	0	0	0	0		19:00		92	0	196	288	0
Totals:	0	0	0	0	0	2006			663	0	1343	2006	2
	East	Approa	ach Tota rucks, & H	eavys		_					ach Tota rucks, & H		
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches	Hou Endi		Left	Thru	Right	Grand Total	Total Peds
6:00:00	0	0	0	0	0	0	6:00		0	0	0	0	0
7:00:00	222	168	0	390	0	807	7:00	0:00	0	277	140	417	0
8:00:00	205	222	0	427	0	786	8:00		0	238	121	359	0
9:00:00	114	189	0	303	0	678	9:00		0	286	89	375	0
10:00:00 15:00:00	94 0	229 0	0	323	0		10:00 15:00		0	271 0	76 0	347 0	0
16:00:00	128	448	0	576	0		16:00		0	376	53	429	0
17:00:00	125	472	ő	597	ŏ		17:00		ő	289	48	337	Ö
18:00:00	100	389	0	489	0		18:00		0	264	43	307	0
19:00:00	95	271	0	366	0	626	19:00	0:00	0	228	32	260	0
											000		
Totale	1083	2388	Λ	3/171	Λ	E3U3		- 1	U.	-7·7·7a	60.5	2831	Λ
Totals:	1083	2388	0 Calc	3471 ulated V	0 alues f	6302 or Traffic Cr	nssin	a Ma	0 aior Stre	2229 eet	602	2831	0
Totals:		2388 7:00				6302 or Traffic Cr		g M a S:00			19:00	2831	0

		Passen	ger Cars -	North A	proach			Tru	ıcks - Nor	th Appro	ach			Hea	vys - Nor	th Appro	ach		Pedes	trians
Interval	Lef	ft	The	ru	Rig	ht	Le	ft	Th	ru	Rig	ght	Le	ft	Thi	ru	Rig	lht	North	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45:00	0	0	0	0	0	0	0	0		0		0	_	0	0	0	0	0	0	0
7:00:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
7:30:00	0	0	0	0	0	0	0	0			0	0		0	0	0	0	0	0	0
7:45:00	0	0	0	0	0	0	0	0				0		0	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
8:15:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
8:30:00	0	0	0	0	0	0	0	0		0	_	0		0	0	0	0	0	0	0
8:45:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
9:00:00	0	0		0	0	0	0	0		0		0	1	0	0	0	0	0	0	0
9:15:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
9:30:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
9:45:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
10:00:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
10:01:58	0	0	0	0	0	0	0	0		0	0	0		0	0	0	0	0	0	0
15:00:00	0	0	0	0	0	0	0	0				0		0	0	0	0	0	0	0
15:15:00	0	0	0	0	0	0	0	0		0		0	_	0	0	0	0	0	0	0
15:30:00	0	0	0	0	0	0	0	0		0	0	0		0	0	0	0	0	0	0
15:45:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
16:00:00	0	0	0	0	0	0	0	0		0		0	-	0	0	0	0	0	0	0
16:15:00	0	0		0	0	0	0	0		0		0		0	0	0	0	0	0	0
16:30:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
16:45:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
17:00:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
17:15:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
17:30:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
17:45:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
18:00:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
18:15:00	0	0	0	0	0	0	0	0		0	0	0		0	0	0	0	0	0	0
18:30:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
18:45:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0
19:00:00	0	0	0	0	0	0	0	0			_	0		0	0	0	0	0	0	0
19:15:00	0	0	0	0	0	0	0	0				0		0	0	0	0	0	0	0
19:16:41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Passen	ger Cars -	East Ap	proach			Tre	ucks - Eas	t Appro	ach			He	avys - Eas	st Approa	ach		Pedes	trians
Interval	Let	ft	Thr	·u	Rig	ht	Le	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	ıht	East (Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	55	55	33	33	0	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0
6:30:00	114	59	69	36	0	0	3	3	12	5	0	0	0	0	0	0	0	0	0	0
6:45:00	165	51	105	36	0	0	8	5	20	8	0	0	0	0	0	0	0	0	0	0
7:00:00	211	46	137	32	0	0	11	3	31	11	0	0	0	0	0	0	0	0	0	C
7:15:00	268	57	183	46	0	0	12	1	44	13	0	0	0	0	0	0	0	0	0	0
7:30:00	321	53	235	52	0	0	15	3	53	9	0	0	0	0	0	0	0	0	0	0
7:45:00	372	51	276	41	0	0	17	2	64	11	0	0	0	0	0	0	0	0	0	0
8:00:00	408	36	318	42	0	0	19	2	72	8	0	0	0	0	0	0	0	0	0	0
8:15:00	437	29	359	41	0	0	24	5	77	5	0	0	0	0	0	0	0	0	0	0
8:30:00	463	26	399	40	0	0	29	5	87	10	0	0	0	0	0	0	0	0	0	0
8:45:00	488	25	437	38	0	0	30	1	94	7	0	0	0	0	0	0	0	0	0	0
9:00:00	507	19	478	41	0	0	34	4	101	7	0	0	0	0	0	0	0	0	0	0
9:15:00	526	19	523	45	0	0	36	2	107	6	0	0	0	0	0	0	0	0	0	0
9:30:00	544	18	564	41	0	0	38	2	116	9	0	0	0	0	0	0	0	0	0	0
9:45:00	571	27	620	56	0	0	38	0	130	14	0	0	0	0	0	0	0	0	0	0
10:00:00	592	21	672	52	0	0	43	5	136	6	0	0	0	0	0	0	0	0	0	0
10:01:58	592	0	672	0	0	0	43	0	136	0	0	0	0	0	0	0	0	0	0	0
15:00:00	592	0	672	0	0	0	43	0	136	0	0	0	0	0	0	0	0	0	0	0
15:15:00	616	24	767	95	0	0	47	4	144	8	0	0	0	0	0	0	0	0	0	0
15:30:00	645	29	892	125	0	0	53	6	151	7	0	0	0	0	0	0	0	0	0	0
15:45:00	684	39	976	84	0	0	57	4	160	9	0	0	0	0	0	0	0	0	0	0
16:00:00	704	20	1086	110	0	0	59	2	170	10		0	_	0	0	0	0	0	0	0
16:15:00	728	24	1196	110	0	0	60	1	175	5	0	0	0	0	0	0	0	0	0	0
16:30:00	758	30	1299	103	0	0	63	3	183	8	0	0	0	0	0	0	0	0	0	0
16:45:00	792	34	1407	108	0	0	67	4	192	9	0	0	0	0	0	0	0	0	0	0
17:00:00	818	26	1530	123	0	0	70	3	198	6	0	0	0	0	0	0	0	0	0	0
17:15:00	850	32	1637	107	0	0	73	3		4	0	0		0	0	0	0	0	0	0
17:30:00	876	26	1732	95	0	0	74	1	204	2	0	0		0	0	0	0	0	0	0
17:45:00	895	19	1824	92	0	0	74	0	210	6	0	0	0	0	0	0	0	0	0	0
18:00:00	914	19	1905	81	0	0	74	0		2	0	0	_	0	0	0	0	0	0	0
18:15:00	937	23	1981	76	0	0	74	0		3	0	0	-	0	0	0	0	0	0	0
18:30:00	963	26	2040	59	0	0	74	0		2	0	0		0	0	0	0	0	0	0
18:45:00	985	22	2104	64	0	0	76	2		4	0	0	_	0	0	0	0	0	0	0
19:00:00	1007	22	2162	58	0	0	76	0		5	0	0		0	0	0	0	0	0	0
19:15:00	1007	0	2162	0	0	0	76	0		0	0	0		0	0	0	0	0	0	0
19:16:41	1007	0	2162	0	0	0	76	0	226	0	0	0	0	0	0	0	0	0	0	0

		Passenç	jer Cars -	South A	pproach			Tru	cks - Sou	th Appro	ach			Hea	vys - Sou	th Appro	ach		Pedes	trians
Interval	Lef	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	ght	Le	ft	Thi	ru	Rig	ht	South	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	4	4	0	0	22	22	0	0	0	0	1	1	0	0	0	0	0	0	0	0
6:30:00	6	2	0	0	44	22	0	0	0	0	3	2	0	0	0	0	0	0	0	0
6:45:00	9	3	0	0	73	29	2	2	0	0	5	2	0	0	0	0	0	0	0	0
7:00:00	17	8	0	0	95	22	4	2	0	0	5	0	0	0	0	0	0	0	0	0
7:15:00	23	6	0	0	113	18	4	0	0	0		4		0	0	0	0	0	0	0
7:30:00	32	9	0	0	135	22	8	4	0	0		3		0	0	0	0	0	0	0
7:45:00	47	15	0	0	161	26	9	1	0	0		4		0		0	0	0	0	0
8:00:00	54	7	0	0	188	27	13	4	0	0		2		0	0	0	0	0	0	0
8:15:00	63	9	0	0	218	30	22	9		0		5		0		0	0	0	0	0
8:30:00	75	12	0	0	248	30	25	3	0	0		1	0	0	-	0	0	0	0	0
8:45:00	80	5	0	0	278	30	29	4	0	0		3		0	0	0	0	0	0	0
9:00:00	86	6	0	0	311	33	33	4	0	0		1	0	0		0	0	0	0	0
9:15:00	90	4	0	0	353	42	37	4	0	0		5		0	0	0	0	0	0	0
9:30:00	94	4	0	0	376	23	43	6		0		3		0	0	0	0	0	1	1
9:45:00	108	14	0	0	403	27	49	6	0	0		4	0	0	0	0	0	0	2	1
10:00:00	116	8	0	0	431	28	50	1	0	0		6		0	0	0	0	0	2	0
10:01:58	116	0	0	0	431	0	50	0		0		0		0	0	0	0	0	2	0
15:00:00	116	0	0	0	431	0	50	0		0		0		0		0	0	0	2	0
15:15:00	136	20	0	0	457	26	55	5		0		2		0		0	0	0	2	0
15:30:00	167	31	0	0	490	33	58	3	0	0		1	0	0	0	0	0	0	2	0
15:45:00	190	23	0	0	522	32	60	2		0		2		0		0	0	0	2	0
16:00:00	205	15	0	0	571	49	61	1	0	0		2		0	0	0	0	0	2	0
16:15:00	229	24	0	0	617	46	62	1	0	0		5		0		0	0	0	2	0
16:30:00	280	51	0	0	666	49	62	0		0		3		0	0	0	0	0	2	0
16:45:00	314	34	0	0	741	75	66	4	0	0		3		0	0	0	0	0	2	0
17:00:00	344	30	0	0	807	66	69	3	0	0		4		0		0	0	0	2	0
17:15:00	383	39	0	0	862	55	72	3		0		0	0	0	0	0	0	0	2	0
17:30:00	429	46	0	0	930	68	72	0		0		2		0	0	0	0	0	2	0
17:45:00	464	35	0	0	1002	72	73	1	0	0		2		0	0	0	0	0	2	0
18:00:00	498	34	0	0	1074	72	73	0		0		1	0	0	0	0	0	0	2	0
18:15:00	534	36	0	0	1132	58	73	0		0		2	0	0	0	0	0	0	2	0
18:30:00	554	20	0	0	1177	45	74	1	0	0		1	0	0		0	0	0	2	0
18:45:00	569	15	0	0	1216	39	74	0		0		2		0	0	0	0	0	2	0
19:00:00	589	20	0	0	1263	47	74	0		0		2		0		0	0	0	2	0
19:15:00	589	0	0	0	1263	0	74	0		0		0		0		0	0	0	2	0
19:16:41	589	0	0	0	1263	0	74	0	0	0	80	0	0	0	0	0	0	0	2	0

		Passenger Cars - West A Left Thru			proach			Tru	ıcks - Wes	st Appro	ach			Hea	avys - We	st Appro	ach		Pedes	trians
Interval	Lef	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	jht	West 0	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	0	0	61	61	30	30	0	0	9	9	2	2	0	0	0	0	0	0	0	0
6:30:00	0	0	121	60	68	38	0	0	19	10	3	1	0	0	0	0	0	0	0	0
6:45:00	0	0	194	73	103	35	0	0		9		3	0	0	0	0	0	0	0	0
7:00:00	0	0	239	45	128	25	0	0	38	10		6		0	0	0	0	0	0	0
7:15:00	0	0	268	29	155	27	0	0		13		7		0	0	0	0	0	0	0
7:30:00	0	0	313	45	181	26	0	0		5		7	_	0	0	0	0	0	0	0
7:45:00	0	0	373	60	212	31	0	0		12		3		0		0	0	0	0	0
8:00:00	0	0	437	64	230	18	0	0		10		2		0	0	0	0	0	0	0
8:15:00	0	0	486	49	250	20	0	0		5		4		0	0	0	0	0	0	0
8:30:00	0	0	534	48	279	29	0	0	94	11	36	1	0	0	0	0	0	0	0	0
8:45:00	0	0	619	85	294	15	0	0		7		6		0	0	0	0	0	0	0
9:00:00	0	0	686	67	304	10	0	0		14		4		0	0	0	0	0	0	0
9:15:00	0	0	748	62	317	13	0	0		9		7	_	0	0	0	0	0	0	0
9:30:00	0	0	807	59	338	21	0	0		11	53	0		0	0	0	0	0	0	0
9:45:00	0	0	855	48	354	16	0	0		19		3		0	0	0	0	0	0	0
10:00:00	0	0	908	53	365	11	0	0	1	10		5		0	0	0	0	0	0	0
10:01:58	0	0	908	0	365	0	0	0		0		0		0	0	0	0	0	0	0
15:00:00	0	0	908	0	365	0	0	0		0		0		0		0	0	0	0	0
15:15:00	0	0	972	64	378	13	0	0		7		3		0		0	0	0	0	0
15:30:00	0	0	1056	84	388	10	0	0		16		1		0	0	0	0	0	0	0
15:45:00	0	0	1156	100	399	11	0	0		8		1	0	0		0	0	0	0	0
16:00:00	0	0	1249	93	412	13	0	0		4	67	1		0	0	0	0	0	0	0
16:15:00	0	0	1312	63	422	10	0	0		7		0		0		0	0	0	0	0
16:30:00	0	0	1377	65	432	10	0	0		8		1		0	0	0	0	0	0	0
16:45:00	0	0	1449	72	441	9	0	0		13		2		0	0	0	0	0	0	0
17:00:00	0	0	1504	55	456	15	0	0		6		1		0		0	0	0	0	0
17:15:00	0	0	1567	63	464	8	0	0	1	9		0	_	0	0	0	0	0	0	0
17:30:00	0	0	1633	66	474	10	0	0		2	71	0		0	0	0	0	0	0	0
17:45:00	0	0	1685	52	484	10	0	0		4	73	2		0	0	0	0	0	0	0
18:00:00	0	0	1750	65	497	13	0	0		3	73	0		0	0	0	0	0	0	0
18:15:00	0	0	1806	56	506	9	0	0		4	73	0	-	0	0	0	0	0	0	0
18:30:00	0	0	1858	52	512	6	0	0		4	74	1		0		0	0	0	0	0
18:45:00	0	0	1914	56	522	10	0	0		3		1		0	0	0	0	0	0	0
19:00:00	0	0	1958	44	527	5	0	0		9		0		0		0	0	0	0	0
19:15:00	0	0	1958	0	527	0	0	0		0		0		0		0	0	0	0	0
19:16:41	0	0	1958	0	527	0	0	0	271	0	75	0	0	0	0	0	0	0	0	0

Ontario Traffic Inc. **Morning Peak Diagram Specified Period One Hour Peak** From: 6:45:00 **From:** 6:00:00 To: 10:00:00 7:45:00 To: Weather conditions: Municipality: Alliston Site #: 1717000002 Intersection: Hwy 89 & Concession Rd 6 Person(s) who counted: TFR File #: Count date: 13-Jun-17 ** Non-Signalized Intersection ** Major Road: Hwy 89 runs W/E Heavys 0 North Leg Total: 79 0 0 Heavys 0 East Leg Total: 743 0 North Entering: 60 Trucks 0 0 Trucks 1 East Entering: 404 North Peds: East Peds: Cars 42 18 60 Cars 18 0 \mathbb{X} Totals 19 Peds Cross: Peds Cross: ⋈ Totals 42 18 Concession Rd 6 Totals Trucks Heavys Totals Heavys Trucks Cars Cars 54 382 436 0 10 340 394 54 0 0 Hwy 89 350 54 Heavys Trucks Cars Totals Hwy 89 0 1 8 9 49 272 321 Trucks Heavys Totals Cars 339 50 280 290 49 0 \mathbb{X} Peds Cross: 0 West Peds: West Entering: 330 West Leg Total: 766 **Comments**

Ontario Traffic Inc. **Afternoon Peak Diagram Specified Period One Hour Peak From:** 16:15:00 From: 15:00:00 To: 19:00:00 17:15:00 To: Weather conditions: Municipality: Alliston Site #: 1717000002 Intersection: Hwy 89 & Concession Rd 6 Person(s) who counted: TFR File #: Count date: 13-Jun-17 ** Non-Signalized Intersection ** Major Road: Hwy 89 runs W/E Heavys 0 North Leg Total: 95 0 0 Heavys 0 East Leg Total: 1137 North Entering: 31 Trucks 0 1 Trucks 0 East Entering: 613 North Peds: East Peds: Cars 18 12 30 Cars 64 0 \mathbb{X} Totals 64 Peds Cross: Peds Cross: ⋈ Totals 18 13 Concession Rd 6 Totals Trucks Heavys Totals Heavys Trucks Cars Cars 36 565 601 0 30 547 583 36 0 Hwy 89 0 577 36 Heavys Trucks Cars Totals Hwy 89 0 0 34 34 49 462 511 Trucks Heavys Totals Cars 474 0 524 49 496 50 \mathbb{X} Peds Cross: West Peds: 0 West Entering: 545 West Leg Total: 1146 **Comments**

Total Count Diagram

Municipality: Alliston

Site #: 1717000002

Intersection: Hwy 89 & Concession Rd 6

TFR File #: 1

Count date: 13-Jun-17

Weather conditions:

Person(s) who counted:

** Non-Signalized Intersection **

Totals

148

3427

North Leg Total: 567 Heavys 0 0

Heavys 0 0 0 0
Trucks 2 3 5
Cars 147 115 262
Totals 149 118

Heavys 0 Trucks 4 Cars 296

Totals 300

Major Road: Hwy 89 runs W/E

East Leg Total: 7024
East Entering: 3479
East Peds: 0
Peds Cross: \[\]

Heavys Trucks Cars Totals
0 313 3163 3476



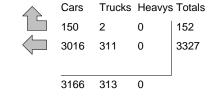
146

3093

3239

Concession Rd 6





337

3208

Hwy 89

Cars Trucks Heavys Totals

3545

Peds Cross:

West Peds: 0

West Entering: 3575

West Leg Total: 7051

Heavys Trucks Cars

2

334

336

0

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection:	Hwy 89	& Conce	ession R	d 6	Count E	Date: 13-Jun-17	,	Munio	cipality: Alli	ston			
	North	n Appro	ach Tot	als					South	n Appro	ach Tot	als	
			rucks, & H	eavys		North/South					rucks, & H		
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	Total Approaches	Hou Endi		Left	Thru	Right	Grand Total	Total Peds
6:00:00	0	0	0	0	0	0	6:00	0:00	0	0	0	0	0
7:00:00	19	0	42	61	0	61	7:00	0:00	0	0	0	0	0
8:00:00	17	0	33	50	0	50	8:00		0	0	0	0	0
9:00:00	15	0	15	30	0	30	9:00		0	0	0	0	0
10:00:00	22	0	12	34	0	34	10:00		0	0	0	0	0
15:00:00 16:00:00	0 15	0 0	0 8	0 23	0	0 23	15:00 16:00		0	0	0 0	0	0 0
17:00:00	13	0	14	27	0	23 27	17:00		0	0	0	0	0
18:00:00	10	0	12	22	0	22	18:00		0	0	0	Ö	ő
19:00:00	7	0	13	20	0	20			0	0	0	ő	ő
Totals:	118 East	0 Approa	149 ach Tota	267 als	0	267			0 West	0 t Appro	0 ach Tot	0 als	0
Hour	Include	es Cars, I	rucks, & H	eavys Grand	Total	East/West Total	Ηοι		Include	es Cars, I	rucks, & H	eavys Grand	Total
Ending	Left	Thru	Right	Total	Peds	Approaches	Endi	ng	Left	Thru	Right	Total	Peds
6:00:00	0	0	0	0	0	0	6:00		0	0	0	0	0
7:00:00	0	346	3	349	0	725	7:00		9	367	0	376	0
8:00:00 9:00:00	0	395	10	405	0	740 734	8:00 9:00		11	324	0	335	0
10:00:00	0	302 307	10 10	312 317	0	734 731	10:00		13 10	409 404	0	422 414	0
15:00:00	0	0	0	0	0	0			0	0	0	0	0
16:00:00	ő	558	30	588	0		16:00		16	519	ő	535	ő
17:00:00	Ö	588	34	622	Ö	1161	17:00		30	509	Ö	539	ő
18:00:00	0	480	32	512	0		18:00		42	487	0	529	0
19:00:00	0	351	23	374	0	799	19:00	0:00	17	408	0	425	0
Totals:	0	3327	152	3479	0	7054			148	3427	0	3575	0
						or Traffic Cr		_	-				
Hours Er Crossing		7:00 19	8:00 17	9:00 15	10:00 22		16	5:00 15	17:00 13	18:00 10	19:00 7		
Ciossing	values.	19	17	13	22			10	13	10			

		Passen	ger Cars -	North A	proach			Tru	ıcks - Nor	th Appro	ach			Hea	ıvys - Nor	th Appro	ach		Pedes	trians
Interval	Lei	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	ght	Le	ft	Thi	ru	Rig	lht	North	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	2	2	0	0	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30:00	4	2	0	0	13	5	0	0	0	0	1	1	0	0	0	0	0	0	0	0
6:45:00	13	9	0	0	27	14	0	0	0	0	1	0	0	0	0	0	0	0	0	0
7:00:00	19	6	0	0	41	14	0	0		0	1	0		0	0	0	0	0	0	0
7:15:00	23	4	0	0	47	6	0	0	_	0	-	0		0		0	0	0	0	0
7:30:00	28	5	0	0	60	13	0	0	_	0	1	0		0	0	0	0	0	0	0
7:45:00	31	3	0	0	69	9	0	0		0	1	0		0		0	0	0	0	0
8:00:00	36	5	0	0	74	5	0	0		0		0		0		0	0	0	0	0
8:15:00	40	4	0	0	78	4	0	0	_	0				0		0	0	0	0	0
8:30:00	43	3	0	0	80	2	0	0	_	0			-	0		0	0	0	0	0
8:45:00	47	4	0	0	84	4	0	0	_	0		0		0		0	0	0	0	0
9:00:00	50	3	0	0	88	4	1	1	0	0		0		0		0	0	0	0	0
9:15:00	55	5	0	0	91	3	1	0		0	1	0		0	0	0	0	0	0	0
9:30:00	60	5	0	0	94	3	1	0	_	0		0		0		0	0	0	0	0
9:45:00	66	6	0	0	95	1	1	0		0		0		0		0	0	0	0	0
10:00:00	72	6	0	0	100 100	5 0	1	0		0		0		0	0	0	0	0	0	0
10:01:46	72 72	0	-	0	100	0	1	0	-	0		0	-		_	0	0	0	0	0
15:00:00 15:15:00	76	- 0	0	0	100	0	1	0		0	1	0		0	_	0	0	0	0	0
15:30:00	76	0	0	0	100	0	1	0	1	0	2	0	_	0	0	0	0	0	0	0
15:45:00	82	6	0	0	105	2	1	0	_	0	1	0	_	0		0	0	0	0	0
16:00:00	87	5	0	0	103	3	1	0	0	0	2	0	_	0		0	0	0	0	0
16:15:00	88		0	0	110	2	2	1	0	0		0	-	0		0	0	0	0	0
16:30:00	93		0	0	115	5	2	0		0		0		0	0	0	0	0	0	0
16:45:00	95	2	0	0	121	6	3	1	0	0		0	-	0		0	0	0	0	0
17:00:00	98	3	0	0	122	1	3	0	-	0		0		0		0	0	0	0	0
17:15:00	100	2	0	0	128	6	3	0		0	1			0	0	0	0	0	0	0
17:30:00	100	0	0	0	131	3	3	0	_	0	1	0		0		0	0	0	0	0
17:45:00	107	7	0	0	132	1	3	0	1	0	1	0	-	0		0		0	0	0
18:00:00	108	1	0	0	134	2	3	0	0	0	1	0		0		0	0	0	0	0
18:15:00	109	1	0	0	139	5	3	0	0	0	2	0	0	0	0	0	0	0	0	0
18:30:00	111	2	0	0	141	2	3	0	0	0	2	0	0	0	0	0	0	0	0	0
18:45:00	113	2	0	0	144	3	3	0	0	0	2	0	0	0	0	0	0	0	0	0
19:00:00	115	2	0	0	147	3	3	0		0				0		0	0	0	0	0
19:15:00	115	0	0	0	147	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0
19:17:12	115	0	0	0	147	0	3	0	0	0		0	0	0	0	0	0	0	0	0
									1		1		1							

		Passenger Cars - East Approac						Tr	ucks - Eas	st Approa	ach			Hea	avys - Eas	st Approa	ach		Pedes	trians
Interval	Lef	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	ght	Le	ft	Thi	ru	Rig	jht	East C	cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	0	0	78	78	0	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0
6:30:00	0	0	160	82	1	1	0	0	13	6	0	0	0	0	0	0	0	0	0	0
6:45:00	0	0	238	78	2	1	0	0	28	15	0	0	0	0	0	0	0	0	0	0
7:00:00	0	0	305	67	3	1	0	0		13	0	0		0	0	0	0	0	0	0
7:15:00	0	0		92	5	2	0	0		13	0	0		0	0	0	0	0	0	0
7:30:00	0	0	495	98	6	1	0	0		13	0	0	_	0	0	0	0	0	0	0
7:45:00	0	0		83	12	6	0	0		15	0	0		0		0	0	0	0	0
8:00:00	0	0		66	13	1	0	0		15	0	0		0	0	0	0	0	0	0
8:15:00	0	0		65	14	1	0	0		12	0	0	-	0		0	0	0	0	0
8:30:00	0	0	780	71	17	3	0	0		12	1	1	_	0		0	0	0	0	0
8:45:00	0	0	839	59	18	1	0	0		12	1	0	-	0	0	0	0	0	0	0
9:00:00	0	0		61	22	4	0	0		10	1	0		0		0	0	0	0	0
9:15:00	0	0	962	62	27	5	0	0		8	1	0		0	0	0	0	0	0	0
9:30:00	0	0	1018	56	27	0	0	0		12	1	0	_	0	0	0	0	0	0	0
9:45:00	0	0	1092	74	31	4	0	0		15		0		0	0	0	0	0	0	0
10:00:00	0	0	1161	69	32 32	0	0	0		11	1	0	-	0	0	0	0	0	0	0
10:01:46	0	0	1161 1161	0	32	0	0	0		0	1	0	-	0	_	0	0	0	0	0
15:00:00 15:15:00	0	0	1268	107	32	7	0	0		13	1	0		0	_	0	0	0	0	0
15:30:00	0	0	1428	160	42	3	0	0	1	13	1	0	-	0	0	0	0	0	0	0
15:45:00	0	0	1548	120	54	12	0	0		11	1	0	-	0		0	0	0	0	0
16:00:00	0	0	1670	120	62	8	0	0		12	1	0		0	0	0	0	0	0	0
16:15:00	0	0	1808	138	71	9	0	0		6	2	0	-	0		0	0	0	0	0
16:30:00	0	0	1941	133	76	5	0	0		10	2	0		0	0	0	0	0	0	0
16:45:00	0	0	2065	124	86	10	0	0		12	2	0	_	0	0	0	0	0	0	0
17:00:00	0	0	2221	156	95	9	0	0		9	2	0	-	0	_	0	0	0	0	0
17:15:00	0	0	2355	134	101	6	0	0		5	2	0		0	0	0	0	0	0	0
17:30:00	0	0	2470	115	111	10	0	0		3	2	0		0	0	0	0	0	0	0
17:45:00	0	0	2585	115	124	13	0	0		6	2	0	0	0	0	0	0	0	0	0
18:00:00	0	0	2684	99	127	3	0	0		3	2	0	0	0	0	0	0	0	0	0
18:15:00	0	0	2770	86	136	9	0	0	297	5	2	0	0	0	0	0	0	0	0	0
18:30:00	0	0	2852	82	144	8	0	0		3	2	0	0	0	0	0	0	0	0	0
18:45:00	0	0	2945	93	147	3	0	0		6	2	0	0	0	0	0	0	0	0	0
19:00:00	0	0	3016	71	150	3	0	0	311	5	2	0	0	0	0	0	0	0	0	0
19:15:00	0	0	3016	0	150	0	0	0		0	2	0	0	0	0	0	0	0	0	0
19:17:12	0	0	3016	0	150	0	0	0		0	2	0	0	0	0	0	0	0	0	0
									1		L		1							

	Passenger Cars - South Approach							Tru	ıcks - Sou	th Appro	ach		Heavys - South Approach							Pedestrians		
Interval	Le	ft	Thru		Right		Left		Th	ru	Rig	ght	Left		Thi	ru	Rig	Right		Cross		
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr		
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:00:00	0	0	0	0	0	0	0	0		0		0		0		0	0	0	0	0		
7:15:00	0	0	0	0	0	0	0	0	_	0		0		0		0	0	0	0	0		
7:30:00	0	0	0	0	0	0	0	0	_	0	0	0		0	0	0	0	0	0	0		
7:45:00	0	0	0	0	0	0	0	0		0		0		0		0	0	0	0	0		
8:00:00	0	0	0	0	0	0	0	0		0		0		0		0		0	0	0		
8:15:00	0	0	0	0	0	0	0	0		0		0		0		0	0	0	0	0		
8:30:00	0	0	0	0	0	0	0	0	1	0	_	0		0	-	0	0	0	0	0		
8:45:00	0	0	0	0	0	0	0	0		0		0	_	0		0	0	0	0	0		
9:00:00	0	0	0	0	0	0	0	0		0		0	1	0		0	0	0	0	0		
9:15:00	0	0	0	0	0	0	0	0		0		0		0	0	0		0	0	0		
9:30:00	0	0	0	0	0	0	0	0	_	0	0	0		0		0	0	0	0	0		
9:45:00	0	0	0	0	0	0	0	0		0		0		0		0		0	0	0		
10:00:00	0	0	0	0	0	0	0	0		0	0	0		0	0	0	0	0	0	0		
10:01:46	0	0	0	0	0	0	0	0		0		0				0		0	0	0		
15:00:00 15:15:00	0	0	0	0	0	0	0	0		0		0		0		0	0	0	0	0		
15:30:00	0	0	0	0	0	0	0	0	1	0	0	0	_	0	0	0	0	0	0	0		
15:45:00	0	0	0	0	0	0	0	0	_	0		0		0		0	0	0	0	0		
16:00:00	0	0	0	0	0	0	0	0	_	0	0	0		0		0	0	0	0	0		
16:15:00	0	0		0	0	0	0	0	_	0		0	-	0		0		0	0	0		
16:30:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	0	0		
16:45:00	0	0	0	0	0	0	0	0		0		0	-	0		0	0	0	0	0		
17:00:00	0	0	0	0	0	0	0	0		0		0		0		0	0	0	0	0		
17:15:00	0	0	0	0	0	0	0	0		0	_	0		0	0	0	0	0	0	0		
17:30:00	0	0	0	0	0	0	0	0	1	0	_	0		0		0	0	0	0	0		
17:45:00	0	0	0	0	0	0	0	0	1	0		0	_	0		0		0	0	0		
18:00:00	0	0	0	0	0	0	0	0	_	0		0		0	-	0	0	0	0	0		
18:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
18:30:00	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0		
18:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
19:00:00	0	0		0	0	0	0	0		0	0	0		0		0		0	0	0		
19:15:00	0	0	0	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		
19:17:12	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0		0	0	0		
											1		1									

New Property Pro	Passenger Cars - West Approach								Tru	ucks - Wes	st Appro	ach		Heavys - West Approach							Pedestrians		
Second S	terval	Lef	t	Thru		Right		Left		Th	ru	Rig	ght	Left		Thru		Right		West Cross			
6:15:00	Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr		
6:45:00	6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:45:00 9 2 2 251 92 0 0 0 0 0 27 7 0 0 0 0 0 0 0 0 0 0 0 7 7:00:00 9 0 330 79 0 0 0 0 0 37 10 0 0 0 0 0 0 0 0 0 0 0 0 7:15:00 10 1 376 46 0 0 0 1 1 50 13 0 0 0 0 0 0 0 0 0 0 0 7:30:00 15 5 437 61 0 0 0 1 0 1 0 60 10 0 0 0 0 0 0 0 0	6:15:00	1	1	77	77	0	0	0	0	8	8	0	0	0	0	0	0	0	0	0	0		
7:00:00 9	6:30:00	7	6	159	82	0	0	0	0	20	12	0	0	0	0	0	0	0	0	0	0		
7:15:00			2				0	0	0				0		0		0		0	0	0		
7:30:00 15 5 437 61 0 0 1 0 60 10 <			0				0		0										0	0	0		
7.45:00			1				0												0	0	0		
8:00:00							•												0	0	0		
8:15:00 23 4 682 75 0 0 1 0 95 11 0 <							-												0	0	0		
8:30:00 25 2 765 83 0 0 1 0 107 12 0																			0	0	0		
8:45:00 29 4 872 107 0 0 1 0 113 6 0												_		-					0	0	0		
9:00:00			2				0								0		0		0	0	0		
9:15:00 35 4 1078 106 0 0 2 0 139 11 0							0							-					0	0	0		
9:30:00 37 2 1154 76 0 0 2 0 153 14 0			2				0								0		0		0	0	0		
9:45:00 38 1 1233 79 0 0 2 0 174 21 0							-												0	0	0		
10:00:00																			0	0	0		
10:01:46																			0	0	0		
15:00:00							0												0	0	0		
15:15:00							•									_			0	0	0		
15:30:00							0									_	0		0	0	0		
15:45:00 51	5:15:00		3	1412	97		0		0				0		0		0		0	0	0		
16:00:00 57 6 1789 137 0 0 2 0 234 9 0			3				0		0		17			-	0		0		0	0	0		
16:15:00 64 7 1894 105 0 0 2 0 244 10 0			·				0												0	0	0		
16:30:00 72 8 1996 102 0 0 2 0 257 13 0							0							-					0	0	0		
16:45:00 83 11 2121 125 0 0 2 0 273 16 0							0												0	0	0		
17:00:00 87 4 2247 126 0 0 2 0 285 12 0							0										0		0	0	0		
17:15:00 98 11 2356 109 0 0 2 0 293 8 0			11				0									_			0	0	0		
17:30:00 110 12 2471 115 0 0 2 0 297 4 0				2247			0												0	0	0		
17:45:00 119 9 2597 126 0 0 2 0 303 6 0							0				8	1		-					0	0	0		
18:00:00 129 10 2712 115 0 0 2 0 307 4 0 0 0 0 0 0 0 18:15:00 137 8 2822 110 0 0 2 0 314 7 0 0 0 0 0 0 18:30:00 143 6 2915 93 0 0 2 0 318 4 0 0 0 0 0 0 18:45:00 145 2 3004 89 0 0 2 0 324 6 0 0 0 0 0 0							0				•			-					0	0	0		
18:15:00 137 8 2822 110 0 0 2 0 314 7 0 0 0 0 0 0 18:30:00 143 6 2915 93 0 0 2 0 318 4 0 0 0 0 0 0 18:45:00 145 2 3004 89 0 0 2 0 324 6 0 0 0 0 0 0							0				6						0		0	0	0		
18:30:00 143 6 2915 93 0 0 2 0 318 4 0 0 0 0 0 0 18:45:00 145 2 3004 89 0 0 2 0 324 6 0 0 0 0 0 0							0			-	4						0		0	0	0		
18:45:00 145 2 3004 89 0 0 2 0 324 6 0 0 0 0 0 0		137	8			0	0		0	314	7				0	0	0	0	0	0	0		
				2915			0										0		0	0	0		
<u> 19:00:00 146 1 3093 89 0 0 2 0 334 10 0 0 0 0 0 0 0</u>			2				0												0	0	0		
			1		89		0					1		-	0				0	0	0		
19:15:00			0		0		-							_					0	0	0		
19:17:12	9:17:12	146	0	3093	0	0	0	2	0	334	0	0	0	0	0	0	0	0	0	0	0		

Ontario Traffic Inc. **Morning Peak Diagram Specified Period One Hour Peak** From: 9:00:00 From: 6:00:00 To: 10:00:00 To: 10:00:00 Municipality: Alliston Weather conditions: Site #: 1717000003 Intersection: Hwy 89 & & Concession Rd 7-Dean Person(s) who counted: TFR File #: Count date: 13-Jun-17 ** Non-Signalized Intersection ** Major Road: Hwy 89 & runs W/E North Leg Total: 157 Heavys 0 0 0 Heavys 0 East Leg Total: 859 2 Trucks 2 Trucks 3 North Entering: 76 0 East Entering: 393 East Peds: North Peds: Cars 19 6 49 74 Cars 78 0 \mathbb{X} Totals 21 Totals 81 Peds Cross: Peds Cross: ⋈ 49 Dean Dr Totals Trucks Heavys Totals Heavys Trucks Cars Cars 45 290 335 3 0 53 266 309 43 0 30 0 31 Hwy 89 & 346 0 Heavys Trucks Cars Totals Hwy 89 & 0 0 21 21 57 327 384 2 20 22 Trucks Heavys Totals 0 Cars 57 0 59 368 409 466 Concession Rd 7 \mathbb{X} Peds Cross: 45 Peds Cross: \bowtie Cars 56 Cars 5 33 0 West Peds: 0 Trucks 3 Trucks 0 0 0 South Peds: 0 0 West Entering: 427 Heavys 0 Heavys 0 0 South Entering: 45 West Leg Total: 762 Totals 5 South Leg Total: 104 Totals 59 **Comments**

Ontario Traffic Inc. **Afternoon Peak Diagram Specified Period One Hour Peak** From: 15:00:00 **From:** 16:00:00 To: 17:00:00 19:00:00 To: Weather conditions: Municipality: Alliston Site #: 1717000003 Intersection: Hwy 89 & & Concession Rd 7-Dean Person(s) who counted: TFR File #: Count date: 13-Jun-17 ** Non-Signalized Intersection ** Major Road: Hwy 89 & runs W/E North Leg Total: 136 Heavys 0 0 0 Heavys 0 East Leg Total: 1278 0 Trucks 0 0 Trucks 0 North Entering: 63 East Entering: 686 East Peds: North Peds: 0 Cars 25 6 32 63 Cars 73 0 \mathbb{X} Totals 25 Totals 73 Peds Cross: Peds Cross: ⋈ 6 32 Dean Dr Totals Trucks Heavys Totals Heavys Trucks Cars Cars 40 590 630 0 0 43 583 545 38 0 60 0 60 Hwy 89 & 648 0 Heavys Trucks Cars Totals Hwy 89 & 0 0 20 20 48 456 504 12 15 Trucks Heavys Totals 0 3 Cars 544 0 488 48 592 Concession Rd 7 \mathbb{X} Peds Cross: Cars 78 Peds Cross: \bowtie Cars 20 56 86 0 West Peds: Trucks 3 Trucks 2 0 0 2 South Peds: 0 Heavys 0 0 West Entering: 539 Heavys 0 0 South Entering: 88 West Leg Total: 1169 Totals 22 South Leg Total: 169 Totals 81 **Comments**

Total Count Diagram

Municipality: Alliston

Site #: 1717000003

Intersection: Hwy 89 & & Concession Rd 7-Dean

TFR File #:

Count date: 13-Jun-17

Weather conditions:

Person(s) who counted:

** Non-Signalized Intersection **

North Leg Total: 819 Heavys 0 0 0 9 Trucks 7 2 North Entering: 387

North Peds: O Peds Cross: ⋈ Totals 130 35 222

Cars 123 35 220 378

Dean Dr

Heavys Trucks Cars Totals 312 3206 3518



Hwy 89 &

Heavys Trucks Cars Totals 0 2 127 129 330 2996 3326 8 109 0 117 340 3232

 \mathbb{X}

0

Peds Cross:

West Peds:

West Entering: 3572

West Leg Total: 7090

Concession Rd 7

Cars 379 Trucks 15 Heavys 0 Totals 394

Cars 69 259 Trucks 6 7

Major Road: Hwy 89 & runs W/E

Heavys 0 East Leg Total: 7629 Trucks 11 East Entering: 3815 East Peds: Cars 421 0 \mathbb{X} Peds Cross: Totals 432

> Trucks Heavys Totals Cars 252 0 260 3014 299 3313 0 235 0 242 3501 314

Hwy 89 &

370

14

0

0

266

Trucks Heavys Totals Cars 3475 339 3814

> Peds Cross: \bowtie South Peds: 0 South Entering: 384 South Leg Total: 778

Comments

Heavys 0

Totals 75

Ontario Traffic Inc. Traffic Count Summary

Intersection:	Hwy 89	& & Con	cession	Rd 7-De	eal Count [Date: 13-Jun-17	,	Munic	cipality: Alli	ston			
			ach Tot				1				ach Tot		
	Include	es Cars, T	rucks, & H	-	.	North/South		-	Include	es Cars, T	rucks, & H		
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	Total Approaches	Hou Endi		Left	Thru	Right	Grand Total	Total Peds
6:00:00	0	0	0	0	0	0	6:00		0	0	0	0	0
7:00:00	2	1	0	3	0	17	7:00		5	1	8	14	0
8:00:00	7	2	9	18	0	37	8:00		6	3	10	19	0
9:00:00	30	1	10	41	0	78	9:00		9	1	27	37	0
10:00:00	49	6	21	76	0	121	10:00		5	7	33	45	0
15:00:00	0	0	0	0	0		15:00		0	0	0	0	0
16:00:00 17:00:00	46 32	4 6	25 25	75 63	0		16:00 17:00		5 22	9 10	30 56	44 88	0 0
18:00:00	32	10	30	72	0		18:00		17	5	64	86	0
19:00:00	24	5	10	39	0		19:00		6	7	38	51	0
10.00.00	21	0	10		C	30	10.00	,.00		,	55		3
East App			35 130 387 pproach Totals Cars, Trucks, & Heavys			771			75 West	43 t Appro	266 ach Tota	384 als	0
Hour	IIICIUU	os Cars, i	lucks, & II	Grand	Total	East/West Total	Hou	ır	molude	os Cars, i	Tucks, & II	Grand	Total
Ending	Left	Thru	Right	Total	Peds	Approaches	Endi	ng	Left	Thru	Right	Total	Peds
6:00:00	0	0	0	0	0	0	6:00		0	0	0	0	0
7:00:00	3	352	2	357	0	733	7:00		8	356	12	376	0
8:00:00	9	371	23	403	0	717	8:00		19	289	6	314	0
9:00:00	25 31	295 309	33 53	353 393	0	782	9:00 10:00		22 21	393 384	14 22	429 427	0 0
15:00:00	0	0	0	393	0		15:00		0	0	0	427	0
16:00:00	38	568	47	653	0		16:00		19	512	21	552	0
17:00:00	60	583	43	686	0		17:00		20	504	15	539	0
18:00:00	43	468	34	545	Ö		18:00		12	482	18	512	Ö
19:00:00	33	367	25	425	0	848	19:00	0:00	8	406	9	423	0
						7007			129	2226	447	0570	
Totals	2/12	2212	260	3215	/ \	7.227						マムノ・ハ	(1)
Totals:	242	3313		3815 Ulated \	0 Jaluas f	7387 or Traffic Cr	occin	a M		3326	117	3572	0
Totals:		3313 7:00				or Traffic Cr		 g M a 8:00			19:00	3572	0

Passenger Cars - North Approach								Tru	ıcks - Nor	th Appro	ach		Heavys - North Approach							Pedestrians		
Interval	Le	ft Thru		Right		Left		Th	nru	Rig	ht	Left		Thru		Right		North	Cross			
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum Incr		Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr		
6:00:00	0	0	0	0	0	0	0	0	0	0 0		0 0		0 0		0	0	0	0	0		
6:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:30:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:45:00	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:00:00	1	0	1	0	0	0	1	1	0			0		0	0	0	0	0	0	0		
7:15:00	3	2	1	0	2	2	1	0				0		0	0	0	0	0	0	0		
7:30:00	5	2	1	0	2	0	1	0				0		0	0	0	0	0	0			
7:45:00	5	0	2	1	4	2	1	0			-	0	_	0	0	0	0	0	0	0		
8:00:00	8	3	3	1	8	4	1	0			1	1		0		0	0	0	0	0		
8:15:00	11	3	4	1	10	2	2	1	0		-	0	_	0		0	0	0	0	0		
8:30:00	17	6	4	0	13	3	2	0			-	0	_	0	0	0	0	0	0	0		
8:45:00	26	9	4	0	16	3	2	0				0		0		0	0	0	0	0		
9:00:00	37	11	4	0	17	1	2	0		0	_	1		0	0	0	0	0	0	0		
9:15:00	47	10	5	1	20	3	2	0				1	0	0	0	0	0	0	0	0		
9:30:00	61	14	9	4	26	6	2	0				0		0	0	0	0	0	0			
9:45:00	75	14	10	1	32	6	2	0				1		0		0	0	0	0	0		
10:00:00	86	11	10	0	36	4	2	0				0		0		0	0	0	0	0		
10:02:14	86	0		0	36	0	2	0				0	_	0	0	0	0	0	0	0		
15:00:00	86 97	0	10	0	36 40	0	2	0	_			0	_	0	0	0	0	0	0	0		
15:15:00 15:30:00	111	11 14	12 13	2	40	8		0			-	0	_	0	0	0	0	0	0	0		
15:30:00	123	12	13	1	46 54	6	2	0				1		0	0	0	0	0	0	0		
16:00:00	132	9		0	54 58	4	2	0				1		0		0	0	0	0	0		
16:15:00	144	12		2		6	2	0			•	0		0	0	0	0	0	0	0		
16:30:00	150	6		2	71	7	2	0			-	0		0	0	0	0	0	0	0		
16:45:00	157	7	18	0	78	7	2	0				0		0		0	0	0	0	0		
17:00:00	164	7	20	2	83	5	2	0			-	0		0	0	0	0	0	0	0		
17:15:00	175	11	25	5	90	7	2	0			-	0		0		0	0	0	0			
17:30:00	184	9	26	1	98	8	2	0				0	1	0	0	0	0	0	0	0		
17:45:00	192	8	28	2	102	4	2	0			-	0		0	0	0	0	0	0	0		
18:00:00	196	4	30	2	113	11	2	0			-	0		0		0	0	0	0			
18:15:00	199	3	31	1	118	5	2	0	0	0	7	0	0	0	0	0	0	0	0	0		
18:30:00	207	8	34	3	120	2	2	0				0		0	0	0	0	0	0	0		
18:45:00	214	7	35	1	121	1	2	0	0	0	7	0	0	0	0	0	0	0	0	0		
19:00:00	220	6		0	123	2	2	0	0	0	7	0	0	0	0	0	0	0	0			
19:15:00	220	0	35	0	123	0	2	0	0	0	7	0	0	0	0	0	0	0	0	0		
19:16:17	220	0	35	0	123	0	2	0	0	0	7	0	0	0	0	0	0	0	0	0		

		Passen	ger Cars -	East Ap	proach			Tr	ucks - Eas	st Approa	ach			Hea	avys - Eas	st Approa	ach		Pedes	trians
Interval	Lef	ft	Thi	ru	Rig	ht	Le	ft	Th	ru	Rig	jht	Le	ft	Thi	ru	Rig	lht	East C	cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	2	2	84	84	0	0	0	0	8	8	0	0	0	0	0	0	0	0	0	0
6:30:00	2	0	167	83	1	1	0	0	15	7	0	0	0	0	0	0	0	0	0	0
6:45:00	3	1	246	79	1	0	0	0	28	13	0	0	0	0	0	0	0	0	0	0
7:00:00	3	0	312	66	2	1	0	0	40	12	0	0	0	0	0	0	0	0	0	0
7:15:00	5	2	422	110	6	4	0	0		14	0	0		0	0	0	0	0	0	0
7:30:00	6	1	478	56	8	2	0	0		6	1	1		0	0	0	0	0	0	0
7:45:00	8	2	565	87	14	6	2	2		14	2	1	0	0		0	0	0	0	0
8:00:00	9	1	634	69	23	9	3	1	89	15	2	0		0	0	0	0	0	0	0
8:15:00	16	7	698	64	26	3	4	1	101	12	2	0		0	0	0	0	0	0	0
8:30:00	24	8	773	75	33	7	4	0	115	14	2	0	0	0	0	0	0	0	0	0
8:45:00	29	5	825	52	47	14	4	0		10	2	0	_	0	0	0	0	0	0	0
9:00:00	33	4	882	57	56	9	4	0		11	2	0	1	0	0	0	0	0	0	0
9:15:00	38	5	947	65	69	13	4	0		9	4	2		0	0	0	0	0	0	0
9:30:00	46	8	1001	54	79	10	4	0		11	5	1		0	0	0	0	0	0	0
9:45:00	58	12	1080	79	89	10	4	0		13	5	0		0	0	0	0	0	0	0
10:00:00	63	5	1148	68	106	17	5	1	179	10	5	0	_	0	0	0	0	0	0	0
10:02:14	63	0	1148	0	106	0	5	0		0	5	0	-	0	0	0	0	0	0	0
15:00:00	63	0	1148	0	106	0	5	0		0	5	0	-	0		0	0	0	0	0
15:15:00	69	6	1272	124	116	10	5	0		12	6	1		0		0	0	0	0	0
15:30:00	76	7	1414	142	131	15	6	1	204	13	8	2		0	0	0	0	0	0	0
15:45:00	87	11	1539	125	138	7	7	1	216	12	8	0		0	0	0	0	0	0	0
16:00:00	99	12	1669	130	150	12	7	0		10	8	0	-	0	0	0	0	0	0	0
16:15:00	115	16	1812	143	167	17	7	0		6	8	0		0		0	0	0	0	0
16:30:00	134	19	1932	120	175	8	7	0		9	8	0		0	0	0	0	0	0	0
16:45:00	150	16	2067	135	182	7	7	0		13	8	0	-	0	0	0	0	0	0	0
17:00:00	159	9	2214	147	193	11	7	0		10	8	0		0		0	0	0	0	0
17:15:00	174	15	2343	129	203	10	7	0	1	6	8	0		0	0	0	0	0	0	0
17:30:00	187	13	2458	115	211	8	7	0		4	8	0		0	0	0	0	0	0	0
17:45:00	194	7	2569	111	215	4	7	0		6	8	0		0	0	0	0	0	0	0
18:00:00	202	8	2664	95	227	12	7	0		2	8	0		0	0	0	0	0	0	0
18:15:00	204	2	2755	91	235	8	7	0		4	8	0	_	0	0	0	0	0	0	0
18:30:00	215	11	2846	91	242	7	7	0		2	8	0		0		0	0	0	0	0
18:45:00	222	7	2934	88	246	4	7	0		5	8	0	_	0	0	0	0	0	0	0
19:00:00	235	13	3014	80	252	6	7	0		6	8	0	-	0	0	0	0	0	0	0
19:15:00	235	0	3014	0	252	0	7	0		0	8	0	_	0		0	0	0	0	0
19:16:17	235	0	3014	0	252	0	7	0	299	0	8	0	0	0	0	0	0	0	0	0

	Passenger Cars - South Approach Left Thru Right							Tru	cks - Sou	th Appro	ach			Hea	ıvys - Sou	ıth Appro	ach		Pedes	trians
Interval	Let	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	ht	South	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30:00	1	1	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
6:45:00	1	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00:00	3	2	1	1	8	6	2	1	0	0	0	0		0	0	0	0	0	0	0
7:15:00	4	1	1	0	8	0	2	0	0	0		0		0	0	0	0	0	0	0
7:30:00	5	1	2	1	8	0	2	0		0	•	1		0	0	0	0	0	0	
7:45:00	7	2	3	1	11	3	3	1	0	0	3	2		0	0	0	0	0	0	0
8:00:00	8	1	4	1	15	4	3	0	0	0		0		0		0	0	0	0	0
8:15:00	11	3	5	1	21	6	3	0		0		0	_	0		0	0	0	0	0
8:30:00	12	1	5	0	25	4	3	0		0	3	0	_	0	0	0	0	0	0	0
8:45:00	12	0	5	0	30	5	3	0		0		0		0		0	0	0	0	0
9:00:00	17	5	5	0	42	12	3	0	0	0	3	0		0	0	0	0	0	0	0
9:15:00	18	1	7	2	49	7	3	0		0	3	0	_	0	0	0	0	0	0	0
9:30:00	18	0	8	1	55	6	3	0		0		0		0	0	0	0	0	0	
9:45:00	21	3	9	1	62	7	3	0	0	0	3	0		0		0	0	0	0	0
10:00:00	22	1	12	3		13	3	0	0	0		0	_	0		0	0	0	0	0
10:02:14	22	0	12	0	75 75	0	3	0	0	0	3	0		0	0	0	0	0	0	0
15:00:00	22	- 0	12	0	75	0	3	0	0	0	3		_	0	0	0	0		0	0
15:15:00 15:30:00	23 24	1	13 16	- '	83 92	9		0	0	0		0	_	0	_	0	0	0	0	0
15:30:00	25		18	3	96	9	4	0	0	0	3	0	1	0	0	0	0	0	0	0
16:00:00	25 26	<u> </u>	21	2	103	7	4	0	0	0		0		0		0	0	0	0	0
16:15:00	30	4	25	4	114	11	4	0	0	0	5	0		0	0	0	0	0	0	0
16:30:00	33	3		1	132	18	5	1	0	0	5	0		0	0	0	0	0	0	0
16:45:00	40	7	28	2	144	12	6	1	0	0		0		0		0	0	0	0	0
17:00:00	46	6	31	3	159	15	6	0	0	0	5	0	_	0	0	0	0	0	0	0
17:15:00	48	2	31	0	179	20	6	0		0	5	0	_	0		0	0	0	0	
17:30:00	53	5	33	2	188	9	6	0		1	6	1	_	0	0	0	0	0	0	
17:45:00	60	7	34	1	200	12	6	0	1	. 0	7	1		0	0	0	0	0	0	0
18:00:00	63	. 3		1	221	21	6	0	1	0	· ·	0		0		0	0	0	0	
18:15:00	65	2	36	1	233	12	6	0	1	0	7	0	0	0	0	0	0	0	0	0
18:30:00	66	1	38	2	239	6	6	0	1	0	7	0	0	0	0	0	0	0	0	0
18:45:00	68	2		1	247	8	6	0	1	0	7	0	0	0	0	0	0	0	0	0
19:00:00	69	1	42	3	259	12	6	0	1	0	7	0	0	0	0	0	0	0	0	0
19:15:00	69	0	42	0	259	0	6	0	1	0	7	0	0	0	0	0	0	0	0	0
19:16:17	69	0	42	0	259	0	6	0	1	0	7	0	0	0	0	0	0	0	0	0

		Passenger Cars - West Approach Left Thru Right						Tru	ıcks - Wes	st Appro	ach			Hea	avys - We	st Appro	ach		Pedes	trians
Interval	Le	ft	Thi	ru	Rig	jht	Le	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	ht	West (Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0				0	0	0	0	0	0	0	0	0	0	0	0	0	0	C	
6:15:00	0	0	0 77 77 1 2 155 78 1			1	0	0	9	9	0	0	0	0	0	0	0	0	0	C
6:30:00	2	2	155	78	1	0	0	0	21	12	0	0	0	0	0	0	0	0	0	C
6:45:00	7	5	249	94	4	3	0	0	28	7	0	0	0	0	0	0	0	0	0	C
7:00:00	8	1	317	68	12	8	0	0	39	11	0	0	0	0	0	0	0	0	0	C
7:15:00	13	5	367	50	14	2	0	0		16	0	0	0	0	0	0	0	0	0	C
7:30:00	14	1	393	26	14	0	0	0	62	7	0	0	0	0	0	0	0	0	0	C
7:45:00	18	4	477	84	16	2	0	0		17	0	0	0	0	0	0	0	0	0	C
8:00:00	27	9	558	81	17	1	0	0	87	8	1	1	0	0	0	0	0	0	0	C
8:15:00	30	3	627	69	22	5	0	0	101	14	1	0	0	0	0	0	0	0	0	C
8:30:00	36	6	705	78	24	2	0	0		9	1	0	0	0	0	0	0	0	0	C
8:45:00	41	5	807	102	27	3	0	0		9	2	1	0	0	0	0	0	0	0	
9:00:00	49	8	903	96	30	3	0	0	135	16	2	0	0	0	0	0	0	0	0	C
9:15:00	51	2	1009	106	32	2	0	0		11	3	1	0	0	0	0	0	0	0	C
9:30:00	56	5	1084	75	34	2	0	0		12	4	1	0	0	0	0	0	0	0	C
9:45:00	66	10	1153	69	43	9	0	0		20	4	0	0	0	0	0	0	0	0	C
10:00:00	70	4	1230	77	50	7	0	0		14	4	0	0	0	0	0	0	0	0	C
10:02:14	70	0	1230	0	50	0	0	0		0	4	0	0	0	0	0	0	0	0	C
15:00:00	70	0	1230	0	50	0	0	0		0	4	0	0	0	0	0	0	0	0	C
15:15:00	77	7	1323	93	52	2	1	1	202	10	4	0	0	0	0	0	0	0	0	
15:30:00	80	3	1441	118	55	3	1	0		17	4	0	0	0	0	0	0	0	0	C
15:45:00	84	4	1563	122	63	8	2	1	225	6	4	0	0	0	0	0	0	0	0	C
16:00:00	87	3	1699	136	71	8	2	0		10	4	0	0	0	0	0	0	0	0	C
16:15:00	91	4	1803	104	72	1	2	0		9	5	1	0	0	0	0	0	0	0	C
16:30:00	98	7	1908	105	76	4	2	0		12	5	0	0	0	0	0	0	0	0	C
16:45:00	102	4	2026	118	80	4	2	0		18	5	0		0	0	0	0	0	0	C
17:00:00	107	5	2155	129	83	3	2	0		9	7	2		0	0	0	0	0	0	C
17:15:00	110	3	2252	97	88	5	2	0		9	7	0	_	0	0	0	0	0	0	C
17:30:00	111	1	2365	113	92	4	2	0		3	7	0		0	0	0	0	0	0	C
17:45:00	115	4	2492	127	97	5	2	0		5	8	1	0	0	0	0	0	0	0	C
18:00:00	119	4	2617	125	100	3	2	0		3	8	0		0	0	0	0	0	0	C
18:15:00	122	3	2724	107	102	2	2	0		7	8	0	0	0	0	0	0	0	0	C
18:30:00	124	2	2815	91	104	2	2	0	_	4	8	0	0	0	0	0	0	0	0	C
18:45:00	127	3	2906	91	106	2	2	0		6	8	0	0	0	0	0	0	0	0	C
19:00:00	127	0	2996	90	109	3	2	0		10	8	0	0	0	0	0	0	0	0	C
19:15:00	127	0	2996	0	109	0	2	0		0	8	0	0	0	0	0	0	0	0	C
19:16:17	127	0	2996	0	109	0	2	0	330	0	8	0	0	0	0	0	0	0	0	C

Ontario Traffic Inc. **Morning Peak Diagram Specified Period One Hour Peak** From: 6:00:00 **From:** 8:45:00 To: 10:00:00 To: 9:45:00 Municipality: Alliston Weather conditions: Site #: 1717000004 Intersection: Hwy 89 & Concession Rd 7-Elizabe Person(s) who counted: TFR File #: Count date: 13-Jun-17 ** Non-Signalized Intersection ** Major Road: Hwy 89 runs W/E North Leg Total: 145 Heavys 0 0 0 Heavys 0 East Leg Total: 884 7 Trucks 5 2 Trucks 5 North Entering: 68 East Entering: 400 East Peds: North Peds: 0 Cars 24 2 35 61 Cars 72 0 Totals 77 \mathbb{X} Totals 29 Peds Cross: Peds Cross: ⋈ 2 37 Concession Rd 7 Heavys Trucks Cars Totals Trucks Heavys Totals Cars 49 325 374 2 0 49 301 345 44 0 0 6 352 0 Hwy 89 Heavys Trucks Cars Totals Hwy 89 0 3 24 27 54 392 446 0 Trucks Heavys Totals 0 1 1 Cars 428 0 417 56 484 Elizabeth St \mathbb{X} Peds Cross: Cars 7 2 Peds Cross: \bowtie Cars 0 0 West Peds: 0 Trucks 2 Trucks 0 0 0 South Peds: 4 0 South Entering: 2 West Entering: 474 Heavys 0 Heavys 0 0 West Leg Total: 848 Totals 9 Totals 0 South Leg Total: 11 **Comments**

Ontario Traffic Inc. **Afternoon Peak Diagram Specified Period One Hour Peak** From: 15:00:00 **From:** 16:15:00 To: 17:15:00 19:00:00 To: Municipality: Alliston Weather conditions: Site #: 1717000004 Intersection: Hwy 89 & Concession Rd 7-Elizabe Person(s) who counted: TFR File #: Count date: 13-Jun-17 ** Non-Signalized Intersection ** Major Road: Hwy 89 runs W/E North Leg Total: 234 Heavys 0 0 0 Heavys 0 East Leg Total: 1344 Trucks 0 1 Trucks 3 North Entering: 108 East Entering: 706 East Peds: North Peds: O Cars 40 1 66 107 Cars 123 0 \mathbb{X} Totals 126 Peds Cross: Peds Cross: ⋈ Totals 40 67 Concession Rd 7 Heavys Trucks Cars Totals Trucks Heavys Totals Cars 39 615 654 0 0 80 575 614 39 0 12 0 12 667 0 Hwy 89 Heavys Trucks Cars Totals Hwy 89 0 3 43 46 47 517 564 0 6 6 Trucks Heavys Totals 0 Cars 590 0 50 566 48 638 Elizabeth St \mathbb{X} Peds Cross: 7 7 Peds Cross: \bowtie Cars 19 Cars 0 0 0 West Peds: Trucks 0 Trucks 0 0 0 South Peds: 0 0 South Entering: 7 West Entering: 616 Heavys 0 Heavys 0 0 West Leg Total: 1270 Totals 0 South Leg Total: 26 Totals 19 **Comments**

Total Count Diagram

Municipality: Alliston

Site #: 1717000004

Intersection: Hwy 89 & Concession Rd 7-Elizabe | Person(s) who counted:

TFR File #:

North Leg Total: 1253

North Entering: 575

North Peds:

Peds Cross:

Count date: 13-Jun-17

Weather conditions:

** Non-Signalized Intersection **

Heavys 0 0 0 25 5 Trucks 19

Cars 231 10 309 Totals 250 11 314 Major Road: Hwy 89 runs W/E

Heavys 0 Trucks 29 Cars 649

Totals 678

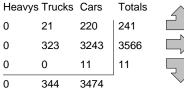
East Leg Total: 7965 East Entering: 4057 East Peds: 0 \mathbb{X} Peds Cross:

Heavys Trucks Cars Totals 325 3485 3810

 \bowtie



Hwy 89



0

 \mathbb{X} Peds Cross: West Peds: 1 West Entering: 3818 West Leg Total: 7628

Cars 91 Trucks 5 Heavys 0 Totals 96



550



Concession Rd 7

Elizabeth St

41 Cars 8 27 Trucks 0 0 1 1 0 Heavys 0 0 Totals 8

Trucks Heavys Totals Cars 423 0 431 3246 3552 306 0 70 0 74 3739 0 318

Hwy 89

Trucks Heavys Totals Cars 3579 329 3908

> Peds Cross: \bowtie South Peds: 10 South Entering: 42 South Leg Total: 138

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection: L	Jww 80	& Conc	assion R	2d 7-Eliz	Count D	Pate: 13_ lun_17	,	Munic	cipality: Δ [[eton				
- '					au	13-3411-17					ach Tot	ale		
						Nowth/Courth								
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	Total Approaches			Left	Thru	Right	Grand Total	Total Peds	
6:00:00	0	0	0	0	0	0			0	0	0	0	0	
I I											2		0	
I I													2 1	
10:00:00	7:00:00													
15:00:00	15:00:00													
	17:00:00													
I I	18:00:00													
	18:00:00 52 1 29 82 0 94 18:00:00 1 2 9													
Totals:					1	617							10	
Totals: 314														
Hour Ending				Grand		Total			Left			Grand		
	North Approach Totals Includes Cars, Trucks, & Heavys Hour Ending Left Thru Right Total Total Approaches Total Approaches Hour Ending Left Thru Right Total Total Approaches Total Approaches Hour Ending Left Thru Right Grand Total Total Approaches Total Hour Ending Left Thru Right Grand Total Total Approaches Total Hour Ending Left Thru Right Grand Total Total Approaches Total Hour Ending Left Thru Right Grand Total Tot													
I I	North Approach Totals													
I I	North Approach Totals													
													1 0	
		- 1								- 1		- 1	0	
										I		I	0	
										I		l I	0	
								1					0	
Totals:	74	3552						a. 8.5			11	3818	1	
Цонто Г.	din a:	7.00				or Traffic Cr		_	-		10.00			
Hours End Crossing		7:00 26	8:00 34	9:00 36	10:00 39		16	6:00 43	17:00 52	18:00 55	19:00 50			

		Passen	ger Cars -	North A	proach			Tru	ıcks - Nor	th Appro	ach			Hea	vys - Nor	th Appro	ach		Pedes	trians
Interval	Lef	ft	The	ru	Rig	ht	Le	ft	Th	ru	Rig	ght	Le	ft	Thi	ru	Rig	ht	North	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	3	3	0	0	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30:00	7	4	0	0	14	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45:00	17	10	0	0	17	3	0	0		0		0		0	0	0	0	0	0	0
7:00:00	26	9	0	0	24	7	0	0		0		0	_	0	0	0	0	0	0	0
7:15:00	36	10	0	0	30	6	0	0		0		1		0		0	0	0	0	0
7:30:00	43	7	1	1	43	13	1	1	0	0	2			0	0	0	0	0	0	0
7:45:00	51	8	1	0	51	8	2	1	0	0	1	4	_	0		0	0	0	0	0
8:00:00	56	5	2	1	60	9	2	0	-	0	-	1		0	0	0	0	0	0	0
8:15:00	64	8	2	0	65	5	2	0		0		2		0		0	0	0	0	0
8:30:00	74	10	2	0	73	8	2	0		0	1	1	_	0		0	0	0	0	0
8:45:00	80	6	3	1	80	7	2	0		1	11	1		0	0	0	0	0	0	0
9:00:00	85	5	4	1	85	5	4	2		0		2		0		0	0	0	0	0
9:15:00	98	13	4	0	93	8	4	0		0		0		0	0	0	0	0	0	0
9:30:00	104	6	5	1	98	5	4	0		0		1		0		0	0	0	0	0
9:45:00	115	11	5	0	104	6	4	0		0		2		0		0	0	0	0	0
10:00:00	123	8	5	0	110	6	4	0		0	_	0		0	0	0	0	0	0	0
10:02:18	123	0	5	0	110	0	4	0		0		0		0	0	0	0	0	0	0
15:00:00	123	0	5	0	110	0	4	0		0	1	0		0		0	0	0	0	0
15:15:00	130	7	5	0	115	5	4	0		0		0	-	0		0	0	0	0	0
15:30:00	142	12	5	0	122	7	4	0		0		1		0	0	0	0	0	0	0
15:45:00	155	13	6	1	129	7	4	0	1	0		2		0		0	0	0	0	0
16:00:00	160	5	8	2	134	5	4	0	1	0		0	-	0	0	0	0	0	0	0
16:15:00	169	9	8	0	150	16	4	0	1	0		0		0		0	0	0	0	0
16:30:00	178	9	8	0	160	10	5	1	1	0		0		0	0	0	0	0	0	0
16:45:00	197	19	8	0	170	10	5	0		0		0	-	0		0	0	0	0	0
17:00:00	210	13	9	1	182	12	5	0		0		0		0		0	0	0	0	0
17:15:00	235	25	9	0	190	8	5	0		0		0		0	0	0	0	0	0	0
17:30:00	248	13	9	0	203	13	5_	0		0		0		0		0	0	0	0	0
17:45:00	253	5	9	0	206	3	5	0		0		0		0	0	0	0	0	0	0
18:00:00	262	9	10	1	211	5	5	0		0		0		0		0	0	0	0	0
18:15:00	275	13	10	0	215	4	5	0		0	19	0		0	0	0	0	0	0	0
18:30:00	285	10	10	0	221	6	5	0		0		0		0		0	0	0	0	0
18:45:00	305	20	10	0	226	5	5	0	· ·	0		0		0	0	0	0	0	0	0
19:00:00	309	4	10	0	231	5	5	0	1	0	_	0		0		0	0	0	1	1
19:15:00	309	0	10	0	231	0	5	0		0		0		0		0	0	0	1	0
19:16:04	309	0	10	0	231	0	5	0	1	0	19	0	0	0	0	0	0	0	1	0

		Passen	ger Cars ·	East Ap	proach			Tre	ucks - Eas	t Approa	ach			He	avys - Eas	st Approa	ach		Pedes	trians
Interval	Let						Le	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	ht	East (Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C
6:15:00	0	0	76	76	4	4	0	0	7	7	0	0	0	0	0	0	0	0	0	C
6:30:00	0	0	160	84	5	1	0	0	14	7	0	0	0	0	0	0	0	0	0	C
6:45:00	1	1	233	73	9	4	0	0	29	15	0	0	0	0	0	0	0	0	0	C
7:00:00	1	0 297 64 9 0 398 101 12			0	0	0	41	12		0	0	0	0	0	0	0	0	C	
7:15:00	1	1 0 398 101 12			3	0	0	54	13		0	0	0	0	0	0	0	0	C	
7:30:00	1	0 487 89 20			8	0	0		13		0	0	0	0	0	0	0	0	C	
7:45:00	1	0	0 574 87 30			10	0	0		13		2	0	0	0	0	0	0	0	C
8:00:00	3	2	2 646 72 41			11	0	0	95	15		1	0	0	0	0	0	0	0	C
8:15:00	4	1	708	62	48	7	0	0	107	12		0	0	0	0	0	0	0	0	C
8:30:00	6	2	792	84	53	5	0	0		13		0	0	0	0	0	0	0	0	C
8:45:00	6	0	857	65	58	5	0	0	1	8		0	0	0	0	0	0	0	0	
9:00:00	7	1	925	68	66	8	2	2		10		1	0	0	0	0	0	0	0	C
9:15:00	8	1	998	73	79	13	2	0		11	5	1	0	0	0	0	0	0	0	C
9:30:00	9	1	1064	66	95	16	2	0		12		0	0	0	0	0	0	0	0	C
9:45:00	10	1	1158	94	105	10	2	0		11	5	0	0	0	0	0	0	0	0	C
10:00:00	12	2	1242	84	110	5	2	0		11	5	0	0	0	0	0	0	0	0	C
10:02:18	12	0	1242	0	110	0	2	0		0	1	0	0	0	0	0	0	0	0	C
15:00:00	12	0	1242	0	110	0	2	0		0		0	0	0	0	0	0	0	0	C
15:15:00	17	5	1370	128	127	17	2	0		12		0	0	0	0	0	0	0	0	C
15:30:00	17	0	1516	146	147	20	2	0		15		1	0	0	0	0	0	0	0	C
15:45:00	22	5	1649	133	167	20	3	1	223	13		2	0	0	0	0	0	0	0	C
16:00:00	28	6	1795	146	190	23	3	0		9		0	0	0		0	0	0	0	C
16:15:00	30	2	1953	158	213	23	4	1	238	6	8	0	0	0	0	0	0	0	0	C
16:30:00	31	1	2088	135	241	28	4	0		9	8	0	0	0	0	0	0	0	0	C
16:45:00	36	5	2229	141	261	20	4	0		14		0	0	0	0	0	0	0	0	C
17:00:00	39	3	2380	151	275	14	4	0		10	1	0	0	0	0	0	0	0	0	C
17:15:00	42	3	2528	148	293	18	4	0		6	8	0	0	0	0	0	0	0	0	C
17:30:00	45	3	2647	119	306	13	4	0	1	4	8	0		0	0	0	0	0	0	C
17:45:00	49	4	2761	114	330	24	4	0	1	6	8	0	0	0	0	0	0	0	0	C
18:00:00	53	4	2870	109	348	18	4	0		3	8	0		0	0	0	0	0	0	C
18:15:00	62	9	2963	93	370	22	4	0		4	8	0	0	0	0	0	0	0	0	C
18:30:00	64	2	3061	98	395	25	4	0		2	8	0	0	0	0	0	0	0	0	
18:45:00	64	0	3151	90	409	14	4	0		5	8	0	0	0	0	0	0	0	0	
19:00:00	70	6	3246	95	423	14	4	0		5	8	0	0	0	0	0	0	0	0	
19:15:00	70	0	3246	0	423	0	4	0		0	8	0	0	0	0	0	0	0	0	
19:16:04	70	0	3246	0	423	0	4	0	306	0	8	0	0	0	0	0	0	0	0	C

		Passenç	ger Cars -	South A	pproach			Tru	ıcks - Sou	th Appro	ach			Hea	ıvys - Sou	th Appro	ach		Pedes	trians
Interval	Lei	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	ght	Le	ft	Thi	ru	Rig	ht	South	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45:00	0	0	0	0	2	1	0	0	_	0		0		0		0	0	0	0	0
7:00:00	0	0	0	0	2	0	0	0		0		0		0		0	0	0	0	0
7:15:00	0	0	0	0	2	0	0	0	_	0		0		0		0	0	0	1	1
7:30:00	0	0	0	0	2	0	0	0	_	0	0	0		0	0	0	0	0	2	1
7:45:00	0	0	0	0	3	1	0	0		0	1	1		0		0	0	0	2	0
8:00:00	0	0	0	0	4	1	0	0	_	0		0		0		0		0	2	0
8:15:00	1	1	0	0	5	1	0	0	_	0	1	0		0		0	0	0	2	0
8:30:00	1	0	0	0	5	0	0	0	_	0	-	0		0		0	0	0	2	0
8:45:00	1	0	0	0	6	1	0	0		0	-	0		0		0	0	0	3	1
9:00:00	1	0	1	1	7	1	0	0		0		0	1	0		0	0	0	3	0
9:15:00	1	0	1	0	7	0	0	0		0	1	0		0	0	0		0	5	2
9:30:00	1	0	1	0	7	0	0	0	_	0	-	0		0		0	0	0	7	2
9:45:00	1	0	1	0		0	0	0		0		0		0		0		0	7	0
10:00:00	1	0	1	0	7	0	0	0		0		0		0		0	0	0	8	1
10:02:18	1	0	1	0	7	0	0	0	-	0		0		0	0	0		0	8	0
15:00:00 15:15:00	2	- 0	1	0	8	0	0	0		0		0		0		0	0	0	8	0
15:30:00	2	0	2	1	8	0	0	0	1	0	1	0	_	0	0	0	0	0	8	0
15:45:00	3	1	2	0	<u>o</u> 11	3	0	0	_	0	· .	0		0		0	0	0	9	1
16:00:00	4	1	3	1	12	<u></u>	0	0	_	0	1	0		0		0	0	0	9	0
16:15:00	4	0		1	12	0	0	0	_	0	-	0	-	0		0	0	0	9	0
16:30:00	4	0	4	0	12	0	0	0		0		0		0	0	0	0	0	9	0
16:45:00	4	0	4	0	13	1	0	0		0		0	_	0		0	0	0	9	0
17:00:00	4	0	4	0	14	1	0	0		0		0		0		0	0	0	9	0
17:15:00	4	0	4	0	19	5	0	0		0	1	0		0	0	0	0	0	9	0
17:30:00	5	1	4	0	20	1	0	0	_	0	1	0		0		0	0	0	9	0
17:45:00	5	0	4	0	21	1	0	0	1	0	1	0		0		0		0	9	0
18:00:00	5	0	6	2	23	2	0	0	_	0	-	0		0		0	0	0	10	1
18:15:00	5	0	6	0	24	1	0	0	_	0	1	0	0	0	0	0	0	0	10	0
18:30:00	8	3	6	0	26	2	0	0	_	0	1	0		0		0	0	0	10	0
18:45:00	8	0	6	0	26	0	0	0	0	0	1	0	0	0	0	0	0	0	10	0
19:00:00	8	0	6	0	27	1	0	0		0	1	0		0		0		0	10	0
19:15:00	8	0	6	0	27	0	0	0		0	1	0		0		0	0	0	10	0
19:16:04	8	0	6	0	27	0	0	0		0		0		0		0		0	10	0
			I				I				1		1		1					

	Passenger Cars - West Approa			proach			Tru	ıcks - Wes	st Appro	ach			Hea	avys - We	st Appro	ach		Pedes	trians	
Interval	Lei				Rig	ht	Le	ft	Th	ru	Rig	ght	Le	ft	Th	ru	Rig	jht	West (Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	4	4	73	73	0	0	2	2	7	7	0	0	0	0	0	0	0	0	0	0
6:30:00	10	6		70	0	0	2	0	21	14	0	0	0	0	0	0	0	0	0	0
6:45:00	14	4	217	74	0	0	4	2	26	5		0	0	0	0	0	0	0	0	0
7:00:00	17	3		62	0	0	4	0		10		0		0	0	0	0	0	0	0
7:15:00	23	6	322	43	0	0	4	0		15		0		0	0	0	0	0	0	0
7:30:00	30	7	376	54	0	0	4	0	63	12		0		0	0	0	0	0	0	0
7:45:00	37	7		63	0	0	5	1	81	18	•	0	-	0	0	0	0	0	0	0
8:00:00	42	5	527	88	0	0	6	1	87	6	0	0	0	0	0	0	0	0	0	0
8:15:00	52	10		66	0	0	7	1	101	14	0	0		0	0	0	0	0	1	1
8:30:00	59	7		77	0	0	8	1		8		0		0		0	0	0	1	0
8:45:00	66	7	774	104	0	0	8	0	117	8	0	0	0	0	0	0	0	0	1	0
9:00:00	71	5	884	110	0	0	10	2	130	13		0	0	0	0	0	0	0	1	0
9:15:00	78	7	991	107	1	1	11	1	142	12		0	0	0	0	0	0	0	1	0
9:30:00	86	8	1077	86	1	0	11	0	154	12		0	0	0	0	0	0	0	1	0
9:45:00	90	4	1166	89	1	0	11	0		17	0	0	0	0	0	0	0	0	1	0
10:00:00	96	6	1259	93	1	0	11	0	187	16	0	0	0	0	0	0	0	0	1	0
10:02:18	96	0	1259	0	1	0	11	0	187	0	0	0	0	0	0	0	0	0	1	0
15:00:00	96	0	1259	0	1	0	11	0	187	0	0	0	0	0	0	0	0	0	1	0
15:15:00	104	8	1371	112	2	1	12	1	195	8	0	0	0	0	0	0	0	0	1	0
15:30:00	117	13	1495	124	3	1	13	1	213	18	0	0	0	0	0	0	0	0	1	0
15:45:00	123	6	1626	131	4	1	13	0	219	6	0	0	0	0	0	0	0	0	1	0
16:00:00	132	9	1765	139	4	0	14	1	228	9	0	0	0	0	0	0	0	0	1	0
16:15:00	141	9	1894	129	4	0	15	1	236	8	0	0	0	0	0	0	0	0	1	0
16:30:00	148	7	2002	108	7	3	15	0	248	12	0	0	0	0	0	0	0	0	1	0
16:45:00	160	12	2142	140	7	0	17	2	264	16	0	0	0	0	0	0	0	0	1	0
17:00:00	169	9	2287	145	9	2	18	1	272	8	0	0	0	0	0	0	0	0	1	0
17:15:00	184	15	2411	124	10	1	18	0	283	11	0	0	0	0	0	0	0	0	1	0
17:30:00	189	5	2531	120	11	1	18	0	287	4	0	0	0	0	0	0	0	0	1	0
17:45:00	196	7	2677	146	11	0	20	2	293	6	0	0	0	0	0	0	0	0	1	0
18:00:00	199	3	2812	135	11	0	20	0	296	3	0	0	0	0	0	0	0	0	1	0
18:15:00	206	7	2934	122	11	0	21	1	303	7	0	0	0	0	0	0	0	0	1	0
18:30:00	211	5	3037	103	11	0	21	0	307	4	0	0	0	0	0	0	0	0	1	0
18:45:00	216	5	3131	94	11	0	21	0	311	4	0	0	0	0	0	0	0	0	1	0
19:00:00	220	4	3243	112	11	0	21	0	323	12	0	0	0	0	0	0	0	0	1	0
19:15:00	220	0	3243	0	11	0	21	0		0		0	0	0	0	0	0	0	1	0
19:16:04	220	0	3243	0	11	0	21	0	323	0	0	0	0	0	0	0	0	0	1	0

Ontario Traffic Inc. **Morning Peak Diagram Specified Period One Hour Peak** From: 8:45:00 **From:** 6:00:00 To: 10:00:00 To: 9:45:00 Municipality: Alliston Weather conditions: Site #: 1717000005 Intersection: Hwy 89 & Elizabeth St Person(s) who counted: TFR File #: Count date: 13-Jun-17 ** Non-Signalized Intersection ** Major Road: Hwy 89 runs W/E East Leg Total: 921 East Entering: 414 East Peds: 0 \mathbb{X} Peds Cross: Totals Trucks Heavys Totals Heavys Trucks Cars Cars 47 365 412 365 412 0 2 2 367 Hwy 89 Heavys Trucks Cars Totals Hwy 89 58 438 496 0 0 1 Cars Trucks Heavys Totals 448 0 507 439 Elizabeth St \mathbb{X} Peds Cross: Cars 3 10 Peds Cross: \bowtie Cars 0 10 West Peds: 0 Trucks 0 Trucks 0 1 1 South Peds: 0 0 West Entering: 497 Heavys 0 Heavys 0 0 South Entering: 11 West Leg Total: 909 Totals 3 Totals 0 South Leg Total: 14 **Comments**

Ontario Traffic Inc. **Afternoon Peak Diagram Specified Period One Hour Peak From:** 15:15:00 **From:** 15:00:00 To: 19:00:00 To: 16:15:00 Municipality: Alliston Weather conditions: Site #: 1717000005 Intersection: Hwy 89 & Elizabeth St Person(s) who counted: TFR File #: Count date: 13-Jun-17 ** Non-Signalized Intersection ** Major Road: Hwy 89 runs W/E East Leg Total: 1372 East Entering: 744 East Peds: 0 \mathbb{X} Peds Cross: Trucks Heavys Totals Heavys Trucks Cars Totals Cars 43 697 740 740 697 0 701 Hwy 89 Heavys Trucks Cars Totals Hwy 89 39 579 618 0 2 3 Cars Trucks Heavys Totals 1 586 42 0 628 40 581 Elizabeth St \mathbb{X} Peds Cross: Cars 6 Cars 0 7 Peds Cross: \bowtie West Peds: 0 Trucks 1 3 South Peds: Trucks 0 3 3 0 West Entering: 621 Heavys 0 Heavys 0 0 South Entering: 10 West Leg Total: 1361 Totals 7 Totals 0 South Leg Total: 17 **Comments**

Total Count Diagram

Municipality: Alliston

Site #: 1717000005

Intersection: Hwy 89 & Elizabeth St

TFR File #: 1

Count date: 13-Jun-17

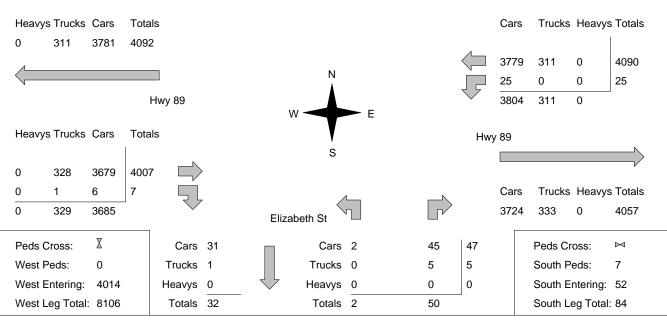
Weather conditions:

Person(s) who counted:

** Non-Signalized Intersection ** Major Road: Hwy 89 runs W/E

East Leg Total: 8172
East Entering: 4115
East Peds: 0

Peds Cross:



Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection:	Hwy 89	& Elizal	beth St		Count [Date: 13-Jun-17	,	Munic	cipality: Alli	ston			
			ach Tot						South	n Appro	ach Tot	als	
	Include	es Cars, T	rucks, & H			North/South					rucks, & H		
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	Total Approaches	Hou Endi		Left	Thru	Right	Grand Total	Total Peds
6:00:00	0	0	0	0	0	0	6:00	0:00	0	0	0	0	0
7:00:00	0	0	0	0	0	0	7:00	00:0	0	0	0	0	1
8:00:00	0	0	0	0	1	8:00		0	0	1	1	0	
9:00:00	0	0	0	0	0	8	9:00		0	0	8	8	1
10:00:00	0	0	0	0	0	9	10:00		0	0	9	9	0
15:00:00	0	0	0	0	0	0	15:00		0	0	0	0	0 3
16:00:00 17:00:00	0	0	0	0	0	10	16:00 17:00		1	0	9	10 8	1
18:00:00	0	0 0	0	0	0	8 13	18:00		0	0	12	13	1
19:00:00	0	0	0	0	0	3	19:00		ó	0	3	3	ó
Totals:	0	0	0	0	0	52			2	0	50	52	7
	East	Appro	ach Tota	als					West	Appro	ach Tota	als	
Hour	Include	es Cars, I	rucks, & H	eavys Grand	Total	East/West Total	Hou		Include	es Cars, I	rucks, & H	eavys Grand	Total
Ending	Left	Thru	Right	Total	Peds	Approaches	Endi	ng	Left	Thru	Right	Total	Peds
6:00:00	0	0	0	0	0	0	6:00		0	0	0	0	0
7:00:00	0	339	0	339	0	708	7:00		0	369	0	369	0
8:00:00	0	448	0	448	0	798	8:00		0	350	0	350	0
9:00:00 10:00:00	3 5	367 413	0	370 418	0	814 896	9:00		0	443 477	1 1	444 478	0
15:00:00	0	413	0	0	0		15:00		0	4//	o	4/0	0
16:00:00	4	729	0	733	0		16:00		0	606	3	609	Ö
17:00:00	3	720	0	723	0		17:00		0	629	0	629	Ö
18:00:00	9	601	ő	610	Ö		18:00		ő	622	2	624	ő
19:00:00	1	473	0	474	0		19:00		0	511	0	511	0
Totals:	25	4090		4115	0 Zalvos f	8129	ossin	a M	0	4007	7	4014	0
	al!.a.a.	7.00				or Traffic Cr		_	-		40.00		
Hours En Crossing		7:00 0		9:00 0	10:00 0		16	6:00 1	17:00 0	18:00 1	19:00 0		

		Passen	ger Cars -	North A	proach			Tru	ıcks - Nor	th Appro	ach			Hea	ıvys - Nor	th Appro	ach		Pedes	trians
Interval	Lef	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	ght	Le	ft	Thi	ru	Rig	ht	North	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45:00	0	0	0	0	0	0	0	0		0	0	0	-	0		0	0	0	0	0
7:00:00	0	0	0	0	0	0	0	0		0	0	0		0		0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	_	0	0	0		0		0	0	0	0	0
7:30:00	0	0	0	0	0	0	0	0	_	0	0	0		0	0	0	0	0	0	0
7:45:00	0	0	0	0	0	0	0	0		0	0	0		0		0	0	0	0	0
8:00:00	0	0	0	0	0	0	0	0		0	0	0		0		0		0	0	0
8:15:00	0	0	0	0	0	0	0	0		0	0	0		0		0	0	0	0	0
8:30:00	0	0	0	0	0	0	0	0	1	0	0	0		0		0	0	0	0	0
8:45:00	0	0	0	0	0	0	0	0		0	0	0		0		0	0	0	0	0
9:00:00	0	0		0	0	0	0	0		0	0	0		0		0	0	0	0	0
9:15:00	0	0	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0
9:30:00	0	0	0	0	0	0	0	0	_	0	0	0		0		0	0	0	0	0
9:45:00	0	0	0	0	0	0	0	0		0	0	0		0		0		0	0	0
10:00:00	0	0	0	0	0	0	0	0		0	0	0		0		0		0	0	0
10:02:13	0	0	0	0	0	0	0	0		0	0	0		0	0	0	0	0	0	0
15:00:00	0	0	0	0	0	0	0	0		0	0	0		0		0		0	0	0
15:15:00	0	0	0	0	0	0	0	0	1	0	0	0	-	0		0	0	0	0	0
15:30:00	0	0	0	0	0	0	0	0		0	0	0		0	0	0	0	0	0	0
15:45:00	0	0	0	0	0	0	0	0		0	0	0		0		0	0	0	0	0
16:00:00	0	0	0	0	0	0	0	0	_	0	0	0	-	0		0	0	0	0	0
16:15:00	0	0		0	0	0	0	0		0	0	0		0		0		0	0	0
16:30:00	0	0	0	0	0	0	0	0		0	0	0		0	0	0	0	0	0	0
16:45:00	0	0	0	0	0	0	0	0		0	0	0		0		0	0	0	0	0
17:00:00	0	0	0	0	0	0	0	0		0	0	0		0		0	0	0	0	0
17:15:00	0	0	0	0	0	0	0	0		0	0	0		0	0	0	0	0	0	0
17:30:00	0	0	0	0	0	0	0	0	1	0	0	0		0		0	0	0	0	0
17:45:00	0	0	0	0	0	0	0	0		0	0	0		0		0		0	0	0
18:00:00	0	0	0	0	0	0	0	0		0	0	0		0		0	0	0	0	0
18:15:00	0	0	0	0	0	0	0	0	_	0	0	0		0	0	0	0	0	0	0
18:30:00	0	0	0	0	0	0	0	0		0	0	0		0		0	0	0	0	0
18:45:00	0	0	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0
19:00:00	0	0	0	0	0	0	0	0		0	0	0		0		0		0	0	0
19:15:00	0	0	0	0	0	0	0	0		0	0	0		0		0	0	0	0	0
19:17:11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6:00:00	Pedestrians		ach	st Approa	avys - Eas	He			ach	st Appro	ucks - Eas	Tr			proach	- East Ap	ger Cars	Passen		
Science Color State Co	East Cross	ght	Rig	ru	Th	eft	Le	ght	Rig	ru	Th	ft	Le	ht	Rig	ru	Th	ft	Let	Interval
6:30:00	Cum Incr	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Time
6:45:00 0 0 157 75 0 0 0 0 15 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0	0	0	0	0	0	0) (0	0	0	0	0	0	0	0	0	0	0	6:00:00
6.45:00 0 0 0 237 80 0 0 0 0 28 13 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 7:00:00 0 0 0	0 0 0	0	0	0	0	0	0) (0	7	7	0	0	0	0	82	82	0	0	6:15:00
7:00:00	0 0 0	0	0	0	0	0	0) (0	8	15	0	0	0	0		157	0	0	6:30:00
7:15:00	0 0	0		0		0	, .					0	0	0			237	0		
7:30:00 0 0 509 98 0 0 0 65 14 0 <t< td=""><td>• • •</td><td>0</td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	• • •	0		-										0						
7:45:00 0 0 605 96 0 0 0 78 13 0 <t< td=""><td>0 0</td><td>0</td><td></td><td>-</td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	0 0	0		-			-							0						
8:00:00 0 0 692 87 0 0 0 0 95 17 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0	0		-																
8:15:00 0 0 769 77 0 0 0 0 105 10 <	0 0	0			-								-							
8:30:00 2 2 861 92 0 0 0 0 150 0 <t< td=""><td>0 0</td><td>0</td><td></td><td>-</td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	0 0	0		-			-													
8:45:00 3 1 929 68 0 0 0 127 7 0 <t< td=""><td>0 0</td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>_</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	0 0			-									_							
9:00:00	0 0	0		-		0	-						_	0				2		
9:15:00 4 1 1100 86 0 0 0 0 151 11 0	0 0	0		-									_	0				1		
9:30:00 5 1 1183 83 0 0 0 163 12 0		0		0		0						0		0				0		
9:45:00 5 0 1294 111 0 0 0 174 11 0	0 0	0		-										0				1	-	
10:00:00	0 0	0		-														1		
10:02:13		0		-																
15:00:00 8 0 1381 0 0 0 0 186 0 <	0 0	0		-										0						
15:15:00	0 0	0		-	-															
15:30:00 10 1 1723 184 0 0 0 0 214 12 0	0 0	0		-	-								_	0		-		0		
15:45:00 12 2 1881 158 0 0 0 0 232 18 0	0 0	0		-										0				1		
16:00:00 12 0 2058 177 0 0 0 0 238 6 0	0 0	0		-										0						
16:15:00 13 1 2236 178 0 0 0 245 7 0	0 0	0		-									_							
16:30:00 13 0 2403 167 0 0 0 0 253 8 0	0 0	0		-			-													
16:45:00 15 2 2573 170 0 0 0 0 265 12 0		0		-					_	-										
17:00:00 15 0 2740 167 0 0 0 0 276 11 0	0 0	0		-			-													
17:15:00 16 1 2914 174 0 0 0 0 281 5 0	0 0	0		-	-		-													
17:30:00 20 4 3060 146 0 0 0 0 286 5 0		0			1									-				0		
17:45:00 23 3 3203 143 0 0 0 0 291 5 0	0 0	0		-														1		
18:00:00 24 1 3324 121 0 0 0 0 293 2 0 0 0 0 0 0 18:15:00 25 1 3447 123 0 0 0 0 298 5 0 0 0 0 0 0 18:30:00 25 0 3572 125 0 0 0 300 2 0 0 0 0 0 0	• • •	0																4		
18:15:00 25 1 3447 123 0 0 0 0 298 5 0 0 0 0 0 0 18:30:00 25 0 3572 125 0 0 0 0 300 2 0 0 0 0 0 0	0 0	0		-					_				_					3		
18:30:00 25 0 3572 125 0 0 0 0 0 300 2 0 0 0 0 0 0	0 0	0		0			-		_					0				1		
	0 0	0		-					_					0						
	0 0	0		-									0	0				0		
	0 0	0	0	0		0	-		_	5		0	0	0	0	103	3675	0	25	18:45:00
19:00:00 25 0 3779 104 0 0 0 0 311 6 0 0 0 0 0 0 0 0	· · · · ·	0		-		0			-					0		104		0		
19:15:00 25 0 3779 0 0 0 0 0 311 0 0 0 0 0 0 0 0 0 0	• • •	0												0		0				
19:17:11 25 0 3779 0 0 0 0 0 311 0 0 0 0 0 0 0 0 0	0 0 0	0	0	0	0	0	0) (0	0	311	0	0	0	0	0	3779	0	25	19:17:11

		Passenç	ger Cars -	South A	pproach			Tru	ıcks - Sou	th Appro	ach			Hea	vys - Sou	th Appro	ach		Pedes	trians
Interval	Le	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	ght	Le	ft	Thi	ru	Rig	lht	South	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00:00	0	0	0	0	0	0	0	0		0		0		0	0	0	0	0	1	1
7:15:00	0	0	0	0	1	1	0	0		0		0		0	0	0	0	0	1	0
7:30:00	0	0	0	0	1	0	0	0		0	0	0		0	0	0	0	0	1	0
7:45:00	0	0	0	0	1	0	0	0	I	0		0		0	0	0	0	0	1	0
8:00:00	0	0	0	0	1	0	0	0		0		0		0	0	0		0	1	0
8:15:00	0	0	0	0	1	0	0	0		0	_	0		0	0	0	0	0	1	0
8:30:00	0	0	0	0	3	2	0	0		0		0		0	0	0	0	0	2	1
8:45:00	0	0	0	0	5	2	0	0		0		1		0	0	0	0	0	2	0
9:00:00	0	0		0	7	2	0	0		0				0	0	0	0	0	2	0
9:15:00	0	0	0	0	10	3	0	0		0	1	0		0	0	0		0	2	0
9:30:00	0	0	0	0	13	3	0	0		0		0		0	0	0	0	0	2	0
9:45:00	0	0	0	0	15	2	0	0		0		0		0	0	0		0	2	0
10:00:00	0	0	0	0	16	1	0	0		0				0	0	0	0	0	2	0
10:02:13	0	0	0	0	16 16	0	0	0		0		0			0	0		0	2	0
15:00:00 15:15:00	1	1	0	0	18	2	0	0		0				0	0	0	0	0	2	0
15:30:00	1	0	0	0	18	0	0	0		0	2	0	_	0	0	0	0	0	2	0
15:45:00	1	0	0	0	21	3	0	0		0	1		0	0	0	0	0	0	3	1
16:00:00	1	0	0	0	23	2	0	0		0	1	1		0	0	0	0	0	5	2
16:15:00	1	0	0	0	25	2	0	0		0	-	<u>'</u> 1		0	0	0		0	5	0
16:30:00	1	0	0	0	26	1	0	0		0		0	-	0	0	0	0	0	5	0
16:45:00	1	0	0	0	28	2	0	0		0		0	-	0	0	0	0	0	6	1
17:00:00	1	0	0	0	30	2	0	0		0	_	0		0	0	0	0	0	6	Ö
17:15:00	1	0	0	0	32	2	0	0		0	1	0		0	0	0	0	0	6	0
17:30:00	2	1	0	0	36	4	0	0		0		0		0	0	0	0	0	6	0
17:45:00	2	0	0	0	40	4	0	0		0	1	0		0	0	0		0	6	0
18:00:00	2	0	0	0	42	2	0	0		0		0		0	0	0	0	0	7	1
18:15:00	2	0	0	0	44	2	0	0	0	0	5	0	0	0	0	0	0	0	7	0
18:30:00	2	0	0	0	44	0	0	0	0	0		0	0	0	0	0	0	0	7	0
18:45:00	2	0	0	0	44	0	0	0	0	0	5	0	0	0	0	0	0	0	7	0
19:00:00	2	0	0	0	45	1	0	0		0		0		0	0	0		0	7	0
19:15:00	2	0	0	0	45	0	0	0	1	0	5	0	0	0	0	0	0	0	7	0
19:17:11	2	0	0	0	45	0	0	0		0		0	0	0	0	0	0	0	7	0
											1									

		Passen	ger Cars -	West Ap	proach			Tro	ucks - Wes	st Appro	ach			Hea	avys - We	st Appro	ach		Pedes	trians
Interval	Lef	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	ght	Le	ft	Th	ru	Rig	jht	West 0	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	0	0	77	77	0	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0
6:30:00	0	0	153	76	0	0	0	0	20	13	0	0	0	0	0	0	0	0	0	0
6:45:00	0	0	253	100	0	0	0	0		5		0	0	0	0	0	0	0	0	0
7:00:00	0	0	332	79	0	0	0	0		12		0		0	0	0	0	0	0	0
7:15:00	0	0		54	0	0	0	0		16		0	-	0		0	0	0	0	0
7:30:00	0	0	448	62	0	0	0	0		12		0		0	0	0	0	0	0	0
7:45:00	0	0		84	0	0	0	0		22		0		0		0	0	0	0	0
8:00:00	0	0		92	0	0	0	0		8		0		0	0	0	0	0	0	0
8:15:00	0	0		75	1	1	0	0		13		0	-	0		0	0	0	0	0
8:30:00	0	0	777	78	1	0	0	0		9	1	0		0		0	0	0	0	0
8:45:00	0	0	898	121	1	0	0	0		8		0	-	0	0	0	0	0	0	0
9:00:00	0	0	1023	125	1	0	0	0		14		0		0		0	0	0	0	0
9:15:00	0	0	1142	119	1	0	0	0		12		0		0	0	0	0	0	0	0
9:30:00	0	0	1239	97	2	1	0	0		12		0		0	0	0	0	0	0	0
9:45:00	0	0	1336	97	2	0	0	0		20		0		0	0	0	0	0	0	0
10:00:00	0	0	1442	106	2	0	0	0		14 0		0		0	0	0	0	0	0	0
10:02:13	0	0	1442	0	2	0	0	0		0		0			-	0	0	0	0	0
15:00:00 15:15:00	0	0	1442 1567	125	2	0	0	0		8	1	0		0	-	0	0	0	0	0
15:30:00	0	0	1701	134	3	1	0	0		 16	1	0		0	0	0	0	0	0	0
15:45:00	0	0	1848	147	4	1	0	0		6		0	-	0		0	0	0	0	0
16:00:00	0	0	2008	160	4	0	0	0		10		0		0	0	0	0	0	0	0
16:15:00	0	0	2146	138	4	0	0	0		7	1	0	-	0		0	0	0	0	0
16:30:00	0	0	2277	131	4	0	0	0		13		0		0	0	0	0	0	0	0
16:45:00	0	0	2435	158	4	0	0	0		16		0	-	0		0	0	0	0	0
17:00:00	0	0	2593	158	4	0	0	0		8		0		0		0	0	0	0	0
17:15:00	0	0	2750	157	5	1	0	0		8		0		0	0	0	0	0	0	0
17:30:00	0	0	2890	140	6	1	0	0		4	1	0		0	0	0	0	0	0	0
17:45:00	0	0	3036	146	6	0	0	0		6	1	0	-	0	0	0	0	0	0	0
18:00:00	0	0	3194	158	6	0	0	0		3	1	0		0	0	0	0	0	0	0
18:15:00	0	0	3330	136	6	0	0	0	-	7	1	0	0	0	0	0	0	0	0	0
18:30:00	0	0	3445	115	6	0	0	0		4	1	0	0	0	0	0	0	0	0	0
18:45:00	0	0	3565	120	6	0	0	0		6	1	0		0	0	0	0	0	0	0
19:00:00	0	0	3679	114	6	0	0	0		9	1	0		0		0	0	0	0	0
19:15:00	0	0	3679	0	6	0	0	0		0	1	0	0	0	0	0	0	0	0	0
19:17:11	0	0	3679	0	6	0	0	0		0	1	0	0	0	0	0	0	0	0	0
									1				1		l					

Ontario Traffic Inc. **Morning Peak Diagram Specified Period One Hour Peak** From: 6:00:00 **From:** 8:45:00 To: 10:00:00 To: 9:45:00 Weather conditions: Municipality: Alliston Site #: 1717000006 Intersection: Hwy 89 - Young St & Industrial Pkw Person(s) who counted: TFR File #: Count date: 13-Jun-17 ** Signalized Intersection ** Major Road: Hwy 89 - Young St runs W/E North Leg Total: 94 Heavys 0 0 0 Heavys 0 East Leg Total: 932 2 Trucks 0 2 North Entering: 45 0 Trucks 1 East Entering: 462 Cars 48 East Peds: North Peds: Cars 14 22 7 43 0 7 \mathbb{X} Peds Cross: Peds Cross: ⋈ Totals 14 24 Totals 49 Plaza Driveway \mathbb{Z} Totals Trucks Heavys Totals Heavys Trucks Cars Cars 47 369 416 0 260 275 15 0 179 180 445 0 Hwy 89 Heavys Trucks Cars Totals Young St 0 0 25 25 21 373 394 42 81 123 Trucks Heavys Totals 0 Cars 0 479 448 22 470 Industrial Pkwy \mathbb{X} Peds Cross: Cars 282 Peds Cross: \bowtie Cars 95 68 180 West Peds: 0 Trucks 45 Trucks 32 1 33 South Peds: 0 0 Heavys 0 0 West Entering: 542 Heavys 0 0 South Entering: 213 West Leg Total: 958 Totals 127 South Leg Total: 540 Totals 327 **Comments**

Ontario Traffic Inc. **Afternoon Peak Diagram Specified Period One Hour Peak** From: 15:00:00 **From:** 15:15:00 To: 19:00:00 To: 16:15:00 Weather conditions: Municipality: Alliston Site #: 1717000006 Intersection: Hwy 89 - Young St & Industrial Pkw Person(s) who counted: TFR File #: Count date: 13-Jun-17 ** Signalized Intersection ** Major Road: Hwy 89 - Young St runs W/E North Leg Total: 194 Heavys 0 0 0 Heavys 0 East Leg Total: 1203 2 Trucks 1 1 North Entering: 108 Trucks 1 East Entering: 631 Cars 85 East Peds: North Peds: Cars 53 36 17 106 6 \mathbb{X} Totals 54 Peds Cross: Peds Cross: 36 18 Totals 86 ⋈ Plaza Driveway Totals Trucks Heavys Totals Heavys Trucks Cars Cars 47 717 764 20 0 0 20 418 428 10 0 183 0 183 621 0 Hwy 89 10 Heavys Trucks Cars Totals Young St 0 0 36 36 8 412 420 35 173 208 Trucks Heavys Totals 0 Cars 43 621 561 0 572 Industrial Pkwy \mathbb{X} Peds Cross: Cars 392 407 Peds Cross: \bowtie Cars 246 132 West Peds: 3 Trucks 35 Trucks 36 2 39 South Peds: 8 1 0 West Entering: 664 Heavys 0 Heavys 0 0 South Entering: 446 West Leg Total: 1428 Totals 282 South Leg Total: 873 Totals 427 134 **Comments**

Total Count Diagram

Municipality: Alliston

Site #: 1717000006

Intersection: Hwy 89 - Young St & Industrial Pkw | Person(s) who counted:

TFR File #:

North Leg Total: 1059

North Entering: 534

North Peds:

Peds Cross:

Peds Cross:

West Peds:

West Entering: 4241

West Leg Total: 8334

Count date: 13-Jun-17

Weather conditions:

Totals 525

** Signalized Intersection **

11

⋈

Heavys 0 0 0

Heavys 0 Trucks 4 8 Trucks 6 3 1 Cars 210 199 117 526 Cars 519

Totals 214 202 118 Plaza Driveway

Heavys Trucks Cars Totals 312 3781 4093

Hwy 89

Heavys 0

Totals 2593

Heavys Trucks Cars Totals 0 1 235 236 87 2927 3014 242 749 991 0 330 3911

 \mathbb{X}

22

Industrial Pkwy

Cars 2340 Trucks 253

Cars 1058 161 616

1835 Trucks 225 3 8 236 0 0 Heavys 0 Totals 1283 624

Major Road: Hwy 89 - Young St runs W/E

4028

East Leg Total: 7877 East Entering: 4121 East Peds: 24 \mathbb{Z} Peds Cross:

Trucks Heavys Totals Cars 123 0 125 2596 2513 83 0 1392 0 1400

0

Young St

93

Trucks Heavys Totals Cars 3660 96 0 3756

> Peds Cross: \bowtie South Peds: 27 South Entering: 2071 South Leg Total: 4664

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection:	Hwy 89 -	Young	St & Ind	dustrial P	k Count E	Date: 13-Jun-17	,	Munio	cipality: Alli	iston			
	North	Appro	ach Tot	als					Soutl	h Appro	ach Tot	als	
			rucks, & H			North/South					rucks, & H		
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	Total Approaches	Hou Endir		Left	Thru	Right	Grand Total	Total Peds
6:00:00	0	0	0	0	0	0	6:00	00:0	0	0	0	0	0
7:00:00	2	1	1	4	0	120	7:00	0:00	98	2	16	116	2
8:00:00	4	4	4	12	2	169	8:00		123	6	28	157	4
9:00:00	3	13	7	23	0	185	9:00		99	13	50	162	1
10:00:00	11	22	18	51	0	263			130	13	69	212	0
15:00:00 16:00:00	0 22	0 41	0 53	0 116	0 1	0 575	15:00 16:00		300	0 25	0 134	0 459	0 11
17:00:00	20	36	55	111	0	461	17:00		216	19	115	350	3
18:00:00	24	40	50	114	Ö		18:00		192	51	128	371	1
19:00:00	32	45	26	103	8		19:00		125	35	84	244	5
Totals:	118	202	214	534	11	2605			1283	164	624	2071	27
1 0 10.101	East	Approa	ach Tota	als					West	t Appro	ach Tota	als	
	Include	s Cars, T	rucks, & H			East/West			Include	es Cars, T	rucks, & H	_	
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	Total Approaches	Hou Endir	ır ng	Left	Thru	Right	Grand Total	Total Peds
6:00:00	0	0	0	0	0	0	6:00		0	0	0	0	0
7:00:00	141	232	4	377	0	769	7:00		8	205	179	392	1
8:00:00	149	269	6	424	0	771	8:00		5	243	99	347	4
9:00:00	197 180	259 265	4 12	460 457	0 0	959 975	9:00 10:00		22 21	368 386	109 111	499 518	1 0
15:00:00	0	0	0	0	Ö	0	15:00		0	0	0	0	0
16:00:00	200	397	18	615	5	1263	16:00		37	405	206	648	4
17:00:00	164	454	26	644	2		17:00		37	498	113	648	0
18:00:00	195	372	21	588	6		18:00		51	510	84	645	2
19:00:00	174	348	34	556	11	1100	19:00	J.00	55	399	90	544	10
Totals:	1400	2596	125	4121	24	8362			236	3014	991	4241	22
Totals:	1400	2596				8362 or Traffic Cr	ossin	g Ma			991	4241	22
Totals:		2596 7:00 103					16	g M a 5:00 372	ajor Stre		991	4241	22

		Passen	ger Cars -	North A	proach			Tru	icks - Nort	h Appro	ach			Hea	vys - Nor	th Appro	ach		Pedes	trians
Interval	Let	ft	Th	ru	Rig	ht	Le	ft	The	ru	Rig	jht	Le	ft	Th	ru	Rig	ht	North	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	O
6:30:00	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45:00	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00:00	2	1	1	0	1	0	0	0	0	0		0	0	0	0	0	0	0	0	0
7:15:00	3	1	2	1	2	1	0	0		0		0		0	0	0	0	0	0	0
7:30:00	3	0	3	1	3	1	0	0		1	0	0		0	0	0	0	0	0	0
7:45:00	4	1	4	1	4	1	0	0		0	_	0	0	0	0	0	0	0	1	1
8:00:00	6	2	4	0	5	1	0	0		0		0		0		0	0	0	2	
8:15:00	6	0	6	2	7	2	0	0	1	0	_	2	0	0		0	0	0	2	
8:30:00	8	2	9	3	8	1	0	0		0	_	0	0	0	0	0	0	0	2	
8:45:00	9	1	9	0	9	1	0	0		0		0		0		0	0	0	2	
9:00:00	9	0	16	7	10	1	0	0		1	2	0		0	0	0	0	0	2	
9:15:00	10	1	22	6	14	4	0	0		0		0	0	0	0	0	0	0	2	
9:30:00	10	0	23	1	19	5	0	0		0		0		0	0	0	0	0	2	
9:45:00	16	6	31	8	23	4	0	0		1	2	0	0	0		0	0	0	2	
10:00:00	20	4	37	6	28	5	0	0		0		0		0		0	0	0	2	
10:02:07	20	0	37	0	28	0	0	0		0	_	0		0	0	0	0	0	2	
15:00:00	20	0	37	0	28 41	0	0	0	_	0	_	0	0	0	0	0	0	0	2	
15:15:00 15:30:00	26 34	6		12 10	59	13 18	0	- 0	3	0		0	_	0	0	0	0	0		
15:30:00	36	8 2	71	10	70	11	1	0		0		1	0	0	0	0	0	0	3	
16:00:00	41	5	71	7	80	10	<u> </u> 1	0		0	1	0	0	0		0	0	0	3	
16:15:00	43	2	85	7	94	14	1	0		0		0	-	0	0	0	0	0	3	
16:30:00	43	4	94	9	107	13	1	0		0		1	0	0	0	0	0	0	3	
16:45:00	56	9	102	8	118	11	1	0	-	0		0	0	0		0	0	0	3	
17:00:00	61	5	114	12	134	16	1	0	1	0		0	0	0	0	0	0	0	3	
17:15:00	66	5	123	9	149	15	1	0		0		0	0	0		0	0	0	3	
17:30:00	71	5	133	10	158	9	1	0		0		0	_	0	0	0	0	0	3	
17:45:00	82	11	143	10	173	15	1	0		0		0	0	0	0	0	0	0	3	
18:00:00	85	3		11	184	11	1	0		0	4	0		0		0	0	0	3	
18:15:00	94	9	163	9	189	5	1	0	3	0	4	0	0	0	0	0	0	0	4	1
18:30:00	98	4	178	15	193	4	1	0		0	4	0	0	0	0	0	0	0	6	2
18:45:00	107	9		9	203	10	1	0		0	4	0	0	0	0	0	0	0	8	2
19:00:00	117	10		12	210	7	1	0	3	0	4	0	0	0	0	0	0	0	11	3
19:15:00	117	0	199	0	210	0	1	0	3	0	4	0	0	0	0	0	0	0	11	0
19:17:09	117	0	199	0	210	0	1	0	3	0	4	0	0	0	0	0	0	0	11	0

		Passen	ger Cars -	East Ap	proach			Tr	ucks - Eas	st Approa	ach			He	avys - Eas	st Appro	ach		Pedes	trians
Interval	Lef	ft	Thr	u	Rig	ht	Le	ft	Th	ru	Rig	ght	Le	ft	Th	ru	Rig	ght	East C	ross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	29	29	60	60	1	1	0	0	3	3	0	0	0	0	0	0	0	0	0	0
6:30:00	58	29	116	56	2	1	0	0	6	3	0	0	0	0	0	0	0	0	0	0
6:45:00	105	47	175	59	3	1	0	0	10	4	0	0	0	0	0	0	0	0	0	0
7:00:00	141	36	220	45	4	1	0	0	12		0	0	0	0	0	0	0	0	0	0
7:15:00	172	31	309	89	7	3	0	0		5	0	0	0	0	0	0	0	0	0	0
7:30:00	198	26	349	40	8	1	0	0		3	0	0		0	0	0	0	0	0	0
7:45:00	236	38	411	62	8	0	0	0		3	0	0	0	0	0	0	0	0	0	0
8:00:00	287	51	473	62	9	1	3	3		5	1	1	0	0	0	0	0	0	0	0
8:15:00	329	42	528	55	10	1	4	1	02	4	1	0		0	0	0	0	0	0	0
8:30:00	380	51	597	69	10	0	4	0		5	1	0		0	0	0	0	0	0	0
8:45:00	430	50	652	55	11	1	4	0		3	1	0		0	0	0	0	0	0	0
9:00:00	482	52	716	64	13	2	5	1		4	1	0		0	0	0	0	0	0	0
9:15:00	531	49	783	67	14	1	5	0		3	2	1		0	0	0	0	0	0	0
9:30:00	561	30	829	46	14	0	5	0		4	2	0		0	0	0	0	0	0	0
9:45:00	609	48	912	83	17	3	5	0		4	2	0		0	0	0	0	0	0	0
10:00:00	661	52	967	55	24	7	6	1		3	2	0	-	0	0	0	0	0	0	0
10:02:07	661	0	967	0	24	0	6	0		0	2	0		0	0	0	0	0	0	0
15:00:00	661	0	967	0	24	0	6	0		0	2	0	-	0	0	0	0	0	0	0
15:15:00	714	53	1054	87	27	3	8	2	1	3	2	0	_	0	0	0	0	0	0	0
15:30:00	767	53	1140	86	34	7	8	0		4	2	0	-	0	0	0	0	0	1	1
15:45:00	813	46	1247	107	39	5	8	0		5	2	0	_	0		0	0	0	1	0
16:00:00	859	46	1352	105	42	3	8	0		0	2	0		0	0	0	0	0	5	4
16:15:00	897	38	1472	120	47	5	8	0		1	2	0		0	0	0	0	0	6	1
16:30:00	940	43	1584	112	53	6	8	0		5	2	0		0		0	0	0	6	0
16:45:00	976	36	1686	102	59	6	8	0		1	2	0	-	0	0	0	0	0	7	1
17:00:00	1023	47	1799	113	68	9	8	0		0	2	0	-	0	0	0	0	0	7	0
17:15:00	1077	54	1909	110	77	9	8	0		0	2	0	-	0	0	0	0	0	8	1
17:30:00	1119	42	2004	95	78	1	8	0		2	2	0	_	0	0	0	0	0	9	1
17:45:00	1171	52	2097	93	82	4	8	0		0	2	0		0	0	0	0	0	13	4
18:00:00	1218	47	2169	72	89	7	8	0		0	2	0		0	0	0	0	0	13	0
18:15:00	1268	50	2258	89	95	6	8	0		1	2	0		0	0	0	0	0	14	1
18:30:00	1305	37	2360	102	107	12	8	0		1	2	0		0	0	0	0	0	16	2
18:45:00	1352	47	2435	75	115	8	8	0		1	2	0		0	0	0	0	0	21	5
19:00:00	1392	40	2513	78	123	8	8	0		1	2	0	-	0	0	0	0	0	24	3
19:15:00	1392	0	2513	0	123	0	8	0		0		0		0		0		0	24	0
19:17:09	1392	0	2513	0	123	0	8	0	83	0	2	0	0	0	0	0	0	0	24	0
									<u> </u>						<u></u>					

		Passenger Cars - Sout			pproach			Tru	cks - Sou	th Appro	ach			Hea	vys - Sou	th Appro	ach		Pedes	trians
Interval	Lef	ft	Thi	ru	Rig	ht	Le	ft	Th	ru	Rig	ght	Le	ft	Thi	ru	Rig	ıht	South	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	17	17	0	0	1	1	4	4	0	0	0	0	0	0	0	0	0	0	2	2
6:30:00	37	20	1	1	3	2	8	4	0	0	0	0	0	0	0	0	0	0	2	0
6:45:00	54	17	1	0	10	7	17	9	0	0	1	1	0	0	0	0	0	0	2	0
7:00:00	71	17	2	1	15	5	27	10		0		0	_	0	0	0	0	0	2	0
7:15:00	89	18	2	0	17	2	34	7		0		0		0	0	0	0	0	4	2
7:30:00	105	16	2	0	24	7	41	7	0	0	1	0		0	0	0	0	0	4	0
7:45:00	132	27	7	5	38	14	54	13		0		0		0		0	0	0	6	2
8:00:00	155	23	8	1	42	4	66	12		0		1		0	0	0	0	0	6	0
8:15:00	175	20	9	1	56	14	70	4	0	0		0	-	0	0	0	0	0	6	0
8:30:00	192	17	11	2	66	10	79	9		0		1	_	0		0	0	0	7	1
8:45:00	206	14	14	3	75	9	83	4	1	1	3	0	-	0	0	0	0	0	7	0
9:00:00	228	22	20	6	91	16	92	9	1	0		0		0	0	0	0	0	7	0
9:15:00	250	22	25	5	107	16	99	7	1	0	4	1		0	0	0	0	0	7	0
9:30:00	275	25	30	5	123	16	108	9	1	0	4	0		0	0	0	0	0	7	0
9:45:00	301 325	26	31	1	143 158	20	115	7		0		0		0	0	0	0	0	7	0
10:00:00	325	24	33	2 0	158	15 0	125 125	10		0	5 5	1		0	0	0	0	0	7	0
10:02:07	325	0	33	-	158	0	125	0		0		0	-		_	0	0	0	7	0
15:00:00 15:15:00	325	61	35	0	188	30	136	11	1	0	_	0		0	_	0	0	0	11	4
15:30:00	462	76	45	10	219	31	144	8		0	5	0		0	0	0	0	0	14	3
15:45:00	514	52	50	5	263	44	159	o 15		0		0	_	0		0	0	0	16	2
16:00:00	587	73	57	7	203	28	163	4		0	6	0	1	0	0	0	0	0	18	2
16:15:00	632	45	64	7	320	29	172	9		0			-	0		0	0	0	19	1
16:30:00	670	38	69	5	338	18	174	2		0	· ·			0	0	0	0	0	20	1
16:45:00	727	57	71	2	375	37	186	12		0	7	0	_	0	0	0	0	0	20	0
17:00:00	769	42	76	5	405	30	197	11	2	0		0		0	_	0	0	0	21	1
17:15:00	824	55	86	10	439	34	201	4		0		0		0	0	0	0	0	21	Ö
17:30:00	870	46	98	12	471	32	204	3	3	1	8	1	1	0	0	0	0	0	22	1
17:45:00	906	36	107	9	505	34	209	5		. 0			_	0	0	0	0	0	22	0
18:00:00	947	41	126	19	532	27	211	2		0		0	_	0	0	0	0	0	22	0
18:15:00	977	30	130	4	557	25	214	3	3	0	8	0	0	0	0	0	0	0	22	0
18:30:00	1000	23	145	15	570	13	216	2		0		0	0	0		0	0	0	22	0
18:45:00	1039	39	157	12	588	18	220	4	3	0	8	0		0	0	0	0	0	24	2
19:00:00	1058	19	161	4	616	28	225	5		0	_	0	0	0		0	0	0	27	3
19:15:00	1058	0	161	0	616	0	225	0		0	_	0	0	0		0	0	0	27	0
19:17:09	1058	0	161	0	616	0	225	0		0	_	0		0		0		0	27	0
									l		1									

		Passen	ger Cars -	West Ap	proach			Tru	ucks - Wes	st Appro	ach			Hea	avys - Wes	st Appro	ach		Pedes	trians
Interval	Lef	t	Thi	·u	Rig	ht	Le	ft	Th	ru	Rig	ht	Le	ft	Thi	ru	Rig	jht	West 0	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	2	2	36	36	49	49	0	0	2	2	5	5	0	0	0	0	0	0	0	0
6:30:00	3	1	81	45	82	33	0	0	4	2	15	10	0	0	0	0	0	0	0	0
6:45:00	3	0	145	64	120	38	0	0	4	0	20	5	0	0	0	0	0	0	0	0
7:00:00	8	5	201	56	147	27	0	0	4	0	32	12		0	0	0	0	0	1	1
7:15:00	8	0	243	42	168	21	1	1	9	5	41	9		0	0	0	0	0	3	2
7:30:00	8	0	265	22	176	8	1	0		1	46	5		0	0	0	0	0	3	0
7:45:00	9	1	337	72	201	25	1	0				10		0	0	0	0	0	3	0
8:00:00	12	3	425	88	218	17	1	0		4	60	4		0	0	0	0	0	5	2
8:15:00	14	2	496	71	232	14	1	0		6	68	8	0	0	0	0	0	0	6	1
8:30:00	15	1	581	85	248	16	1	0	31	2		5	0	0	0	0	0	0	6	0
8:45:00	25	10	677	96	270	22	1	0		2		10		0	0	0	0	0	6	0
9:00:00	34	9	775	98	295	25	1	0		8		9		0	0	0	0	0	6	0
9:15:00	40	6	884	109	313	18	1	0		7		6		0	0	0	0	0	6	0
9:30:00	45	5	963	79	335	22	1	0		4	106	8	0	0	0	0	0	0	6	0
9:45:00	50	5	1050	87	351	16	1	0		2		19		0	0	0	0	0	6	0
10:00:00	55	5	1144	94	362	11	1	0		4		11	0	0	0	0	0	0	6	0
10:02:07	55	0	1144	0	362	0	1	0		0		0		0	0	0	0	0	6	0
15:00:00	55	0	1144	0	362	0	1	0		0		0	0	0	0	0	0	0	6	0
15:15:00	63	8	1243	99	390	28	1	0		1	143	7	0	0	0	0	0	0	7	1
15:30:00	70	7	1329	86	437	47	1	0		1		14		0	0	0	0	0	9	2
15:45:00	81	11	1437	108	486	49	1	0				5		0	0	0	0	0	9	0
16:00:00	92	11	1542	105	535	49	1	0		3		7	0	0	0	0	0	0	10	1
16:15:00	99	7	1655	113	563	28	1	0		2		9		0	0	0	0	0	10	0
16:30:00	111	12	1762	107	576	13	1	0		3		10		0	0	0	0	0	10	0
16:45:00	122	11	1892	130	598	22	1	0		4	200	12		0	0	0	0	0	10	0
17:00:00	129	7	2030	138	612	14	1	0		1		5		0	0	0	0	0	10	0
17:15:00	141	12	2150	120	633	21	1	0		3		7		0	0	0	0	0	10	0
17:30:00	148	7	2284	134	649	16	1	0		1	214	2	0	0	0	0	0	0	11	1
17:45:00	162	14	2399	115	666	17	1	0				3		0	0	0	0	0	11	0
18:00:00	180	18	2533	134	681	15	1	0	_	0		3		0	0	0	0	0	12	1
18:15:00	201	21	2654	121	694	13	1	0		1	226	6		0	0	0	0	0	14	2
18:30:00	213	12	2743	89	712	18	1	0		1	229	3		0	0	0	0	0	17	3
18:45:00	226	13	2833	90	729	17	1	0		2		3		0	0	0	0	0	20	3
19:00:00	235	9	2927	94	749	20	1	0		1	242	10		0	0	0	0	0	22	2
19:15:00	235	0	2927	0	749	0	1	0		0		0		0	0	0	0	0	22	0
19:17:09	235	0	2927	0	749	0	1	0	87	0	242	0	0	0	0	0	0	0	22	0

Ontario Traffic Inc. **Mid-day Peak Diagram Specified Period One Hour Peak From:** 11:45:00 **From:** 11:00:00 To: 14:00:00 12:45:00 To: Municipality: Alliston Weather conditions: Site #: 1717000007 Intersection: Hwy 89 & CR 50 Person(s) who counted: TFR File #: Count date: 10-Jun-17 ** Signalized Intersection ** Major Road: Hwy 89 runs W/E East Leg Total: 1069 East Entering: 545 East Peds: 0 \mathbb{X} Peds Cross: Trucks Heavys Totals Heavys Trucks Cars Totals Cars 14 494 508 400 389 0 143 145 532 Hwy 89 Heavys Trucks Cars Totals Hwy 89 7 361 368 0 7 51 58 Trucks Heavys Totals Cars 515 0 524 412 \mathbb{X} Peds Cross: Cars 194 259 Peds Cross: \bowtie Cars 105 154 0 5 West Peds: Trucks 9 Trucks 3 2 South Peds: 0 West Entering: 426 Heavys 0 Heavys 0 0 0 South Entering: 264 West Leg Total: 934 Totals 203 Totals 108 156 South Leg Total: 467 **Comments**

Total Count Diagram

Municipality: Alliston

Site #: 1717000007

Intersection: Hwy 89 & CR 50

TFR File #: 1

Count date: 10-Jun-17

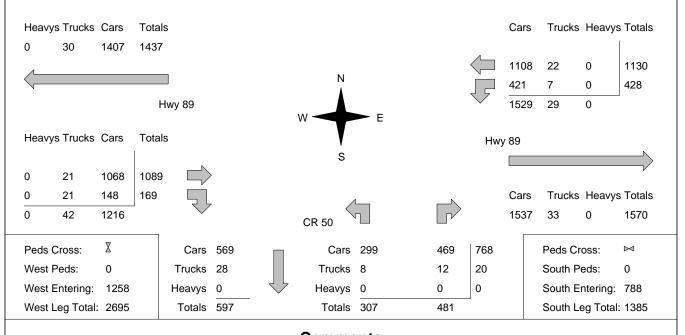
Weather conditions:

Person(s) who counted:

** Signalized Intersection ** Major Road: Hwy 89 runs W/E

East Leg Total: 3128
East Entering: 1558
East Peds: 0
Peds Cross:

X



Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection: Hw	vy 89	& CR 50	0		Count [^{Date:} 10-Jun-17	'	Munio	cipality: Alli	ston			
	North	Appro	ach Tot	als					South	h Appro	ach Tot	als	
l ⊢	Include	es Cars, T	rucks, & H		.	North/South		-	Include	es Cars, T	rucks, & H		+
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	Total Approaches	Hou Endir	r ng	Left	Thru	Right	Grand Total	Total Peds
11:00:00	0	0	0	0	0		11:00		0	0	0	0	0
12:00:00	0	0	0	0	0		12:00		114	0	175	289	0
13:00:00	0	0	0	0	0		13:00		103	0	154	257	0
14:00:00	0	0	0	0	0	242	14:00	00:	90	0	152	242	0
Totals:	0	0	0	0	0	788			307	0	481	788	0
			ach Tota rucks, & H						West	t Appro	ach Tota rucks, & H	als	
Hour				Grand	Total	East/West Total	Hou	ır				Grand	Total
-	Left	Thru	Right	Total	Peds	Approaches	Endir	-	Left	Thru	Right	Total	Peds
11:00:00 12:00:00	0 153	0 354	0	0 507	0		11:00 12:00		0	0 355	0 55	0 410	0
13:00:00	133	388	0	521	0		13:00		0	372	58	430	ő
14:00:00	142	388	0	530	0		14:00		0	362	56	418	Ö
Totals:	428	1130	0	1558	0	2816			0	1089	169	1258	0
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Orossing Va	uiucs.	J	U	J	U			U	114	103	90		

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| | Cum 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Left Cum Incr 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Left Th Cum Incr Cum 0 0 0 | Left Thru Cum Incr Cum Incr 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Cum Incr Cum Incr Cum 0 0 0 0 0 0 0 0 0 0 0 0 < | Left Thru Right Cum Incr Cum Incr 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Left Thru Right Le Cum Incr Cum Incr Cum Incr Cum 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 <td< td=""><td>Left Thru Right Left Cum Incr Cum Incr Cum Incr 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 <td< td=""><td>Left Thru Right Left Three Cum Incr Cum Incr Cum Incr Cum Incr Cum 0 0 0 0 0 0 0 0 0 0</td><td>Left Thru Right Left Thru Cum Incr Cum Incr Cum Incr Cum Incr Cum Incr Incr Cum Incr Cum</td><td>Left Thru Right Left Thru Right Cum Incr Cum Incr Cum Incr Cum Incr Cum 0 0 0 0 0 0 0 0 0 0 0<td>Left Thru Right Left Thru Right Cum Incr Cum <th< td=""><td>Left Thru Right Left Thru Right Le Cum Incr Cum Incr</td><td>Left Thru Right Left Thru Right Left Thru Right Left Thru Right Left Cum Incr Cum</td><td>Left Thru Right Left Thru Right Left Thru Right Left Th Cum Incr Incr Incr Incr Incr Incr Incr</td><td>Left Thru Right Left Thru Right Left Thru Right Left Thru Cum Incr Cum Incr</td><td>Left Thru Right Left Right Left Right Left Right Left Right Left Right Left Right Left</td><td>Left Thru Right Left Thru Right Left Thru Right Left Thru Right Cum Incr Cum</td><td>Left Thru Right Left Thru Right Left Thru Right Left Thru Right Left Thru Right North Cum Incr Cum</td></th<></td></td></td<></td></td<> | Left Thru Right Left Cum Incr Cum Incr Cum Incr 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 <td< td=""><td>Left Thru Right Left Three Cum Incr Cum Incr Cum Incr Cum Incr Cum 0 0 0 0 0 0 0 0 0 0</td><td>Left Thru Right Left Thru Cum Incr Cum Incr Cum Incr Cum Incr Cum Incr Incr Cum Incr Cum</td><td>Left Thru Right Left Thru Right Cum Incr Cum Incr Cum Incr Cum Incr Cum 0 0 0 0 0 0 0 0 0 0 0<td>Left Thru Right Left Thru Right Cum Incr Cum <th< td=""><td>Left Thru Right Left Thru Right Le Cum Incr Cum Incr</td><td>Left Thru Right Left Thru Right Left Thru Right Left Thru Right Left Cum Incr Cum</td><td>Left Thru Right Left Thru Right Left Thru Right Left Th Cum Incr Incr Incr Incr Incr Incr Incr</td><td>Left Thru Right Left Thru Right Left Thru Right Left Thru Cum Incr Cum Incr</td><td>Left Thru Right Left Right Left Right Left Right Left Right Left Right Left Right Left</td><td>Left Thru Right Left Thru Right Left Thru Right Left Thru Right Cum Incr Cum</td><td>Left Thru Right Left Thru Right Left Thru Right Left Thru Right Left Thru Right North Cum Incr Cum</td></th<></td></td></td<> | Left Thru Right Left Three Cum Incr Cum Incr Cum Incr Cum Incr Cum 0 0 0 0 0 0 0 0 0 0 | Left Thru Right Left Thru Cum Incr Cum Incr Cum Incr Cum Incr Cum Incr Incr Cum Incr Cum | Left Thru Right Left Thru Right Cum Incr Cum Incr Cum Incr Cum Incr Cum 0 0 0 0 0 0 0 0 0 0 0 <td>Left Thru Right Left Thru Right Cum Incr Cum <th< td=""><td>Left Thru Right Left Thru Right Le Cum Incr Cum Incr</td><td>Left Thru Right Left Thru Right Left Thru Right Left Thru Right Left Cum Incr Cum</td><td>Left Thru Right Left Thru Right Left Thru Right Left Th Cum Incr Incr Incr Incr Incr Incr Incr</td><td>Left Thru Right Left Thru Right Left Thru Right Left Thru Cum Incr Cum Incr</td><td>Left Thru Right Left Right Left Right Left Right Left Right Left Right Left Right Left</td><td>Left Thru Right Left Thru Right Left Thru Right Left Thru Right Cum Incr Cum</td><td>Left Thru Right Left Thru Right Left Thru Right Left Thru Right Left Thru Right North Cum Incr Cum</td></th<></td> | Left Thru Right Left Thru Right Cum Incr Cum <th< td=""><td>Left Thru Right Left Thru Right Le Cum Incr Cum Incr</td><td>Left Thru Right Left Thru Right Left Thru Right Left Thru Right Left Cum Incr Cum</td><td>Left Thru Right Left Thru Right Left Thru Right Left Th Cum Incr Incr Incr Incr Incr Incr Incr</td><td>Left Thru Right Left Thru Right Left Thru Right Left Thru Cum Incr Cum Incr</td><td>Left Thru Right Left Right Left Right Left Right Left Right Left Right Left Right Left</td><td>Left Thru Right Left Thru Right Left Thru Right Left Thru Right Cum Incr Cum</td><td>Left Thru Right Left Thru Right Left Thru Right Left Thru Right Left Thru Right North Cum Incr Cum</td></th<> | Left Thru Right Left Thru Right Le Cum Incr Cum Incr | Left Thru Right Left Thru Right Left Thru Right Left Thru Right Left Cum Incr Cum | Left Thru Right Left Thru Right Left Thru Right Left Th Cum Incr Incr Incr Incr Incr Incr Incr | Left Thru Right Left Thru Right Left Thru Right Left Thru Cum Incr Cum Incr | Left Thru Right Left Right Left Right Left Right Left Right Left Right Left Right Left | Left Thru Right Left Thru Right Left Thru Right Left Thru Right Cum Incr Cum | Left Thru Right North Cum Incr Cum |

		Passen	ger Cars -	East Ap	proach			Tro	ucks - Eas	t Appro	ach			He	avys - Ea	st Appro	ach		Pedes	trians
Interval	Le	ft	Thr	·u	Rig	ht	Le	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	ht	East (Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15:00	36	36	85	85	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
11:30:00	83	47	173	88	0	0	2	2	2	1	0	0	0	0	0	0	0	0	0	0
11:45:00	118	35	249	76	0	0	2	0		2		0		0				0	0	0
12:00:00	151	33	346	97	0	0	2	0		4	0	0		0				0	0	0
12:15:00	183	32	448	102	0	0	2	0		6		0		0				0	0	0
12:30:00	230	47	535	87	0	0	4	2		1	0	0		0				0	0	0
12:45:00	261	31	638	103	0	0	4	0		0		0		0				0	0	0
13:00:00	282	21	726	88	0	0	4	0		1	0	0		0	1			0	0	0
13:15:00	319	37	822	96	0	0	5	1	19	3		0		0	1			0	0	0
13:30:00	349	30	910	88	0	0	6	1	22	3	0	0		0	1			0	0	0
13:45:00 14:00:00	385 421	36 36	1018 1108	108 90	0	0	6 7	0	22 22	0		0		0	1			0	0	0
14:00:00	421	36	1108	90	0	0	7	0		0		0		0				0	0	0
14:16:24	421	0	1108	0	0	0	7	0		0		0		0				0	0	
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113 140 165		^		91	45	0	0		0		0		0		0	0	0	0	0
140 165	28		0	133	42	1	1	0	0		4		0		0	0	0	0	0
165		0	0	171	38	1	0		0		0		0		0	0	0	0	0
	27 25	0	0	212 252	41 40	3	0		0		0		0		0	0	0	0	0
100	25 25	0	0	287	35	4	0	0	0		2		0		0	0	0	0	0
190 211	21	0	0	323	36	6	2		0	•	0		0		0	0	0	0	0
234	23	0	0	368	45	6	0	0	0		1	0	0		0	0	0	0	0
254	20	0	0	402	34	7	1	0	0		3		0		0	0	0	0	0
276	22	0	0	439	37	8	1	0	0		2		0	-	0	0	0	0	0
299	23	0	0	469	30	8	0		0		0		0		0	0	0	0	0
299	0	0	0	469	0	8	0	0	0		0		0	0	0	0	0	0	0
299	0	0	0	469	0	8	0	0	0	12	0	0	0	0	0	0	0	0	0

		Passen	ger Cars	- West Ap	proach			Tru	ucks - We	st Appro	ach			Hea	avys - We	st Appro	ach		Pedes	trians
Interval	Lef	ft	Th	ru	Rig	jht	Le	ft	Th	ru	Rig	ght	Le	eft	Th	ru	Rig	jht	West (Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
11:00:00		0				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15:00		0			8	8		0		1		1		0				0	0	0
11:30:00	0	0		89	25	17		0						0				0	0	0
11:45:00	0	0		76		13		0		2		5		0				0	0	0
12:00:00	0	0		89	47	9		0				0		0				0	0	0
12:15:00		0		76 89	65 78	18 13		0				3 1		0				0	0	0
12:30:00 12:45:00	0	0		107	78 89	13	0	0		2				0				0	0	0 0
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13:30:00	0	0		99	121	12		0						0				0	0	0 0
13:45:00	0	0		91	132	11	0	0						0				0	0	0
14:00:00	0	0	1068	73	148	16		0		1				0				0	0	0
14:15:00	0	0		0		0		0		0		0		0				0	0	0
14:16:24	0	0	1068	0		0	0	0		0		0		0	0			0	0	0

Ontario Traffic Inc. **Mid-day Peak Diagram Specified Period One Hour Peak From:** 12:30:00 **From:** 11:00:00 To: 14:00:00 To: 13:30:00 Weather conditions: Municipality: Alliston Site #: 1717000008 Intersection: Hwy 89 & Concession Rd 6 Person(s) who counted: TFR File #: Count date: 10-Jun-17 ** Non-Signalized Intersection ** Major Road: Hwy 89 runs W/E Heavys 0 North Leg Total: 64 0 0 Heavys 0 East Leg Total: 1082 0 North Entering: 31 Trucks 0 0 Trucks 0 East Entering: 517 North Peds: East Peds: Cars 10 21 31 Cars 33 0 \mathbb{X} 21 Totals 33 Peds Cross: Peds Cross: ⋈ Totals 10 Concession Rd 6 Totals Trucks Heavys Totals Heavys Trucks Cars Cars 496 505 0 22 486 495 0 Hwy 89 0 508 Heavys Trucks Cars Totals Hwy 89 0 0 11 11 9 535 544 Trucks Heavys Totals Cars 9 0 565 546 556 \mathbb{X} Peds Cross: 0 West Peds: West Entering: 555 West Leg Total: 1060 **Comments**

Total Count Diagram

Municipality: Alliston

Site #: 1717000008

Intersection: Hwy 89 & Concession Rd 6

TFR File #: 1

Count date: 10-Jun-17

Weather conditions:

Person(s) who counted:

** Non-Signalized Intersection **

North Leg Total: 199 Heavys 0 0 North Entering: 89 Trucks 1 0

 North Peds:
 1
 Cars 32

 Peds Cross:
 ⋈
 Totals 33

Totals

37

1536

0 0 1 2 56 88 3 56 Heavys 0 Trucks 0

Major Road: Hwy 89 runs W/E

Cars 110
Totals 110

East Leg Total: 3186
East Entering: 1594
East Peds: 0

Peds Cross:

Heavys Trucks Cars Totals
0 28 1526 1554

37

1506

1543

Hwy 89

W _____ E

Concession Rd 6

Cars Trucks Heavys Totals
73 0 0 73
1494 27 0 1521

Hwy 89

Cars Trucks Heavys Totals 1562 30 0 1592

Peds Cross:

West Peds: 0

West Entering: 1573

West Leg Total: 3127

Heavys Trucks Cars

0

30

30

0

Comments

Ontario Traffic Inc. Traffic Count Summary

Hour Ending 11:00:00 12:00:00 13:00:00 14:00:00	North Include Left	es Cars, T	ach Tot	als					-				
Ending 11:00:00 12:00:00 13:00:00	Left		rucks, & H						South	n Appro	ach Tot	ais	
Ending 11:00:00 12:00:00 13:00:00					.	North/South		-	Include	es Cars, T	rucks, & H		
12:00:00 13:00:00	0	Thru	Right	Grand Total	Total Peds	Total Approaches	Hou Endir	ır ng	Left	Thru	Right	Grand Total	Total Peds
13:00:00		0	0	0	0		11:00		0	0	0	0	0
	23	0	8	31	1		12:00		0	0	0	0	0
14:00:00	14	0	13	27	0	27	13:00		0	0	0	0	0
	19	0	12	31	0	31	14:00):00	0	0	0	0	0
Totals:	56 East	0 Approa	33 ach Tota	89 I IS	1	89			0 Wes t	0 t Appro	0 ach Tota	0 als	0
l ⊢	Include	es Cars, T	rucks, & H			East/West Total		-	Include	es Cars, T	rucks, & H		
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	l otal Approaches	Hou Endir	ır ng	Left	Thru	Right	Grand Total	Total Peds
11:00:00	0	0	0	0	0		11:00		0	0	0	0	0
12:00:00	0	499	29	528	0		12:00		12	521	0	533	0
13:00:00	0	508	21	529	0		13:00		15	513	0	528	0
14:00:00	0	514	23	537	0	1049	14:00	0:00	10	502	0	512	0
Totals:	0	1521	73 Calc	1594 ulated V	0 alues f	3167 or Traffic Cr	ossin	g Ma	37 ajor Stre	1536 eet	0	1573	0
Hours End		0:00	0:00	0:00	0:00		11	:00	12:00	13:00	14:00		
Crossing V		0	0	0	0			0	23	14	19		

		Passen	ger Cars	- North A	pproach			Tru	ıcks - Nor	th Appro	ach			Hea	ıvys - Nor	th Appro	ach		Pedes	trians
Interval	Lei	ft	Tł	nru	Rig	jht	Le	ft	Th	ru	Rig	ght	Le	eft	Th	ru	Rig	jht	North	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
11:00:00		0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0
11:15:00		8	0		_	3	0	0					_	0				0	0	0
11:30:00		4	0			1	0	0	1					0				0	0	0
11:45:00		7	0			2		0			_			0				0	1	1
12:00:00		4	0			2	0	0					_	0				0	1	0
12:15:00		1	0			4	0	0				0		0				0	1	0
12:30:00 12:45:00		3				2 4	0	0				0		0				0	1	0
13:00:00		8 2				2	0	0				0		0				0	1	0
13:15:00		6	0			2	0	0				0		0				0	1	0
13:30:00		5				2	0	0				0		0				0	1	0
13:45:00		3	0			4	0	0				0	_	0				0	1	0
14:00:00		5	0			4	0	0				0		0				0	1	0
14:15:00		0	0	0		0	0	0	0	0	1	0		0	0	0	0	0	1	0
14:17:29		0	0	0		0	0	0				0	0	0				0	1	0

	Passen	ger Cars -	East Ap	proach			Tru	ucks - Eas	st Approa	ach			He	avys - Ea	st Approa	ach		Pedes	trians
Let	ft	Thi	ru	Rig	ıht	Le	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	ht	East (Cross
Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(
0	0	123	123	5	5	0	0	1	1	0	0	0	0	0	0	0	0	0	(
0	0			18	13	0	0	4	3		0	0	0	0	0	0	0	0	
0					4	0			2							0	0	0	
									4										
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						0			0								0	0	
0	0	1494	0		0	0										0	0	0	
	Cum 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Left Cum Incr 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Left The Cum Incr Cum 0 0 0 0 0 123 0 0 257 0 0 365 0 0 489 0 0 620 0 0 749 0 0 877 0 0 989 0 0 1114 0 0 1235 0 0 1494 0 0 1494 0 0 1494	Left Thru Cum Incr Cum Incr 0 0 0 0 0 0 123 123 0 0 257 134 0 0 365 108 0 0 489 124 0 0 620 131 0 0 749 129 0 0 877 128 0 0 989 112 0 0 1114 125 0 0 1235 121 0 0 1494 123 0 0 1494 0	Cum Incr Cum Incr Cum 0 0 0 0 0 0 0 123 123 5 0 0 257 134 18 0 0 365 108 22 0 0 489 124 29 0 0 620 131 33 0 0 749 129 39 0 0 877 128 46 0 0 989 112 50 0 0 1114 125 56 0 0 1235 121 61 0 0 1494 123 73 0 0 1494 0 73	Left Thru Right Cum Incr Cum Incr 0 0 0 0 0 0 0 123 123 5 5 0 0 257 134 18 13 0 0 365 108 22 4 0 0 489 124 29 7 0 0 620 131 33 4 0 0 749 129 39 6 0 0 877 128 46 7 0 0 989 112 50 4 0 0 1114 125 56 6 0 0 1235 121 61 5 0 0 1494 123 73 6 0 0 1494 0 73 0	Left Thru Right Le Cum Incr Cum Incr Cum 0 0 0 0 0 0 0 0 0 0 0 0 0 0 123 123 5 5 0 0 0 257 134 18 13 0 0 0 365 108 22 4 0 0 0 489 124 29 7 0 0 0 620 131 33 4 0 0 0 749 129 39 6 0 0 0 877 128 46 7 0 0 0 989 112 50 4 0 0 0 1114 125 56 6 0 0 0 1371 136 67 6	Left Thru Right Left Cum Incr Cum Incr Cum Incr 0 0 0 0 0 0 0 0 0 123 123 5 5 0 0 0 0 257 134 18 13 0 0 0 0 365 108 22 4 0 0 0 0 489 124 29 7 0 0 0 0 620 131 33 4 0 0 0 0 749 129 39 6 0 0 0 0 877 128 46 7 0 0 0 0 989 112 50 4 0 0 0 0 1235 121 61 5 0 0 0 0	Left Thru Right Left Th Cum Incr Cum Incr Cum Incr Cum Incr Cum 0 0 0 0 0 0 0 0 0 0 123 123 5 5 0 0 1 0 0 257 134 18 13 0 0 4 0 0 365 108 22 4 0 0 6 0 0 489 124 29 7 0 0 10 0 0 620 131 33 4 0 0 15 0 0 749 129 39 6 0 0 17 0 0 877 128 46 7 0 0 17 0 0 989 112 50 4 0 0 <td>Left Thru Right Left Thru Cum Incr Cum Incr Cum Incr Cum Incr Thru 0 0 0 0 0 0 0 0 0 0 0</td> <td>Left Thru Right Left Thru Rig Cum Incr Cum I</td> <td>Left Thru Right Left Thru Right Cum Incr Cum <th< td=""><td>Left Thru Right Left Thru Right Le Cum Incr Cum Incr</td><td>Left Thru Right Left Thru Right Left Thru Right Left Cum Incr Cum</td><td>Left Thru Right Left Thru Right Left Thru Right Left Th Cum Incr <</td><td>Left Thru Right Left Thru Thru Right Left Thru Thru Right Left Thru Thru Right Left Thru Right Left Thru Thru Right Left Thru Left Thru Right Left Thru Right Left Thru Right Left Cum Incr Cum</td><td>Left Thru Right Left Cum Incr Cum Incr</td><td>Left Thru Right Left Thru Right Right</td><td>Left Thru Right Left Thru Right Left Thru Right East of the properties of the propertie</td></th<></td>	Left Thru Right Left Thru Cum Incr Cum Incr Cum Incr Cum Incr Thru 0 0 0 0 0 0 0 0 0 0 0	Left Thru Right Left Thru Rig Cum Incr Cum I	Left Thru Right Left Thru Right Cum Incr Cum <th< td=""><td>Left Thru Right Left Thru Right Le Cum Incr Cum Incr</td><td>Left Thru Right Left Thru Right Left Thru Right Left Cum Incr Cum</td><td>Left Thru Right Left Thru Right Left Thru Right Left Th Cum Incr <</td><td>Left Thru Right Left Thru Thru Right Left Thru Thru Right Left Thru Thru Right Left Thru Right Left Thru Thru Right Left Thru Left Thru Right Left Thru Right Left Thru Right Left Cum Incr Cum</td><td>Left Thru Right Left Cum Incr Cum Incr</td><td>Left Thru Right Left Thru Right Right</td><td>Left Thru Right Left Thru Right Left Thru Right East of the properties of the propertie</td></th<>	Left Thru Right Left Thru Right Le Cum Incr Cum Incr	Left Thru Right Left Thru Right Left Thru Right Left Cum Incr Cum	Left Thru Right Left Thru Right Left Thru Right Left Th Cum Incr <	Left Thru Right Left Thru Thru Right Left Thru Thru Right Left Thru Thru Right Left Thru Right Left Thru Thru Right Left Thru Left Thru Right Left Thru Right Left Thru Right Left Cum Incr Cum	Left Thru Right Left Cum Incr Cum Incr	Left Thru Right Right	Left Thru Right Left Thru Right Left Thru Right East of the properties of the propertie

	Passeng	ger Cars	- South A	pproach			Tru	cks - Sou	th Appro	ach			Hea	vys - Sou	th Appro	ach		Pedes	trians
Le	eft	Tł	nru	Rig	jht	Le	ft	Th	ru	Rig	ght	Le	ft	Th	ru	Rig	jht	South	Cross
Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
	0	0	0	0	0	0	0				0		0	0	0	0	0	0	0
				_	0	0											0	0	0
					0												0		0
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					0												0		0
			0		0	0											0		0
		0	0	0	0	0											0	0	0
	Cum 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Cum Incr Cum 0 0 0<	Cum Incr Cum Incr 0 0 0 0 0 <td< td=""><td>Cum Incr Cum Incr Cum 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 <</td><td>Cum Incr Cum Incr Cum Incr 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>Cum Incr Cum Incr Cum Incr Cum 0 0 0 0 0 0 0 0 0</td><td>Cum Incr Cum Incr Cum Incr Cum Incr 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>Cum Incr Cum Incr Cu</td><td>Cum Incr Cum Incr Cum Incr Cum Incr Cum Incr Cum Incr Cum Incr 0</td><td>Cum Incr Cum Incr Cu</td><td>Cum Incr Cum Incr Cu</td><td>Cum Incr Cum Incr Cu</td><td>Cum Incr Cum Incr Cu</td><td>Cum Incr Cum Incr Cu</td><td>Cum Incr Cum Incr Cu</td><td>Cum Incr Cum Incr Cu</td><td>Cum Incr Cum Incr Cu</td><td>Cum Incr Cum Incr Cu</td></td<>	Cum Incr Cum Incr Cum 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 <	Cum Incr Cum Incr Cum Incr 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Cum Incr Cum Incr Cum Incr Cum 0 0 0 0 0 0 0 0 0	Cum Incr Cum Incr Cum Incr Cum Incr 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Cum Incr Cu	Cum Incr 0	Cum Incr Cu	Cum Incr Cu	Cum Incr Cu	Cum Incr Cu	Cum Incr Cu	Cum Incr Cu	Cum Incr Cu	Cum Incr Cu	Cum Incr Cu

		Passen	ger Cars -	West Ap	proach			Tru	ıcks - We	st Appro	ach			Hea	avys - We	st Appro	ach		Pedes	trians
Interval	Lef	ft	Thi	ru	Rig	ht	Le	ft	Th	ru	Rig	ght	Le	ft	Th	ru	Rig	ht	West (Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
11:00:00		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15:00		4	138	138	0	0		0		1	0	0		0		0	0	0	0	0
11:30:00		4	261	123	0	0		0		2		0		0		0	0	0	0	0
11:45:00		0		133	0	0		0		6		0		0		0	0	0	0	0
12:00:00		4	508	114	0	0		0		4	0	0		0		0	0	0	0	0
12:15:00		2	625	117	0	0		0		0		0		0		0	0	0	0	0
12:30:00 12:45:00	19 24	5 5	744 889	119 145	0	0		0		2	0	0		0		0	0	0	0	0
13:00:00		3	1015	126	0	0		0		3		0	1	0		0	0	0	0	0
13:15:00		2	1149	134	0	0	0	0		1	0	0		0		0	0	0	0	0
13:30:00		1	1279	130	0	0		0		3		0		0		0	0	0	0	0 0
13:45:00		5	1397	118	0	0	-	0		5		0		0	-	0	0	0	0	0
14:00:00	37	2	1506	109	0	0	0	0		2		0		0		0	0	0	0	0
14:15:00	37	0	1506	0	0	0		0		0		0		0		0	0	0	0	0
14:17:29		0	1506	0	0	0	0	0		0		0	0	0	0	0	0	0	0	0

Ontario Traffic Inc. Mid-day Peak Diagram **Specified Period One Hour Peak** From: 11:00:00 **From:** 11:15:00 To: 12:15:00 14:00:00 To: Municipality: Alliston Weather conditions: Site #: 1717000009 Intersection: Hwy 89 & Concession Rd 7-Dean D Person(s) who counted: TFR File #: Count date: 10-Jun-17 ** Non-Signalized Intersection ** Major Road: Hwy 89 runs W/E North Leg Total: 290 Heavys 0 0 0 Heavys 0 East Leg Total: 1335 Trucks 0 Trucks 0 North Entering: 141 1 East Entering: 683 East Peds: North Peds: Cars 31 22 87 140 Cars 149 0 \mathbb{X} Totals 31 Peds Cross: Peds Cross: ⋈ 22 88 Totals 149 Dean Dr Totals Trucks Heavys Totals Heavys Trucks Cars Cars 14 546 560 0 0 111 503 517 14 0 54 0 55 668 0 Hwy 89 15 Heavys Trucks Cars Totals Hwy 89 0 0 29 29 12 474 486 0 16 Trucks Heavys Totals 0 16 Cars 639 0 12 519 13 652 Concession Rd 7 \mathbb{X} Peds Cross: Peds Cross: \bowtie Cars 92 Cars 12 78 99 0 West Peds: Trucks 1 Trucks 0 0 0 0 South Peds: 0 0 West Entering: 531 Heavys 0 Heavys 0 0 South Entering: 99 West Leg Total: 1091 Totals 12 South Leg Total: 192 Totals 93 **Comments**

Total Count Diagram

Municipality: Alliston

Site #: 1717000009

Intersection: Hwy 89 & Concession Rd 7-Dean D

TFR File #: 1

Count date: 10-Jun-17

Weather conditions:

Person(s) who counted:

** Non-Signalized Intersection **

 North Leg Total: 786
 Heavys 0
 0
 0
 0

 North Entering: 385
 Trucks 0
 0
 2
 2

 North Peds:
 0
 Cars
 108
 45

 Peds Cross:
 ⋈
 Totals
 108
 45

Heavys 0 Trucks 2

Cars 399
Totals 401

Hwy 89

1893

Major Road: Hwy 89 runs W/E

East Leg Total: 3847
East Entering: 1925
East Peds: 0
Peds Cross:

Heavys Trucks Cars Totals
0 26 1594 1620



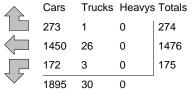


383

Dean Dr

230

232



 Heavys Trucks Cars
 Totals

 0
 0
 89
 89

 0
 26
 1457
 1483

 0
 2
 59
 61

 0
 28
 1605



Hwy 89



		V
Cars	Trucks	Heavys Totals

0

1922

Peds Cross:

West Peds: 0

West Entering: 1633

West Leg Total: 3253

Cars 276
Trucks 5
Heavys 0
Totals 281



 Cars
 36
 37
 206
 279

 Trucks
 0
 1
 1
 2

 Heavys
 0
 0
 0
 0

 Totals
 36
 38
 207

Peds Cross:
South Peds: 0
South Entering: 281
South Leg Total: 562

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection:	Hwy 89	& Conce	ession R	d 7-Dear	Count [Date: 10-Jun-17	,	Muni	icipality: Alli	ston			
			ach Tot						South	n Appro	ach Tot	als	
	Include	es Cars, T	rucks, & H			North/South			Include	es Cars, T	rucks, & H		
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	Total Approaches	Hou Endi		Left	Thru	Right	Grand Total	Total Peds
11:00:00	0	0		0	0		11:00			0	0	0	0
12:00:00	87	19		137	0		12:00			9	71	93	0
13:00:00	62	14		115	0		13:00			14	70	97	0
14:00:00	83	12	38	133	0	224	14:00	0:00	10	15	66	91	0
Totals:	232 East	45 Approx	108 ach Tota	385 als	0	666					207 ach Totarucks, & H		0
Hour	Include	es Cars, r	Tucks, & n	Grand	Total	East/West Total	Ηοι	ır	ITICIUGE	es Cars, r	Tucks, & n	Grand	Total
Ending	Left	Thru	Right	Total	Peds	Approaches	Endi	ng	Left	Thru	Right	Total	Peds
11:00:00	0	0		0	0		11:00			0	0	0	0
12:00:00	61	494		662	0		12:00			495	22	554	0
13:00:00 14:00:00	57 57	488 494	87 80	632 631	0		13:00 14:00			503 485	14 25	545 534	0 0
Totals:	175] idina:	1476 0:00	Calc	1925 ulated V 0:00	0 /alues f 0:00	3558 or Traffic Cr		g M 1:00	•	1483 eet 13:00	61	1633	0
Crossing	Values:	0		0	0			0		89	108		

		Passeng	ger Cars -	North A	pproach			Tru	cks - Nor	th Appro	ach			Hea	avys - Noi	rth Appro	ach		Pedes	trians
Interval	Le	ft	Thi	·u	Rig	ht	Le	ft	Th	ru	Rig	jht	Le	ft	Th	ru	Rig	ht	North	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15:00	15	15	4	4	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30:00	39	24	9	5		6	1	1	0	0	0	0	0	0	0	0	0	0	0	0
11:45:00	54	15		3		12	1	0				0		0				0	0	0
12:00:00	86	32	19	7	31	2	1	0				0		0				0	0	0
12:15:00	102	16		7	42	11	1	0				0		0				0	0	0
12:30:00	112	10		1	55	13	1	0				0		0				0	0	0
12:45:00	134	22	29	2		10	1	0				0		0				0	0	0
13:00:00	147	13	33	4	70	5	2	1	0			0		0	1			0	0	0
13:15:00	169	22	33	0	84	14	2	0				0		0				0	0	0
13:30:00	188	19	38	5		6	2	0				0		0				0	0	0
13:45:00	210	22		5		6	2	0				0		0				0	0	0
14:00:00	230	20		2		12	2	0				0		0	1			0	0	0
14:15:00	230	0	45 45	0	108	0	2	0				0		0				0	0	0
14:16:02	230	0	45	U	108	U	2	0	0	U	0	U	0	U	U	0	U	U	0	U

Cum 0 22 35 46 60 76 92 99 117 130 145 164 172 172	ft Incr 0 22 13 11 14 16 16 7 18 13 15 19 8	Thr Cum 0 106 245 357 484 609 731 858 965 1080 1198 1329	nu Incr 0 106 139 112 127 125 122 127 107 115 118	Cum 0 23 53 81 107 134 155 178 194 221	Incr 0 23 30 28 26 27 21 23 16	Cum 0 0 0 0 1 1 1 1 1 1 1	0 0 0 0 1	1 5 6 10 15	0 1 4 1	0 0 0	0 0 0	0	ft Incr 0 0 0 0 0	0	nu Incr 0 0 0 0 0 0	Cum 0 0 0 0	Incr 0 0 0	Cum 0 0 0 0 0	Incr
0 22 35 46 60 76 92 99 117 130 145 164 172	0 22 13 11 14 16 16 7 18 13 15	0 106 245 357 484 609 731 858 965 1080 1198	0 106 139 112 127 125 122 127 107 115	0 23 53 81 107 134 155 178	0 23 30 28 26 27 21	0 0 0 0 1 1	0 0 0 0 1	0 1 5 6 10	0 1 4 1 4	0 0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
22 35 46 60 76 92 99 117 130 145 164 172 172	22 13 11 14 16 16 7 18 13 15	106 245 357 484 609 731 858 965 1080 1198	106 139 112 127 125 122 127 107 115	23 53 81 107 134 155 178	23 30 28 26 27 21 23	0 0 0 1 1 1	0 0 0 1	1 5 6 10 15	1 4 1 4	0 0 0	0 0 0	0	0	0	0 0	0 0	0	0 0	0
35 46 60 76 92 99 117 130 145 164 172	13 11 14 16 16 7 18 13 15	245 357 484 609 731 858 965 1080 1198	139 112 127 125 122 127 107 115	53 81 107 134 155 178 194	30 28 26 27 21 23	0 0 1 1	0 0 1 0	5 6 10 15	1 4	0	0	0	0	0	0	0	0	0	0
46 60 76 92 99 117 130 145 164 172	11 14 16 16 7 18 13 15	357 484 609 731 858 965 1080 1198	112 127 125 122 127 107 115	81 107 134 155 178 194	28 26 27 21 23	0 1 1 1	0 1 0	6 10 15	1 4	0	0						_		0
60 76 92 99 117 130 145 164 172	14 16 16 7 18 13 15	484 609 731 858 965 1080 1198	127 125 122 127 107 115	107 134 155 178 194	26 27 21 23	1 1 1	1	10 15				0	0	0	0	0	0	0	Λ.
76 92 99 117 130 145 164 172	16 16 7 18 13 15	609 731 858 965 1080 1198	125 122 127 107 115	134 155 178 194	27 21 23	1	0	15		0									
92 99 117 130 145 164 172	16 7 18 13 15	731 858 965 1080 1198	122 127 107 115	155 178 194	21 23	1			_		0		0		0	0	0	0	0
99 117 130 145 164 172 172	7 18 13 15	858 965 1080 1198	127 107 115	178 194	23		U	40	5		0		0		0	0	0	0	0
117 130 145 164 172 172	18 13 15 19	965 1080 1198	107 115	194			0		0	0	0		0		0	0	0	0	0
130 145 164 172 172	13 15 19	1080 1198	115			1	0		0	0	0		0		0	0	0	0	0
145 164 172 172	15 19	1198			27	2	1	21	4	1	1	0	0		0	0	0	0	0
164 172 172	19			244	23	2	0		4		0		0	_	0	0	0	0	0
172 172			131	260	16	2	0		0		0		0	-	0	0	0	0	0
172		1450	121	273	13	3	1	26	1	1	0		0		0	0	0	0	0
	0					3	0		0	1						0	0	0	0
172	0	1450	0		0	3					0	0	0			0	0	0	0
	172																		

		Passeng	ger Cars -	South A	pproach			Tru	cks - Sou	th Appro	ach			Hea	vys - Sou	ıth Appro	ach		Pedes	trians
Interval	Le	ft	Thi	ru	Rig	ht	Le	ft	Th	ru	Rig	jht	Le	ft	Th	ru	Rig	ht	South	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C
11:15:00		2	3	3	17	17	0	0		0		0		0	0	0	0	0	0	C
11:30:00	9	7	4	1	38	21	0	0	0	0		0	0	0	0	0	0	0	0	C
11:45:00		1	6	2		16	0	0		0		0		0			0	0	0	C
12:00:00	13	3		3		17	0	0		0		0		0		0	0	0	0	C
12:15:00		1	12	3		24	0	0		0		0		0			0	0	0	C
12:30:00	20	6		5		22	0	0		0		1		0			0	0	0	C
12:45:00 13:00:00	21 26	1 5	19 22	2		12 11	0	0		1	1	0		0		0	0	0	0	C
13:00:00	28	2		5 5		12	0	0		0		0		0			0	0	0	C
13:30:00		5		1	173	21	0	0		0		0		0			0	0	0	C
13:45:00	35	2		3		14	0	0		0		0		0			0	0	0	C
14:00:00	36	1	37	6		19	0	0		0	· ·	0		0			0	0	0	Č
14:15:00	36	0		0	206	0	0	0		0		0		0			0	0	0	C
14:16:02		0		0		0	0	0		0		0		0			0	0	0	

		Passen	ger Cars -	West Ap	proach			Tru	ıcks - Wes	st Appro	ach			Hea	avys - We	st Appro	ach		Pedes	trians
Interval	Le	ft	Thr	u	Rig	ıht	Le	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	ht	West	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15:00	14	14	125	125	7	7	0	0	1	1	0	0	0	0	0	0	0	0	0	0
11:30:00	21	7	243	118	10	3	0	0	3	2	0	0	0	0	0	0	0	0	0	
11:45:00	24	3	377	134	16	6	0	0		5	0	0		0		0	0	0	0	
12:00:00	37	13	483	106	22	6	0	0		4	0	0		0		0	0	0	0	0
12:15:00	43	6		116	23	1	0	0		1	0	0		0			0	0	0	
12:30:00	52	9		111	29	6	0	0		2		0		0			0	0	0	0
12:45:00	57	5	861	151	34	5	0	0		2		0		0		0	0	0	0	0
13:00:00	65	8	978	117	36	2	0	0		3		0		0			0	0	0	0
13:15:00	77	12	1111	133	39	3	0	0		0		0		0			0	0	0	0
13:30:00	81	4	1236	125	47	8	0	0		2		0		0			0	0	0	
13:45:00	86	5	1349	113	51	4	0	0		2		2		0			0	0	0	
14:00:00	89	3	1457	108	59	8	0	0		2		0		0			0	0	0	0
14:15:00	89	0	1457	0	59	0	0	0		0		0		0			0	0	0	
14:16:02	89	0	1457	0	59	0	0	0	26	0	2	0	0	0	0	0	0	0	0	0

Ontario Traffic Inc. Mid-day Peak Diagram **Specified Period One Hour Peak** From: 11:00:00 **From:** 11:15:00 To: 12:15:00 14:00:00 To: Municipality: Alliston Weather conditions: Site #: 1717000010 Intersection: Hwy 89 & Concession Rd 7-Elizabe Person(s) who counted: TFR File #: Count date: 10-Jun-17 ** Non-Signalized Intersection ** Major Road: Hwy 89 runs W/E North Leg Total: 303 Heavys 0 0 0 Heavys 0 East Leg Total: 1534 5 Trucks 2 3 Trucks 3 North Entering: 148 East Entering: 780 East Peds: North Peds: 0 Cars 40 3 100 143 Cars 152 0 \mathbb{X} Peds Cross: Peds Cross: ⋈ Totals 42 3 103 Totals 155 Concession Rd 7 Totals Trucks Heavys Totals Heavys Trucks Cars Cars 16 683 699 104 2 0 106 656 642 14 0 18 0 18 Hwy 89 764 0 16 Heavys Trucks Cars Totals Hwy 89 0 1 44 45 12 632 644 0 4 4 Trucks Heavys Totals 0 Cars 739 0 754 0 13 680 15 Elizabeth St \mathbb{X} Peds Cross: 7 12 Peds Cross: \bowtie Cars 25 Cars 1 0 0 West Peds: Trucks 0 Trucks 0 0 0 South Peds: 1 0 South Entering: 12 West Entering: 693 Heavys 0 Heavys 0 0 West Leg Total: 1392 Totals 1 South Leg Total: 37 Totals 25 **Comments**

Total Count Diagram

Municipality: Alliston

Site #: 1717000010

Intersection: Hwy 89 & Concession Rd 7-Elizabe

TFR File #: 1

North Leg Total: 800

North Entering: 388

Count date: 10-Jun-17

Weather conditions:

Person(s) who counted:

** Non-Signalized Intersection **

Heavys 0 0 0 0 Trucks 4 0 5 9

 North Peds:
 0
 Cars
 108
 5
 266

 Peds Cross:
 ⋈
 Totals
 112
 5
 271

Hwy 89

Major Road: Hwy 89 runs W/E

Heavys 0

Trucks 5
Cars 407

Cars 407
Totals 412

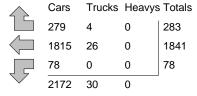
Hwy 89

Heavys Trucks Cars Totals
0 30 1935 1965



379





 Heavys Trucks
 Cars
 Totals

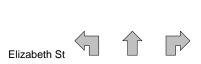
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Concession Rd 7

Cars	Trucks	Heavys	Totals
2159	31	0	2190

Peds Cross:

West Peds: 0

West Entering: 2030

West Leg Total: 3995

 Cars
 106

 Trucks
 0

 Heavys
 0

 Totals
 106



 Cars
 12
 9
 32
 53

 Trucks
 0
 0
 0
 0

 Heavys
 0
 0
 0
 0

 Totals
 12
 9
 32

Peds Cross:
South Peds: 1
South Entering: 53
South Leg Total: 159

Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection:	Hwy 89	& Conce	ession R	d 7-Eliza	be Count I	Date: 10-Jun-17	,	Muni	cipality: Alli	ston			
			ach Tot						Soutl	n Appro	ach Tot	als	
	Includ	es Cars, T	rucks, & H			North/South			Include	es Cars, T	rucks, & H		
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	Total Approaches	Hou Endi		Left	Thru	Right	Grand Total	Total Peds
11:00:00 12:00:00 13:00:00 14:00:00	0 112 99 60	0 2 1 2	0 45 28 39	0 159 128 101	0 0 0 0	171 146	11:00 12:00 13:00 14:00	0:00	0 2 6 4	0 2 2 5	0 8 10 14	0 12 18 23	0 0 1 0
Totals:	271	5		388	0	441			12 Wood	9	32 3ch Tot	53	1
			ach Tota rucks, & H								ach Tota rucks, & H		
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches	Hou Endi	ır ng	Left	Thru	Right	Grand Total	Total Peds
11:00:00 12:00:00 13:00:00 14:00:00	0 23 24 31	0 631 605 605	0 105 92 86	0 759 721 722	0 0 0 0	1459 1394	11:00 12:00 13:00 14:00	0:00 0:00	0 40 43 37	0 657 617 613	0 3 13 7	0 700 673 657	0 0 0
Totals: Hours Er		0:00	0:00	2202 ulated \ 0:00 0	0 /alues f 0:00 0	4232 or Traffic Cr		g M 1:00 0	12:00	1887 eet 13:00 107	23 14:00 69	2030	0

		Passeng	ger Cars -	North A	proach			Tru	cks - Nor	th Appro	ach			Hea	avys - Noi	rth Appro	ach		Pedes	trians
Interval	Le	ft	Thi	ru	Rig	ht	Le	ft	Th	ru	Rig	jht	Le	ft	Th	ru	Rig	ht	North	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15:00	37	37	0	0	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30:00	68	31	0	0		11	1	1	0	0	1	1	0	0	0	0	0	0	0	
11:45:00	91	23	0	0		13	2	1	0	0		0		0				0	0	
12:00:00	109	18	2	2	44	9	3	1	0	0		0		0				0	0	
12:15:00	137	28	3	1	51	7	3	0	0	0		1	0	0				0	0	
12:30:00	166	29	3	0	61	10	4	1	0	0		0		0				0	0	
12:45:00	187	21	3	0	66	5	4	0		0	-	0		0				0	0	
13:00:00	206	19	3	0	71	5	5	1	0	0	1	0	_	0	1			0	0	
13:15:00	223	17	4	1	81	10	5	0		0		1	0	0				0	0	
13:30:00 13:45:00	241 259	18 18	5 5	1 0	89 101	8 12	5 5	0		0		1 0	0	0				0	0	
14:00:00	266	7	5	0		7	5	0		0		0		0				0	0	
14:00:00	266	0		0	108	0	5	0		0		0		0				0	0	
14:16:53	266	0	5	0		0	5	0		0		0		0				0	0	

	Passenger Cars - East Approach					111	ıcks - Eas	st Appro	acii			пе	avys - ⊑as	st Approa	aCII	ļ	. 0400	trians	
Le	ft	Thr	·u	Rig	ht	Le	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	ht	East (Cross
Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C
7	7	144	144	22	22	0	0		1	0	0	0	0	0	0	0	0	0	C
12	5	315		51		0	0		3	1	1	0	0	0	0	0	0	0	
	3								1	1							0		
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																	_		C
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78	0	1815	0	279	0	0										0	0	0	
	0 7 12 15 23 25 31 38 47 55 63 70 78	0 0 7 7 72 5 15 3 23 8 25 2 31 6 38 7 47 9 55 8 63 8 70 7 78 8	0 0 0 7 7 7 144 12 5 315 15 3 454 23 8 621 25 2 786 31 6 935 38 7 1085 47 9 1217 55 8 1364 63 8 1512 70 7 1675 78 8 1815 78 0 1815	0 0 0 0 0 0 7 7 7 144 144 144 12 5 315 171 15 3 454 139 23 8 621 167 25 2 786 165 31 6 935 149 38 7 1085 150 47 9 1217 132 55 8 1364 147 63 8 1512 148 70 7 1675 163 78 8 1815 140 78 0 1815 0	0 0 0 0 0 7 7 144 144 22 12 5 315 171 51 15 3 454 139 76 23 8 621 167 104 25 2 786 165 126 31 6 935 149 147 38 7 1085 150 172 47 9 1217 132 193 55 8 1364 147 224 63 8 1512 148 244 70 7 1675 163 257 78 8 1815 140 279 78 0 1815 0 279	0 0 0 0 0 0 7 7 144 144 22 22 12 5 315 171 51 29 15 3 454 139 76 25 23 8 621 167 104 28 25 2 786 165 126 22 31 6 935 149 147 21 38 7 1085 150 172 25 47 9 1217 132 193 21 55 8 1364 147 224 31 63 8 1512 148 244 20 70 7 1675 163 257 13 78 8 1815 140 279 22 78 0 1815 0 279 0	0 0 0 0 0 0 7 7 144 144 22 22 0 12 5 315 171 51 29 0 15 3 454 139 76 25 0 23 8 621 167 104 28 0 25 2 786 165 126 22 0 31 6 935 149 147 21 0 38 7 1085 150 172 25 0 47 9 1217 132 193 21 0 55 8 1364 147 224 31 0 63 8 1512 148 244 20 0 70 7 1675 163 257 13 0 78 8 1815 140 279 22 0 78 0 1815 0 279 0 0 <td>0 0</td> <td>0 1 0 0 1</td> <td>0 1 1</td> <td>0 1 1 0 0 1 1 1 0 0 1 1 1 0 0 1 1 1 0 0 1 1 1 0 1 1 1 0 0 1 1 1 0 0 1 1 1 0 0 1 1 1 0 0 1</td> <td>0 1 1 0 0 0 1 1 1 0 0 0 1 1 1 0 0 0 1 1 1 0 0 0 1 1 1 0 0 0 1 1 1 0 0 0 1 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td>	0 0	0 1 0 0 1	0 1 1	0 1 1 0 0 1 1 1 0 0 1 1 1 0 0 1 1 1 0 0 1 1 1 0 1 1 1 0 0 1 1 1 0 0 1 1 1 0 0 1 1 1 0 0 1	0 1 1 0 0 0 1 1 1 0 0 0 1 1 1 0 0 0 1 1 1 0 0 0 1 1 1 0 0 0 1 1 1 0 0 0 1 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

		Passenç	ger Cars -	South A	pproach			Tru	cks - Sou	th Appro	ach			Hea	ıvys - Sou	th Appro	ach		Pedes	trians
Interval	Le	ft	Thi	ru	Rig	ht	Le	ft	Th	ru	Rig	ght	Le	ft	Th	ru	Rig	jht	South	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15:00	1	1	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30:00	2	1	0	0	3	1	0	0			1		1	0		0		0		0
11:45:00	2	0		2	3	0		0						0		0		0		0
12:00:00	2	0		0	8	5	0	0		0				0		0		0		0
12:15:00	2	0	-	2		1	0	0		0	_			0		0		0	-	1
12:30:00	3	1	4	0	10	1	0	0						0		0		0		0
12:45:00 13:00:00	5 8	2		0	14 18	4	0	0		0		0		0		0		0	-	0
13:15:00	10	2		0	23	5		0						0		0		0	-	0
13:30:00	10	0		2		2		0						0		0		0		0
13:45:00	10	0		2		2	0	0		0				0		0		0	-	0
14:00:00	12	2		1	32	5		0					1	0		0		0		0
14:15:00	12	0		0		0		0						0		0		0		0
14:16:53	12	0	9	0		0	0	0	0	0	0	0	0	0	0	0		0	1	0

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| | Cum 0 9 21 31 39 53 65 74 82 93 106 113 119 | Left Cum Incr 0 0 9 9 21 12 31 10 39 8 53 14 65 12 74 9 82 8 93 11 106 13 113 7 119 6 119 0 | Left Thr Cum Incr Cum 0 0 0 9 9 165 21 12 326 31 10 486 39 8 644 53 14 797 65 12 936 74 9 1114 82 8 1254 93 11 1412 106 13 1566 113 7 1719 119 6 1861 119 0 1861 | Left Thru Cum Incr Cum Incr 0 0 0 0 9 9 165 165 21 12 326 161 31 10 486 160 39 8 644 158 53 14 797 153 65 12 936 139 74 9 1114 178 82 8 1254 140 93 11 1412 158 106 13 1566 154 113 7 1719 153 119 6 1861 142 119 0 1861 0 | Left Thru Rig Cum Incr Cum Incr Cum 0 0 0 0 0 9 9 165 165 2 21 12 326 161 2 31 10 486 160 3 39 8 644 158 3 53 14 797 153 6 65 12 936 139 7 74 9 1114 178 11 82 8 1254 140 16 93 11 1412 158 18 106 13 1566 154 19 113 7 1719 153 19 119 6 1861 142 23 119 0 1861 0 23 | Left Thru Right Cum Incr Cum Incr 0 0 0 0 0 9 9 165 165 2 2 21 12 326 161 2 0 31 10 486 160 3 1 39 8 644 158 3 0 53 14 797 153 6 3 65 12 936 139 7 1 74 9 1114 178 11 4 82 8 1254 140 16 5 93 11 1412 158 18 2 106 13 1566 154 19 1 113 7 1719 153 19 0 119 6 1861 142 23 4 119 0 1 | Left Thru Right Le Cum Incr Cum Incr Cum Incr Cum 0 0 0 0 0 0 0 0 9 9 165 165 2 2 0 1 31 10 486 160 3 1 1 1 39 8 644 158 3 0 1 1 53 14 797 153 6 3 1 1 65 12 936 139 7 1 1 1 74 9 1114 178 11 4 1 1 82 8 1254 140 16 5 1 1 93 11 1412 158 18 2 1 1 106 13 1566 154 19 1 1 1 | Left Thru Right Left Cum Incr Cum Incr Cum Incr 0 0 0 0 0 0 0 9 9 165 165 2 2 0 0 21 12 326 161 2 0 1 1 1 31 10 486 160 3 1 1 0 0 3 1 1 0 0 3 1 1 0 0 3 1 1 0 0 3 1 1 0 1< | Left Thru Right Left Th Cum Incr Incr Cum Incr Incr Incr Incr Incr Incr Incr Incr <th< td=""><td>Left Thru Right Left Thru Cum Incr Cum Incr Cum Incr Cum Incr Cum Incr 0 0 0 0 0 0 0 0 0 0 9 9 165 165 2 2 0 0 1 1 1 1 1 4 3 3 1 1 0 9 5 3 1 1 0 9 5 3 3 1 1 0 9 5 3 3 1 1 0 9 5 3 3 1 1 0 9 5 3 3 1 1 0 9 5 3 3 1 1 0 13 4 4 1 0 13 4 4 1 0 13 0 0 1 0 1 <td< td=""><td>Left Thru Right Left Thru Right Cum Incr Incr Incr Incr Incr Incr</td><td>Left Thru Right Left Thru Right Cum Incr Cum <th< td=""><td>Left Thru Right Left Thru Right Left Thru Right Left Cum Incr Cum</td><td>Left Thru Right Left Thru Right Left Cum Incr 0</td><td>Left Thru Right Left Thru Right Left Thru Right Left Th Cum Incr <</td><td>Left Thru Right Left Thru Incr Cum Incr Cum<td>Left Thru Right Left Thru Right Left</td><td>Left Thru Right Left Thru Right Right Right Right Right Right Right Right<td>Left Thru Right Left Thru Right Left Thru Right West (Cum) Cum Incr Cum</td></td></td></th<></td></td<></td></th<> | Left Thru Right Left Thru Cum Incr Cum Incr Cum Incr Cum Incr Cum Incr 0 0 0 0 0 0 0 0 0 0 9 9 165 165 2 2 0 0 1 1 1 1 1 4 3 3 1 1 0 9 5 3 1 1 0 9 5 3 3 1 1 0 9 5 3 3 1 1 0 9 5 3 3 1 1 0 9 5 3 3 1 1 0 9 5 3 3 1 1 0 13 4 4 1 0 13 4 4 1 0 13 0 0 1 0 1 <td< td=""><td>Left Thru Right Left Thru Right Cum Incr Incr Incr Incr Incr Incr</td><td>Left Thru Right Left Thru Right Cum Incr Cum <th< td=""><td>Left Thru Right Left Thru Right Left Thru Right Left Cum Incr Cum</td><td>Left Thru Right Left Thru Right Left Cum Incr 0</td><td>Left Thru Right Left Thru Right Left Thru Right Left Th Cum Incr <</td><td>Left Thru Right Left Thru Incr Cum Incr Cum<td>Left Thru Right Left Thru Right Left</td><td>Left Thru Right Left Thru Right Right Right Right Right Right Right Right<td>Left Thru Right Left Thru Right Left Thru Right West (Cum) Cum Incr Cum</td></td></td></th<></td></td<> | Left Thru Right Left Thru Right Cum Incr Incr Incr Incr Incr Incr | Left Thru Right Left Thru Right Cum Incr Cum <th< td=""><td>Left Thru Right Left Thru Right Left Thru Right Left Cum Incr Cum</td><td>Left Thru Right Left Thru Right Left Cum Incr 0</td><td>Left Thru Right Left Thru Right Left Thru Right Left Th Cum Incr <</td><td>Left Thru Right Left Thru Incr Cum Incr Cum<td>Left Thru Right Left Thru Right Left</td><td>Left Thru Right Left Thru Right Right Right Right Right Right Right Right<td>Left Thru Right Left Thru Right Left Thru Right West (Cum) Cum Incr Cum</td></td></td></th<> | Left Thru Right Left Thru Right Left Thru Right Left Cum Incr Cum | Left Thru Right Left Thru Right Left Cum Incr 0 | Left Thru Right Left Thru Right Left Thru Right Left Th Cum Incr < | Left Thru Right Left Thru Incr Cum Incr Cum <td>Left Thru Right Left Thru Right Left</td> <td>Left Thru Right Left Thru Right Right Right Right Right Right Right Right<td>Left Thru Right Left Thru Right Left Thru Right West (Cum) Cum Incr Cum</td></td> | Left Thru Right Left | Left Thru Right Right Right Right Right Right Right Right <td>Left Thru Right Left Thru Right Left Thru Right West (Cum) Cum Incr Cum</td> | Left Thru Right Left Thru Right Left Thru Right West (Cum) Cum Incr Cum |

Ontario Traffic Inc. **Mid-day Peak Diagram Specified Period One Hour Peak From:** 11:00:00 **From:** 11:00:00 To: 14:00:00 To: 12:00:00 Municipality: Alliston Weather conditions: Site #: 1717000011 Intersection: Hwy 89 & Elizabeth St Person(s) who counted: TFR File #: Count date: 10-Jun-17 ** Non-Signalized Intersection ** Major Road: Hwy 89 runs W/E East Leg Total: 1556 East Entering: 780 East Peds: 0 \mathbb{X} Peds Cross: Trucks Heavys Totals Heavys Trucks Cars Totals Cars 12 764 776 764 776 0 768 Hwy 89 Heavys Trucks Cars Totals Hwy 89 15 755 770 0 1 2 Cars Trucks Heavys Totals 1 760 0 776 16 756 Elizabeth St \mathbb{X} Peds Cross: Cars 5 5 Peds Cross: \bowtie Cars 0 West Peds: 0 Trucks 1 1 South Peds: Trucks 0 1 2 0 West Entering: 772 Heavys 0 0 South Entering: 6 Heavys 0 West Leg Total: 1548 Totals 6 Totals 0 South Leg Total: 12 **Comments**

Total Count Diagram

Municipality: Alliston

Site #: 1717000011

Intersection: Hwy 89 & Elizabeth St

TFR File #: 1

Count date: 10-Jun-17

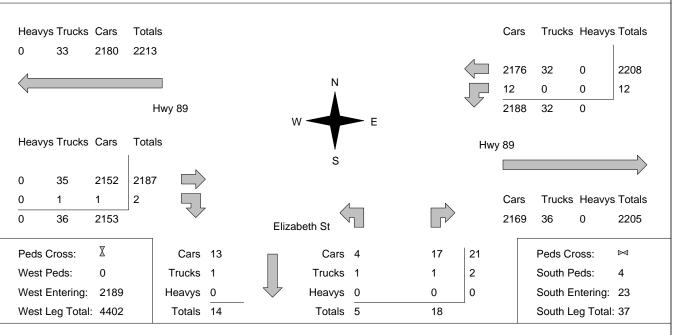
Weather conditions:

Person(s) who counted:

** Non-Signalized Intersection ** Major Road: Hwy 89 runs W/E

East Leg Total: 4425
East Entering: 2220
East Peds: 0

Peds Cross:



Comments

Ontario Traffic Inc. Traffic Count Summary

Intersection:	Hwy 89	& Elizal	beth St		Count [Date: 10-Jun-17	,	Munio	cipality: All	iston			
	Nort	h Appro	ach Tot	als	<u> </u>		<u></u>		Sout	h Appro	ach Tot	als	
l la	Includ	es Cars, T	rucks, & H		Tatal	North/South	l la		Include	es Cars, T	rucks, & H		Tatal
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	Total Approaches	Hou Endir	ng	Left	Thru	Right	Grand Total	Total Peds
11:00:00	0	0	0	0	0		11:00		0	0	0	0	0
12:00:00	0	0	0	0	0		12:00		0	0	6	6	2 2 0
13:00:00 14:00:00	0	0	0	0	0	8	13:00 14:00		4	0	4 8	8	2
14.00.00	U	U		U	U	9	14.00	,.00	"	U	0	9	٥
Totals:	0	0		. 0	0	23			5	0	18	23	4
	Include	es Cars, T	ach Tota rucks, & H	eavys		Foot/Moot			Include	s Cars, T	ach Tota rucks, & H	ais eavys	
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches	Hou Endir	ır na	Left	Thru	Right	Grand Total	Total Peds
11:00:00	0	0	0	0	0	0	11:00	00:0	0	0	0	0	0
12:00:00	4	776		780	0		12:00		0	770	2	772	0
13:00:00 14:00:00	4 4	714 718	0	718 722	0		13:00 14:00		0	728 689	0	728 689	0
1 1100.00	·				Ū			,,,,,		000			Ŭ
Totals:	12	2208	0	2220	0	4409			0	2187	2	2189	0
2.22.31	. =					or Traffic Cr	ossin	g Ma					
Hours En		0:00	0:00	0:00	0:00			:00	12:00	13:00	14:00		
Crossing	Values:	0	0	0	0			0	0	4	1		
L													

		Passen	ger Cars ·	- North A	oproach			Tru	cks - Nor	th Appro	ach			Hea	ıvys - Nor	th Appro	ach		Pedes	trians
Interval	Le	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	jht	Le	ft	Th	ru	Rig	ht	North	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C
11:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C
11:30:00	0	0			0	0	0	0				0		0			0	0	0	
11:45:00	0	0			0	0	0	0				0		0			0	0	0	
12:00:00	0	0			0	0	0	0		0		0		0			0	0	0	C
12:15:00	0	0			0	0	0	0		0		0		0			0	0	0	
12:30:00	0	0			0	0	0	0		0		0		0			0	0	0	
12:45:00 13:00:00	0	0			0	0	0	0		0		0		0		0	0	0	0	C
13:00:00	0	0			0	0	0	0		0		0		0			0	0	0	C
13:30:00	0	0			0	0	0	0				0		0			0	0	0	
13:45:00	0	0			0	0	0	0				0		0			0	0	0	
14:00:00	0	0			0	0	0	0		0		0		0			0	0	0	Č
14:15:00	0	0			0	0	0	0				0		0			0	0	0	
14:15:52	0	0			0	0	0	0				0		0			0	0	0	

		Passen	ger Cars -	East Ap	proach			Tro	ucks - Eas	t Appro	ach			He	avys - Ea	st Approa	ach		Pedes	trians
Interval	Le	ft	Thi	ru	Rig	ht	Le	ft	Th	ru	Rig	jht	Le	ft	Th	ru	Rig	ht	East (Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C
11:15:00	2	2	185	185	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	C
11:30:00	3	1	391	206	0	0	0	0	6	4	0	0	0	0	0	0	0	0	0	C
11:45:00	4	1	558	167	0	0	0	0		2		0		0			0	0	0	C
12:00:00	4	0		206	0	0	0	0		4	0	0		0		0	0	0	0	
12:15:00	5	1	952	188	0	0	0	0		6		0		0			0	0	0	C
12:30:00	6	1	1124	172	0	0	0	0		2		0		0			0	0	0	
12:45:00	8	2	1301	177	0	0	0	0		0	1	0		0		0	0	0	0	C
13:00:00	8	0		165	0	0	0	0		4		0		0			0	0	0	C
13:15:00	8	0		183	0	0	0	0		4	0	0		0			0	0	0	C
13:30:00 13:45:00	8 10	0	1829 2007	180 178	0	0	0	0		2	0	0		0			0	0	0	C
14:00:00	12	2		169	0	0	0	0		1	0	0		0			0	0	0	0
14:00:00	12	0		0	0	0	0	0		0		0		0			0	0	0	0
14:15:52	12	0	2176	0		0	0	0		0		0		0			0	0	0	

		Passenç	ger Cars -	South A	pproach			Tru	cks - Sou	th Appro	ach			Hea	vys - Sou	ıth Appro	ach		Pedes	trians
Interval	Le	ft	Th	ru	Rig	ht	Le	ft	Th	ru	Rig	ght	Le	ft	Th	ru	Rig	ht	South	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C
11:15:00	0	0	0	0	2	2	0	0	0	0	1	1	0	0	0	0	0	0	1	1
11:30:00	0	0				0	0	0		0		0		0				0	1	0
11:45:00	0	0			2	0	0	0		0		0		0				0	1	0
12:00:00	0	0	0		5	3	0	0		0		0		0				0	2	1
12:15:00	1	1	0	0	6	1	0	0		0		0		0				0	2	
12:30:00 12:45:00	1	0	0		8	2	1 1	1	0	0		0		0				0	2	
12:45:00	1	0		0	9	0	1	0		0		0		0				0	4	2
13:15:00	3	0			10	1	1	0		0		0		0				0	4	
13:30:00	3	0	0		12	2	1	0		0		0		0				0	4	C
13:45:00	3	0			15	3	1	0		0		0		0				0	4	0
14:00:00	4	1	0		17	2	1	0		0		0		0				0	4	C
14:15:00	4	0	0	0	17	0	1	0		0	1	0		0				0	4	0
14:15:52	4	0	0	0		0	1	0	0	0		0		0				0	4	C

		Passen	ger Cars -	West Ap	proach			Tru	ıcks - We	st Appro	ach			Hea	avys - We	st Appro	ach		Pedes	trians
Interval	Le	ft	Th	ru	Rig	jht	Le	ft	Th	ru	Rig	ght	Le	ft	Th	ru	Rig	jht	West	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
11:00:00		0		0	0	0	0	0		0		0	0	0	0	0	0	0	0	0
11:15:00		0	200	200	0	0		0		2				0		0		0	0	0
11:30:00	0	0		200	0	0		0		3				0		0		0		0
11:45:00	0	0		176	0	0		0		6				0		0		0		0
12:00:00	0	0	755	179	1	1	0	0		4	1	1		0		0		0	0	0
12:15:00		0	938	183 165	1	0	0	0		1	1	0		0		0		0	0	0
12:30:00 12:45:00	0	0	1103 1308	205	1 1	0	0	0		2		0		0		0		0		0 0
13:00:00	0	0	1473	165	1	0		0		2	1	0	1	0		0		0	0	0
13:15:00		0	1656	183	<u>'</u> 1	0	0	0		1	1	0		0		0		0	0	0
13:30:00	0	0	1822	166	1	0		0		3		0		0		0		0		0 0
13:45:00	0	0	1995	173	1	0	-	0		3		0		0	-	0		0	0	0
14:00:00	0	0	2152	157	1	0	0	0		3		0		0		0		0		0
14:15:00	0	0	2152	0	1	0		0		0		0		0		0		0		0
14:15:52		0	2152	0	1	0	0	0		0		0	0	0		0		0	0	0

Ontario Traffic Inc. Mid-day Peak Diagram **Specified Period One Hour Peak** From: 11:00:00 **From:** 11:45:00 To: 14:00:00 To: 12:45:00 Weather conditions: Municipality: Alliston Site #: 1717000012 Intersection: Hwy 89-Young St & Industrial Pkwy Person(s) who counted: TFR File #: Count date: 10-Jun-17 ** Signalized Intersection ** Major Road: Hwy 89-Young St runs W/E North Leg Total: 337 Heavys 0 0 0 Heavys 0 East Leg Total: 1616 Trucks 0 1 North Entering: 181 Trucks 1 East Entering: 853 North Peds: 3 Cars 66 81 33 180 Cars 155 East Peds: 3 \mathbb{X} Peds Cross: ⋈ Totals 66 81 34 Totals 156 Peds Cross: Plaza Driveway Heavys Trucks Cars Totals Trucks Heavys Totals Cars 10 757 767 23 0 23 532 527 5 0 297 0 298 847 0 Hwy 89 Heavys Trucks Cars Totals Young St 0 1 95 96 0 2 555 557 7 116 123 Trucks Heavys Totals 0 Cars 759 0 10 766 763 Industrial Pkwy, \mathbb{X} Peds Cross: Peds Cross: \bowtie Cars 494 Cars 164 171 372 4 West Peds: Trucks 8 Trucks 5 0 1 6 South Peds: 1 0 West Entering: 776 Heavys 0 Heavys 0 0 South Entering: 378 West Leg Total: 1543 Totals 169 172 South Leg Total: 880 Totals 502 **Comments**

Total Count Diagram

Municipality: Alliston

Site #: 1717000012

Intersection: Hwy 89-Young St & Industrial Pkwy

TFR File #:

Count date: 10-Jun-17

Weather conditions:

Person(s) who counted:

** Signalized Intersection **

North Leg Total: 953

Hwy 89

North Entering: 501 North Peds: Peds Cross:

Heavys 0 0 0 4 1 Trucks 2 Cars 178 220 99 497 Totals 180 221 100

Heavys 0 Trucks 2 Cars 450

Totals 452

Major Road: Hwy 89-Young St runs W/E

East Leg Total: 4641 East Entering: 2424 East Peds: 8 \mathbb{X} Peds Cross:

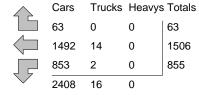
Heavys Trucks Cars Totals 34 2187 2221

⋈

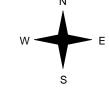




Plaza Driveway



Heavys Trucks Cars Totals 0 1 264 265 10 1629 1639 18 327 345 0 29 2220



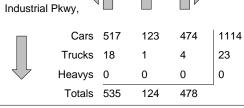


15

Cars 2202

 \mathbb{X} Peds Cross: West Peds: 8 West Entering: 2249 West Leg Total: 4470

Cars 1400 Trucks 21 Heavys 0 Totals 1421



Peds Cross: \bowtie South Peds: 13 South Entering: 1137 South Leg Total: 2558

Trucks Heavys Totals

0

2217

Comments

Ontario Traffic Inc. Traffic Count Summary Municipality: Alliete Municipality: Alliete

Intersection:	Hwy 89-	Young S	St & Ind	ustrial Pl	(W Count [^{Date:} 10-Jun-17	7	Munic	ipality: Alli	ston			
	Nortl	n Appro	ach Tot	als					South	n Appro	ach Tot	als	
Hour	Include	es Cars, I	rucks, & H	eavys Grand	Total	North/South Total	Hou	,	Include		rucks, & H	eavys Grand	Total
Ending	Left	Thru	Right	Total	Peds	Approaches	Endin	ng	Left	Thru	Right	Total	Peds
11:00:00 12:00:00 13:00:00 14:00:00	0 36 30 34	0 80 58 83	0 64 54 62	0 180 142 179	0 0 4 0	582 504	11:00 12:00 13:00 14:00	:00	0 193 163 179	0 44 37 43	0 165 162 151	0 402 362 373	0 4 4 5
Totals:	100	224	100	504	4	1620			FOF	124	470	1127	40
l otals:	100 Fast		180 ach Tota	501 als	4	1638			535 West	124 Appro	478 ach Tota	1137 als	13
	Include	es Cars, T	rucks, & H	eavys		East/West			Include	es Cars, T	rucks, & H	eavys	
Hour Ending	Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches	Hou Endir		Left	Thru	Right	Grand Total	Total Peds
11:00:00 12:00:00 13:00:00 14:00:00	0 293 276 286	0 524 496 486	17 23	0 834 795 795	0 3 4 1	1600 1574	11:00 12:00 13:00 14:00	:00:	0 80 99 86	0 566 571 502	0 120 109 116	0 766 779 704	0 0 5 3
Totals:	855	1506	63	2424	8	4673			265	1639	345	2249	8
					/alues f	or Traffic Cr	ossing	g Ma					
Hours End Crossing		0:00 0		0:00 0	0:00 0		11	00:	12:00 312	13:00 260	14:00 300		

		Passeng	ger Cars -	North A	oproach			Tru	cks - Nor	th Appro	ach			Hea	avys - No	rth Appro	ach		Pedes	trians
Interval	Le	ft	Thi	·u	Rig	ht	Le	ft	Th	ru	Rig	ght	Le	ft	Th	ıru	Rig	ht	North	Cross
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15:00	9	9	18	18	17	17	0	0	1	1	0	0	0	0	0	0	0	0	0	0
11:30:00	20	11	30	12	28	11	0	0	1	0	1	1	0	0	0	0	0	0	0	0
11:45:00	30	10		16	41	13	0	0		0		0		0				0	0	0
12:00:00	35	5		33	63	22	1	1	1	0		0		0				0	0	0
12:15:00	45	10		13	76	13	1	0		0		0		0				0	0	0
12:30:00	54	9		22	97	21	1	0		0		0		0				0	1	1
12:45:00	63	9		13	107	10	1	0		0		0		0				0	3	2
13:00:00	65	2		10	117	10	1	0		0		0		0				0	4	1
13:15:00	73	8		25	127	10	1	0		0		0		0				0	4	0
13:30:00	80	7		15	141	14	1_	0		0		0		0				0	4	0
13:45:00	88	8		22	160	19	1_	0		0				0				0	4	0
14:00:00	99	11	220	21	178	18	1	0		0	-			0				0	4	0
14:15:00 14:17:20	99 99	0		0	178 178	0	1 1	0		0				0				0	4	0
14.17.20	99	U	220	U	170	U	I	U	I I	U		U	0	U	U	U	U	U	4	U

	Passenger Cars - East Approach							Trucks - East Approach							Heavys - East Approach						
Interval	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross		
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	
11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:15:00	72	72	118	118	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11:30:00	134	62	260	142	5	1	0	0		3	0	0		0		0	0	0	2	2	
11:45:00	206	72	364	104	12	7	1	1	7	4	0	0		0		0	0	0	3	1	
12:00:00	292	86	515	151	17	5	1	0		2		0		0		0	0	0	3	0	
12:15:00	364	72	644	129	23	6	2	1		2		0		0		0	0	0	4	1	
12:30:00	433	69	774	130	31	8	2	0			0	0		0		0	0	0	6	2	
12:45:00	503	70	891	117	35	4	2	0				0		0		0	0	0	6	0	
13:00:00	567	64	1007	116	40	5	2	0		1	0	0		0		0	0	0	7	1	
13:15:00	642	75	1127	120	45	5	2	0		1		0		0		0	0	0	7	0	
13:30:00	705	63	1265	138	52	7	2	0		0		0		0		0	0	0	7	0	
13:45:00 14:00:00	788 853	83 65	1379 1492	114 113	56 63	4	2	0		0		0	1	0		0	0	0	-	0	
14:00:00	853	0	1492	0	63	7 0	2	0		0		0		0		0	0	0	8	0	
14:17:20	853	0	1492	0		0	2	0		0		0		0		0	0	0	8	0	

	Passenger Cars - South Approach								cks - Sou	th Appro	ach		Heavys - South Approach							Pedestrians		
Interval Le		ft	Thru		Right		Left		Th	ru	Rig	ght	Left		Thru		Right		South Cross			
Time	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr		
11:00:00	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0		
11:15:00	51	51	10	10	48	48	2	2		0		0		0		0	0	0	2	2		
11:30:00	100	49	22	12	86	38	4	2		1	1	1		0		0	0	0	4	2 2 0		
11:45:00	146	46	35	13	119	33	4	0		0		0		0		0	0	0	4	0		
12:00:00	189	43	43	8	164	45	4	0		0		0		0		0	0	0	4	0		
12:15:00 12:30:00	228 263	39 35	58 66	15 8	211 250	47 39	8 9	4 1	1	0		0		0		0	0	0	5 5	1		
12:30:00	310	35 47	72	6	290	39 40	9	0		0				0		0	0	0	5	0		
13:00:00	344	34	80	8	325	35	12	3		0				0		0	0	0	8	0 3 3		
13:15:00	393	49	90	10	347	22	15	3		0				0		0	0	0	11	3		
13:30:00	434	41	101	11	383	36	17	2		0				0		0	0	0	12	1		
13:45:00	474	40	112	11	431	48	17	0		0		1	_	0	-	0	0	0	13	1		
14:00:00	517	43	123	11	474	43	18	1		0		0	0	0		0	0	0	13	0		
14:15:00	517	0	123	0	474	0	18	0	1	0	4	0	0	0	0	0	0	0	13	0		
14:17:20	517	0	123	0	474	0	18	0	1	0	4	0	0	0	0	0	0	0	13	0		

Le				Passenger Cars - West Approach									Pedestrians						
Interval Left		t Thru		Right		Left		Th	ru	Rig	ght	Le	Left		Thru		Right		Cross
Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
						0					0						0	0	0
					23														0
							0												0
							1												0
																			0
						-													3
																			1
						-													1
						-								_					2
						1					1	-							0
264	16	1629	102	327	25	1					1							8	0
264	0	1629	0	327	0	1	0	10	0	18	0	0	0	0	0	0	0	8	0
264	0	1629	0	327	0	1	0	10	0	18	0	0	0	0	0	0	0	8	0
	0 20 43 61 79 102 125 156 178 200 225 248 264	0 0 20 20 43 23 61 18 79 18 102 23 125 23 156 31 178 22 200 22 225 25 248 23 264 16 264 0	0 0 0 20 20 158 43 23 300 61 18 431 79 18 561 102 23 704 125 23 835 156 31 986 178 22 1130 200 22 1266 225 25 1397 248 23 1527 264 16 1629 264 0 1629	0 0 0 0 20 20 158 158 43 23 300 142 61 18 431 131 79 18 561 130 102 23 704 143 125 23 835 131 156 31 986 151 178 22 1130 144 200 22 1266 136 225 25 1397 131 248 23 1527 130 264 16 1629 102 264 0 1629 0	0 0 0 0 0 20 20 158 158 28 43 23 300 142 51 61 18 431 131 78 79 18 561 130 112 102 23 704 143 139 125 23 835 131 166 156 31 986 151 194 178 22 1130 144 214 200 22 1266 136 240 225 25 1397 131 275 248 23 1527 130 302 264 16 1629 102 327 264 0 1629 0 327	0 0 0 0 0 0 20 20 158 158 28 28 43 23 300 142 51 23 61 18 431 131 78 27 79 18 561 130 112 34 102 23 704 143 139 27 125 23 835 131 166 27 156 31 986 151 194 28 178 22 1130 144 214 20 200 22 1266 136 240 26 225 25 1397 131 275 35 248 23 1527 130 302 27 264 16 1629 102 327 25 264 0 1629 0 327 0	0 0 0 0 0 0 20 20 158 158 28 28 0 43 23 300 142 51 23 0 61 18 431 131 78 27 0 79 18 561 130 112 34 1 102 23 704 143 139 27 1 125 23 835 131 166 27 1 156 31 986 151 194 28 1 178 22 1130 144 214 20 1 200 22 1266 136 240 26 1 225 25 1397 131 275 35 1 248 23 1527 130 302 27 1 264 16 1629 102 327 25 <td>0 0</td> <td>0 0</td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 4 4 6 6 1 11 1 1 5 1 8 1 1 1 5 1 8 1 1 1 5 1 8 1 1 1 5 1 8 1 1 1 5 1 1 8 1 1 1 5 1 1 8 1 1 1 5 1 1 8 1 1 1 1 1 1 1 1 1 1 1 1</td> <td>0 4 4 4 4 6 2 2 1 0 0 0 0 0 0 4 4 4 6 2 2 1 1 1 5 1 8 2 2 0 0 4 4 6 2 2 1 1 1 5 1 8 2 1 0 0 4 4 4 6 2 2 1 1 1 5 1 8 2 1 0 0 0 1 1 1</td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td>	0 0	0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 4 4 6 6 1 11 1 1 5 1 8 1 1 1 5 1 8 1 1 1 5 1 8 1 1 1 5 1 8 1 1 1 5 1 1 8 1 1 1 5 1 1 8 1 1 1 5 1 1 8 1 1 1 1 1 1 1 1 1 1 1 1	0 4 4 4 4 6 2 2 1 0 0 0 0 0 0 4 4 4 6 2 2 1 1 1 5 1 8 2 2 0 0 4 4 6 2 2 1 1 1 5 1 8 2 1 0 0 4 4 4 6 2 2 1 1 1 5 1 8 2 1 0 0 0 1 1 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

APPENDIX D

AADT Data



Ministry of Transportation

Highway Standards Branch

Traffic Office

Provincial Highways

Traffic Volumes

1988-2016

King's Highways / Secondary Highways / Tertiary Roads

Ministry Contact:

Traffic Office (905)-704-2960

Abstract:

This annual publication contains averaged traffic volume information and accident rate information for each of the sections of highway under MTO jurisdiction.

Key Words:

Annual Average Daily Traffic volume (AADT), Summer Average Daily Traffic volume (SADT), Summer Average Weekday Traffic volume (SAWDT), Winter Average Daily Traffic volume (WADT), Accident Rate (AR)

PREFACE

Traffic volume information is used by many people to assist them in assessing the viability of business proposals, land use options, marketing, advertising, and a host of other activities. This publication, **Provincial Highways Traffic Volumes 1988-2016**, provides traffic volumes on an annual and seasonal average basis for selected links in the provincial highway network. The traffic pattern type and accident rates on the selected links are also indicated.

Some highway routes which have not yet been assigned an official highway number, are included under the title Selected 7000 Series Highways. The Highway 407 ETR is maintained by 407 ETR Concession Company Ltd. and is not included in this publication. For information contact the 407 ETR Traffic

Department at (905) 265-4070. Site or time specific information not contained herein may be obtained from the Ministry of Transportation's Regional Traffic Sections, located in London, Toronto, Kingston, North Bay and Thunder Bay. Contact MTO INFO at 1-800-268-4686 for the appropriate regional phone number.

The statistics contained herein have been prepared based on data (both electronic and otherwise) obtained from sources considered to be reliable. The Ministry makes no representation or warranty, expressed or implied with respect to its accuracy or completeness. This publication also supersedes any previously published publications.

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INTRODUCTION

This publication contains information pertaining to traffic volumes on roads under Provincial jurisdiction as of December 31, 2016. The publication is divided into two parts.

OVERALL SYSTEM SUMMARIES

The information in this section is included for policy analysis and program planning purposes. It includes summaries about the overall Provincial Highways system. The system indicators are developed from travel experience, accident data and highway geometrics.

TRAFFIC VOLUME INFORMATION

A detailed listing outlining the 26 year history (1988-2013) of traffic volumes on Provincial Highways (King's, Secondary, Tertiary Roads and the 7000 series highways) is provided.

The highway network is divided into approximately 1831 sections for reporting purposes. Seasonal traffic volume variations are estimated for each section reported. Although local conditions cause variations in the volume within the sections, the volumes shown are considered to adequately represent the section.

On highways that overlap another highway, for instance Highway 35 and Highway 115, the volume information is referenced to the lower number highway. When an overlap occurs between a freeway and non-freeway, reference is made to the freeway route number. The freeways are Highway 400 to Highway 427 and the QEW.

The following are definitions to reading the listings:

Location Description: A statement identifying the start or ending point of a section. Some frequently used abbreviations include:

BDY boundary BR bridge С concession CTY county DIST district KM kilometres AVE avenue REG regional HWY highway IC interchange JCT iunction lot LN line **LTS** limits

non assumed* NA OH overhead OP overpass **PKWY** parkway river R RDroad ST street **TWP** township UP underpass

^{*}Non Assumed – indicates that the roadway is not under provincial jurisdiction therefore contact the corresponding regional municipality for traffic volume information.

Distance (KM)

The length of the section in kilometres reported to one decimal place.

Pattern Type

One of 14 pattern types that represent the seasonal variation of the traffic flow on the section indicated. A graphical presentation of these pattern types has been included on the following page.

The 14 pattern types represent the traffic flow variation on the whole network. They include:

Variation Types

LOW	UC SC C	urban commuter suburban commuter commuter
INTER	IC CR IR CTR IT	intermediate commuter commuter recreation intermediate recreation commuter tourist recreation intermediate tourist
HIGH	LT T HT LR R HR	low tourist tourist high tourist low recreation recreation high recreation
	UNKN	unknown
	UNCL	unclassified
	NEW	new volume section

The first three are generally referred to as Low Variation Curves (or commuter travel); the next five as Intermediate Variation Curves

(a blend of all types of traffic); and the last six as High Variation Curves. For the last group, the first three represent tourist travel and the second three, recreational travel; this sub-grouping is distinguished by the relationship of weekend to weekday traffic.

There are two additional codes in the pattern type column. "UNC" indicates that the AADT was calculated using adjustment factors from an unclassified (i.e. new) permanent counting station. "NEW" indicates that this is a new volume section and there is insufficient data to assign a pattern type.

AADT

Annual Average Daily Traffic; defined as the average twenty four hour, two way traffic for the period January 1st to December 31st.

SADT

Summer Average Daily Traffic; defined as the average twenty four hour, two way traffic for the period July 1st to August 31st including weekends.

SAWDT

Summer Average Weekday Traffic; defined as the average twenty four hour, two way traffic for the period July 1st to August 31st, excluding weekends.

WADT

Winter Average Daily Traffic; defined as the average twenty four hour, two way traffic for the period January 1st to March 31st, plus December 1st to December 31st, including weekends.

NOTES:

- (a) The user of this publication should realize that the reported data are 'estimated values'. Since traffic volumes are not static, direct field measurements are accurate only for the time of the count. Also, the size of the Provincial Highway network makes it impractical to measure each section annually. Thus, approximately one third of the reported sections are counted each year. The following three methods of measuring traffic volumes are employed:
 - 1. Permanent Counting Stations: At designated locations across the Province counts are taken for each hour of the year.
 - 2. Inventory Counting Stations: Each unique volume section has a set location where traffic volumes are sampled on a cyclical basis by season and year.
 - Request Counting Stations: Traffic volumes are measured at random locations as needed to address operational or planning concerns.

Using the available traffic volume information and historical trends, estimates are made for each highway section.

- (b) The abbreviation "N/A" (Not Available) refers to a new volume section or where no data is available. Data for these sections should be available in future publication once collected.
- (c) There may be some missing or incorrect traffic sections, and distances, due to highway realignment, highway transfers, renumbering, or sections which have been recently built.

<u> AR</u>

Accident Rate is defined as the number of reportable accidents occurring annually on a particular highway section for every million vehicle kilometres (MVKM) travelled on that section during the same period. "Reportable Accidents" are those causing any death, injury or property damage exceeding a certain established amount.

The accident rate is calculated as follows:

AR = the number of accidents for a given year divided by the MVKM, noting the following:

The MVKM is calculated as follows:

= AADT x 365 x Section Length (DIST-km) 1.000.000

Notes:

- (a) Multiple vehicle collisions (i.e., chain reactions are generally considered as one accident unless the reporting police officer decides otherwise).
- (b) Accidents on freeway ramps are totally excluded from sectional and total system accident rate calculations. After 1996, highway ramps have also been excluded.
- (c) If no accidents have occurred on a given section, the accident rate is shown as zero.

TRAFFIC VOLUME INFORMATION

The King's Highways - Queen Elizabeth Way (Q.E.W.)

- Highway 2 to Highway 148

- The 400 series

(Highway 400 to Highway 427)

The Secondary Highways

- Highway 502 to Highway 673

The Tertiary Roads

- Highway 802 to Highway 811

Selected 7000 Series Highways - Highway 7025 to Highway 7910

NOTE:

Highway 407 ETR is maintained by 407 ETR Concession Company Ltd. For information contact the 407 ETR Traffic Department at (905) 265-4070.

		5							
		Dist.	l .,	Pattern		6 4 D.T			
Highway	Location Description	(KM)	Year	Туре	AADT		SAWDT	WADT	
			1997	CTR	14,800	18,900		12,500	
			1998	CTR	15,500	19,700		13,100	
			1999	CTR	15,200	19,200		12,800	
			2000	CTR	15,500	19,500		13,100	
			2001	CTR	15,900	20,000		13,400	
			2002	CTR	18,100	22,800		15,300	
			2003	CTR	16,600	20,900		14,100	
			2004	CTR	16,300	20,300		13,800	
			2005	CTR	16,500	20,400		14,000	
			2006	CTR	16,100	17,900	18,100	14,300	
			2007	CTR	16,800	18,700		14,800	
			2008	CTR	16,100	17,800		14,200	
			2009	CTR	17,200	19,100		15,200	
			2010	CTR	16,600	18,400		14,700	
			2011	CTR	15,500	17,100		14,000	
			2012	CTR	15,300	17,000		13,600	
			2013	CTR	17,100	19,000		15,200	
			2014	CTR	15,000	18,300		12,800	
			2015	CTR	15,300	18,700	18,800	13,000	N/A
			2016	CTR	16,800	20,500	20,600	14,300	N/A
89	ALLISTON E LTS-C 1-2 - START OF NA	5.2							
89	TOWN OF NEW TECUMSETH W LTS - END OF N/A	2.0	1988	IC	7,500	9,700	9,000	6,200	1.3
			1989	IC	7,900	10,100	9,400	6,600	2.8
			1990	IC	8,300	10,300	9,700	7,200	1.5
			1991	IC	8,550	10,700	10,600	7,400	0.8
			1992	IC	8,900	10,900	10,500	7,700	1.2
			1993	IC	9,300	11,700	11,200	7,900	0.9
			1994	IC	9,450	12,100	11,500	7,950	0.9
			1995	IC	9,750	12,500	12,000	8,200	2.5
			1996	IC	9,900	12,700	12,200	8,350	0.7
			1997	IC	10,400	13,300	12,800	8,750	0.5
			1998	IC	10,700	13,600	13,100	9,000	0.9
			1999	IC	11,000	13,900	13,300	9,300	0.4

		Dist.		Pattern					
Highway	Location Description	(KM)	Year	Туре	AADT		SAWDT	WADT	
			2000	IC	11,300	14,200		9,550	
			2001	IC	11,600	14,600		9,750	
			2002	IC	11,900	15,000		10,000	
			2003	IC	12,100	15,200		10,300	
			2004	IC	12,400	15,400		10,500	
			2005	IC	12,900	14,600		11,700	
			2006	IC	12,500	15,100		10,600	
			2007	IC	13,100	15,900		11,100	
			2008	IC	13,000	15,700		11,100	
			2009	IC	11,800	14,200		10,000	
			2010	IC	13,400	16,100		11,300	
			2011	IC	11,200	13,100		9,950	-
			2012	IC	11,500	13,800		9,800	-
			2013	IC	11,900	14,300	14,700	10,100	N/A
			2014	IC	11,900	13,300	13,100	10,600	N/A
			2015	IC	13,000	14,400	14,300	11,600	N/A
			2016	IC	13,100	14,500	14,400	11,700	N/A
89	SIMCOE RD 50	6.8	1988	IC	6,300	8,100	6,900	5,000	1.3
			1989	IC	6,600	8,500	7,300	5,400	1.5
			1990	IC	7,000	8,800	7,700	5,700	1.4
			1991	IC	7,200	9,000	7,900	5,900	0.7
			1992	IC	7,400	9,100	8,100	6,200	1.4
			1993	IC	6,800	8,500	7,500	5,500	0.8
			1994	IC	7,000	8,750	7,700	5,650	0.9
			1995	IC	7,500	9,450	8,400	6,050	1.2
			1996	IC	8,000	10,500	9,300	6,450	0.7
			1997	IC	8,400	11,000	10,800	6,950	0.7
			1998	IC	8,800	15,000	11,200	7,150	0.5
			1999	IC	9,200	11,900	11,700	7,450	0.8
			2000	IC	9,700	12,500	12,400	7,900	0.5
			2001	IC	10,100	13,200	12,800	8,200	0.5
			2002	IC	10,600	13,800		8,750	
			2003	IC	11,000	14,300	14,100	9,000	

		Dist.		Pattern					
Highway	Location Description	(KM)	Year	Туре	AADT		SAWDT	WADT	
			2004	IC	11,400	14,500	•	9,350	
			2005	IC	11,900	15,100		9,900	
			2006	IC	11,200	13,900	-	9,500	
			2007	IC	11,500	14,200	-	9,750	
			2008	IC	11,800	14,600	-	10,000	
			2009	IC	12,100	14,800	-	10,300	
			2010		10,300	11,400	-	9,150	
			2011	IC	10,500	11,600	-	9,450	
			2012	IC	10,500	11,700	-	9,350	
			2013	IC	10,500	11,700	-	9,350	
			2014	IC	10,800	12,000	-	9,600	
			2015	IC	11,000	12,200	-	9,800	
00	MONO ADIALA TOMANIALE DD (C)	44.0	2016	IC	11,200	12,400		9,950	
89	MONO-ADJALA TOWNLINE RD (S)	11.9	1988	CTR	6,300	8,100	6,900	5,000	
			1989	CTR	6,600	8,500	7,300	5,400	
			1990	CTR	7,000	8,800	7,700	5,700	
			1991	CTR	7,200	9,000	7,900	5,900	
			1992	CTR	7,400	9,100	8,100	6,200	
			1993 1994	CTR CTR	6,800	8,500	7,500 7,700	5,500	
			1994	CTR	7,000	8,750	•	5,650 6,050	
			1995	CTR	7,500 8,000	9,450 10,500	9,300	6,450	
			1990	CTR	8,400	11,000	-	6,950	
			1998	CTR	8,800	15,000	•	7,150	
			1999	CTR	9,200	11,900	-	7,130	
			2000	CTR	9,700	12,500	-	7,900	
			2000	CTR	10,100	13,200	-	8,200	
			2001	CTR	10,100	-	·	8,750	
			2002	CTR	10,000	14,200		8,950	
			2003	CTR	9,150	11,700	-	7,500	
			2004	CTR	8,750	11,100	-	7,250	
			2003	CTR	8,350	10,300		7,230	
			2007	CTR	8,050	-	-		
l			2007	CIK	٥,٥٥٥	9,950	9,900	6,800	1.0

APPENDIX E

TTS Data

Thu Sep 21 2017 14:57:50 GMT-0400 (Eastern Daylight Time) - Run Time: 2621ms

Cross Tabulation Query Form - Trip - 2011

Row: Planning district of origin - pd_orig

Column: Planning district of destination - pd_dest

Filters:

(Primary travel mode of trip - mode_prime In D

Planning district of destination - pd_dest In 85,

2006 GTA zone of destination - gta06_dest In 8585,8553

and

Start time of trip - start_time In 1600-1900

and

Trip purpose of destination - purp_dest In W,M)

Trip 2011

Table:

	Adjala-Tosoront Direction
New Tecumseth	18 East 89
Mulmur	28 West 89
Adjala-Tosorontio	3 North CR 7
	6 North CR 6
	18 West 89

PM	Row Labels	Sum of Adjala-Tosorontio	Percent
From	East 89	18	25%
From	North CR 6	6	8%
From	North CR 7	3	4%
From	West 89	46	63%
	Grand Total	73	100.00%
AM			
To	East 89	18	25%
To	North CR 6	6	8%
To	North CR 7	3	4%
To	West 89	46	63%

Thu Sep 21 2017 15:00:56 GMT-0400 (Eastern Daylight Time) - Run Time: 2151ms

Cross Tabulation Query Form - Trip - 2011

Row: Planning district of destination - pd_dest Column: Planning district of origin - pd_orig

Filters:

(Primary travel mode of trip - mode_prime In D

and

Planning district of origin - pd_orig In 85

and

2006 GTA zone of origin - gta06_orig In 8585,8553

and

Start time of trip - start_time In 1600-1900

and

Trip purpose of origin - purp_orig In W, M)

Trip 2011

Table:

	Adjala-Tosorontio		Direction
Uxbridge		15	South CR 7
Caledon		18	West 89
Brampton		24	West 89
Erin		8	South CR 50
Orangeville		23	West 89
Barrie		64	East 89
New Tecum	!	154	East 89
Essa		65	East 89
Clearview		41	West 89
Springwater		17	East 89
Ramara		23	East 89
Mulmur		15	West 89
Adjala-Toso	I	10	North CR 7
		19	North CR 6
		68	West 89
		22	South CR 7
		6	South Industrial Parkway
		28	West 89

PM	Row Labels	Sum of Adjala-Tosorontio %	
To	East 89	323	52%
To	North CR 6	19	3%
To	North CR 7	10	2%

To	South CR 50	8	1%
To	South CR 7	37	6%
To	South Industrial Parkway	6	1%
To	West 89	217	35%
	Grand Total	620	100.00%
AM			
From	East 89	323	52%
From	North CR 6	19	3%
From	North CR 7	10	2%
From	South CR 50	8	1%
From	South CR 7	37	6%
From	South Industrial Parkway	6	1%
From	West 89	217	35%

Thu Sep 21 2017 15:10:03 GMT-0400 (Eastern Daylight Time) - Run Time: 2798ms

Cross Tabulation Query Form - Trip - 2011

Row: 2006 GTA zone of destination - gta06_dest Column: 2006 GTA zone of origin - gta06_orig

Filters:

(Primary travel mode of trip - mode_prime In D

and

Planning district of origin - pd_orig In 85

and

2006 GTA zone of destination - gta06_dest In 8585,8553

and

Start time of trip - start_time In 1600-1900

and

Trip purpose of destination - purp_dest In W,M)

Trip 2011

Table:

	8553
8553	27

10% 3 North CR 7 20% 6 North CR 6 70% 18 West 89 27

Thu Sep 21 2017 15:08:55 GMT-0400 (Eastern Daylight Time) - Run Time: 2197ms

Cross Tabulation Query Form - Trip - 2011

Row: 2006 GTA zone of origin - gta06_orig

Column: 2006 GTA zone of destination - gta06_dest

Filters:

(Primary travel mode of trip - mode_prime In D

and

Planning district of destination - pd_dest In 85

and

2006 GTA zone of origin - gta06_orig In 8585,8553

and

Start time of trip - start_time In 1600-1900

and

Trip purpose of origin - purp_orig In W,M)

Trip 2011

Table:

	8553	8585	
8553	97	0	97
8585	43	13	56
			153
	10%	10	North CR 7
	20%	19	North CR 6
	70%	68	West 89
	40%	22	South CR 7
	10%	6	South Industrial Parkway
	50%	28	West 89
		153	

APPENDIX F

Detailed Capacity Analysis

	-	\rightarrow	•	←	•	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ሻ	^	ሻ	7
Traffic Volume (vph)	238	121	205	222	46	106
Future Volume (vph)	238	121	205	222	46	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.1	0.0	180.0	J.,	90.0	0.0
Storage Lanes		0.0	100.0		1	1
Taper Length (m)			80.0		80.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.949	0.50	1.00	0.55	1.00	0.850
Flt Protected	0.040		0.950		0.950	0.000
Satd. Flow (prot)	2969	0	1620	3093	1471	1426
Flt Permitted	2303	U	0.495	3033	0.950	1420
Satd. Flow (perm)	2969	0	844	3093	1471	1426
Right Turn on Red	2303	Yes	044	3093	14/1	Yes
	100	res				
Satd. Flow (RTOR)	133			00	00	116
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0	0.04	0.04	9.0	28.7	0.04
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	17%	16%	4%	18%	20%	12%
Adj. Flow (vph)	262	133	225	244	51	116
Shared Lane Traffic (%)						
Lane Group Flow (vph)	395	0	225	244	51	116
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.01
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	Cl+Ex	Cl+Ex	CI+Ex
	UI+EX		UI+EX	OI+EX	UI+EX	OI+EX
Detector 1 Channel	0.0		0.0	0.0	0.0	0.0
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm

	-	*	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead	7.0		
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	40.8		56.1	52.4	10.3	10.3
Actuated g/C Ratio	0.57		0.79	0.73	0.14	0.14
v/c Ratio	0.23		0.73	0.73	0.14	0.14
Control Delay	6.4		3.9	4.4	32.1	10.5
Queue Delay	0.4		0.0	0.0	0.0	0.0
Total Delay	6.4		3.9	4.4	32.1	10.5
LOS	0.4 A		3.9 A	Α.4	32.1 C	10.3 B
Approach Delay	6.4		^	4.1	17.1	В
Approach LOS	0.4 A			4.1 A	17.1 B	
Queue Length 50th (m)	9.0		7.2	5.4	6.5	0.0
Queue Length 95th (m)	17.5		13.7	9.4	16.0	13.0
			13.7	176.3	613.9	13.0
Internal Link Dist (m)	976.2		180.0	170.3		
Turn Bay Length (m)	4750			0074	90.0 312	394
Base Capacity (vph)	1752		773	2271		
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	0.23		0.29	0.11	0.16	0.29
Intersection Cummery						

Area Type: Other

Cycle Length: 79.6
Actuated Cycle Length: 71.4
Natural Cycle: 70

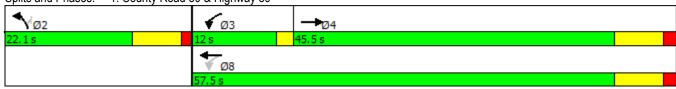
Natural Cycle: 70

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.38

Intersection Signal Delay: 7.1 Intersection LOS: A Intersection Capacity Utilization 64.4% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: County Road 50 & Highway 89



	•	→	←	•	\	4
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4₽	∱ ∱		W	
Traffic Volume (veh/h)	9	321	394	10	18	42
Future Volume (Veh/h)	9	321	394	10	18	42
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	10	357	438	11	20	47
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked		200				
vC, conflicting volume	449				642	224
vC1, stage 1 conf vol	110				012	<i></i> ,
vC2, stage 2 conf vol						
vCu, unblocked vol	449				642	224
tC, single (s)	4.3				6.8	6.9
tC, 2 stage (s)	7.0				0.0	0.5
tF (s)	2.3				3.5	3.3
p0 queue free %	99				95	94
cM capacity (veh/h)	1047				407	785
						700
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	129	238	292	157	67	
Volume Left	10	0	0	0	20	
Volume Right	0	0	0	11	47	
cSH	1047	1700	1700	1700	615	
Volume to Capacity	0.01	0.14	0.17	0.09	0.11	
Queue Length 95th (m)	0.2	0.0	0.0	0.0	2.8	
Control Delay (s)	0.7	0.0	0.0	0.0	11.6	
Lane LOS	Α				В	
Approach Delay (s)	0.3		0.0		11.6	
Approach LOS					В	
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utiliza	ation		25.6%	IC	U Level c	of Service
Analysis Period (min)			15			

Movement EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT SBR		•	-	\rightarrow	•	←	•	•	†	<i>></i>	>	ļ	4
Traffic Volume (vehhh) 21 384 22 31 309 53 5 7 33 49 6 21 Future Volume (Vehh) 21 384 22 31 309 53 5 7 33 49 6 21 Future Volume (Vehh) 21 384 22 31 309 53 5 7 33 49 6 21 Future Volume (Vehh) 21 384 22 31 309 53 5 7 33 49 6 21 Sign Control Free Free Stop Stop Stop Own	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (Vehlh)	Lane Configurations	ħ	∱ ⊅		Ţ	∱ î≽			4			4	
Sign Control Free Oward Free Oward Free Oward Stop Oward Stop Oward	Traffic Volume (veh/h)	21	384	22	31	309	53	5		33	49	6	21
Grade 0,9% 0,9% 0,9% 0,9% 0,9% 0,9% 0,9% 0,9%	Future Volume (Veh/h)	21	384	22	31	309	53	5	7	33	49	6	21
Peak Hour Factor 0.92 0.	Sign Control		Free			Free			Stop			Stop	
Hourly flow rate (vph)	Grade		0%			0%			0%				
Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median storage veh) Upstream signal (m) Pythological process of the	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
Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median storage veh) Upstream signal (m) pX, platoon unblocked vC, conflicting volume 394 441 738 937 220 728 920 197 vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC3, stage 1 conf vol vC4, stage 1 conf vol vC5, stage 2 conf vol vC6, unblocked vol 394 441 738 937 220 728 920 197 vC1, stage 1 conf vol vC6, unblocked vol 394 441 738 937 220 728 920 197 vC7, single (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 tC, 2 stage (s) tF (s) 2.2 2 2.2 3.5 4.0 3.3 3.5 4.0 3.4 p0 queue free % 98 97 98 97 95 81 97 97 tG4 capacity (veh/h) 1176 11108 284 254 790 282 259 787 Direction, Lane # EB1 EB2 EB3 WB1 WB2 WB3 NB1 SB1 Volume Total 23 278 163 34 224 170 49 83 Volume Left 23 0 0 34 0 0 5 5 53 Volume Right 0 0 0 24 0 0 58 36 23 volume Right 0 0 0 24 0 0 0 58 36 23 volume Right 0 0 0 24 0 0 0 58 36 23 volume Right 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Hourly flow rate (vph)	23	417	24	34	336	58	5	8	36	53	7	23
Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median storage veh) Upstream signal (m) pX, platon unblocked vC, conflicting volume	Pedestrians												
Percent Blockage Right furn flare (veh) Median type None None Median storage veh Upstream signal (m) pX, platoon unblocked VC, conflicting volume 394 441 738 937 220 728 920 197 VC1, stage 1 conf vol VC2, stage 2 conf vol VC2, stage 2 conf vol VC3, stage 2 conf vol VC4, unblocked vol 394 441 738 937 220 728 920 197 VC1, stage 1 conf vol VC2, stage 2 conf vol VC3, stage 2 conf vol VC4, unblocked vol 394 441 738 937 220 728 920 197 VC1, single (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 VC2, stage (s) VC3, stage 2 conf vol VC4, unblocked vol 394 441 738 937 220 728 920 197 VC1, single (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 VC2, stage (s) VC3, stage 2 conf vol VC4, unblocked vol 394 441 738 937 220 728 920 197 VC1, single (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.5 7.5 6.5 7.5	Lane Width (m)												
Right turn flare (veh) Median type None None None Median storage veh Upstream signal (m) pX, platoon unblocked VC, conflicting volume 394 441 738 937 220 728 920 197 VC1, stage 1 conf vol VC2, stage 2 conf vol VC2, stage 2 conf vol VC3, stage 2 conf vol VC4, unblocked vol 394 441 738 937 220 728 920 197 VC3, stage 2 conf vol VC4, unblocked vol 394 441 738 937 220 728 920 197 VC4, stage 2 conf vol VC5, stage (s) VC6, stage (s) VC7, stage (s) VC7, stage (s) VC8, stage (s) VC8, stage (s) VC9, stage (s)	Walking Speed (m/s)												
Median type None None Median storage veh) Upstream signal (m) PyX, platoon unblocked vC, conflicting volume 394 441 738 937 220 728 920 197 vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, unblocked vol 394 441 738 937 220 728 920 197 tC, single (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 10, 3.3 3.5 4.0 3.4 3.4 3.4 3.4 3.4 3.4 3.5 4.0 3.3 3.5 4.0 3.4 3.4 3.4 3.5 4.0 3.3 3.5 4.0 3.4 3.4 9.7 9.8 97 95 81 97 9.8 97 95 81 97 97 82 259 787 787 787 787 787 787 787 787 787 787 787 787 787	Percent Blockage												
Median storage veh) Upstream signal (m) pX, platoon unblocked vC, conflicting volume 394 441 738 937 220 728 920 197 vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC2, unblocked vol 394 441 738 937 220 728 920 197 tC, single (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 tC, 2 stage (s) tF (s) 2.2 2.2 3.5 4.0 3.3 3.5 4.0 3.4 p0 queue free % 98 97 98 97 95 81 97 97 cM capacity (veh/h) 1176 1108 284 254 790 282 259 787 Direction, Lane # EB1 EB2 EB3 WB1 WB2 WB3 NB1 SB1 Volume Total 23 278 163 34 224 170 49 83 Volume Right 0 0 24 0 <t< td=""><td>Right turn flare (veh)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Right turn flare (veh)												
Upstream signal (m) pX, platoon unblocked vC, conflicting volume 394 441 738 937 220 728 920 197 VC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 394 441 738 937 220 728 920 197 VC1, stage 2 conf vol vCu, unblocked vol 394 441 758 937 220 728 920 197 VC1, single (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 VC, 2 stage (s) VC2, stage (s) VC3, VC4, VC4, VC4, VC4, VC4, VC4, VC4, VC4	Median type		None			None							
pX, platoon unblocked vC, conflicting volume 394 441 738 937 220 728 920 197 vC1, stage 1 conf vol vC2, stage 2 conf vol vCQ, unblocked vol 394 441 738 937 220 728 920 197 tC, single (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 tC, 2 stage (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 tC, 2 stage (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 tC, 2 stage (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 tC, 2 stage (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 tC, 2 stage (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 tC, 2 stage (s) 4.0 3.3 3.5 4.0 3.4 pO queue free % 98 97 98 97 95 81 97 97 97 eM capacity (veh/h) 1176 1108 284 254 790 282 259 787 eM capacity (veh/h) 1176 1108 284 254 790 282 259 787 eM capacity (veh/h) 1176 1108 8284 254 790 282 259 787 eM capacity (veh/h) 1176 1108 108 108 108 108 108 108 108 108 10	Median storage veh)												
pX, platoon unblocked vC, conflicting volume 394 441 738 937 220 728 920 197 vC1, stage 1 conf vol vC2, stage 2 conf vol vCQ, unblocked vol 394 441 738 937 220 728 920 197 tC, single (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 tC, 2 stage (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 tC, 2 stage (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 tC, 2 stage (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 tC, 2 stage (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 tC, 2 stage (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 tC, 2 stage (s) 4.0 3.3 3.5 4.0 3.4 pO queue free % 98 97 98 97 95 81 97 97 97 eM capacity (veh/h) 1176 1108 284 254 790 282 259 787 eM capacity (veh/h) 1176 1108 284 254 790 282 259 787 eM capacity (veh/h) 1176 1108 8284 254 790 282 259 787 eM capacity (veh/h) 1176 1108 108 108 108 108 108 108 108 108 10	· ,												
vC, conflicting volume 394 441 738 937 220 728 920 197 vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC2, unblocked vol 394 441 738 937 220 728 920 197 tC, single (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 tC, 2 stage (s)													
vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 394 441 738 937 220 728 920 197 tC, single (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 tC, 2 stage (s) tF (s) 2.2 2.2 3.5 4.0 3.3 3.5 4.0 3.4 p0 queue free % 98 97 98 97 95 81 97 97 cM capacity (veh/h) 1176 1108 284 254 790 282 259 787 Direction, Lane # EB 1 EB 2 EB 3 WB 1 WB 2 WB 3 NB 1 SB 1 Volume Total 23 278 163 34 224 170 49 83 Volume Left 23 0 0 34 0 0 5 53 Volume Right 0 0 24 0 0 58 36 23 CSH 1176 1700 1700 1108 1700 1700 517 340 Volume to Capacity 0.02 0.16 0.10 0.03 0.13 0.10 0.09 0.24 Queue Length 95th (m) 0.5 0.0 0.0 0.7 0.0 0.0 2.4 7.1 Control Delay (s) 8.1 0.0 0.4 8.4 0.0 0.0 12.7 19.0 Lane LOS A A A B C Approach LoS B C Intersection Summary		394			441			738	937	220	728	920	197
VC2, stage 2 conf vol VCu, unblocked vol 394 441 738 937 220 728 920 197 tC, single (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 tC, 2 stage (s) tF (s) 2.2 2.3.5 4.0 3.3 3.5 4.0 3.4 p0 queue free % 98 97 98 97 95 81 97 97 cM capacity (veh/h) 1176 1108 284 254 790 282 259 787 Direction, Lane # EB 1 EB 2 EB 3 WB 1 WB 2 WB 3 NB 1 SB 1 Volume Total 23 278 163 34 224 170 49 83 Volume Right 0 0 0 34 0 0 5 53 Volume Right 1176 1700 1700 1108 1700 1700 517 340 Volume Capacity 0.02 0.16 0.10 0.03 0.13 0.10 0.09 0.24 Queue Length 95th (m) 0.5 0.0 0.0 0.7 0.0 0.0 2.4 7.1 Control Delay (s) 8.1 0.0 0.0 8.4 0.0 0.0 12.7 19.0 Lane LOS A A B C C Approach LoS B C Intersection Summary													
vCu, unblocked vol 394 441 738 937 220 728 920 197 tC, single (s) 4.1 4.2 7.5 6.5 6.9 7.5 6.5 7.1 tC, 2 stage (s) tf (s) 2.2 2.2 3.5 4.0 3.3 3.5 4.0 3.4 p0 queue free % 98 97 98 97 95 81 97 97 cM capacity (veh/h) 1176 1108 284 254 790 282 259 787 Direction, Lane # EB 1 EB 2 EB 3 WB 1 WB 2 WB 3 NB 1 SB 1 SB 1 Volume Lender 23 278 163 34 224 170 49 83 Volume Lender 23 0 0 34 0 0 5 53 Volume Right 0 0 24 0 0 58 36 23 cSH 170 170 1108													
tC, 2 stage (s) tF (s)		394			441			738	937	220	728	920	197
tC, 2 stage (s) tF (s)		4.1			4.2			7.5	6.5	6.9	7.5	6.5	7.1
tF (s) 2.2 2.2 3.5 4.0 3.3 3.5 4.0 3.4 p0 queue free % 98 97 98 97 95 81 97 97 cM capacity (veh/h) 1176 1108 284 254 790 282 259 787 Direction, Lane # EB 1 EB 2 EB 3 WB 1 WB 2 WB 3 NB 1 SB 1 SB 1 Volume Total 23 278 163 34 224 170 49 83 Volume Left 23 0 0 34 0 0 5 53 Volume Right 0 0 24 0 0 58 36 23 cSH 1176 1700 1700 1108 1700 1700 517 340 Volume to Capacity 0.02 0.16 0.10 0.03 0.13 0.10 0.09 0.24 Queue Length 95th (m) 0.5 0.0 0.0 0.7 0.0 0.0 2.4 7.1 Control Delay (s) 8.1 0.0 0.0 8.4 0.0 <													
p0 queue free % cM capacity (veh/h) 98 97 98 97 95 81 97 97 CM capacity (veh/h) 1176 1108 284 254 790 282 259 787 Direction, Lane # EB 1 EB 2 EB 3 WB 1 WB 2 WB 3 NB 1 SB 1 Volume Total 23 278 163 34 224 170 49 83 Volume Left 23 0 0 34 0 0 5 53 Volume Right 0 0 24 0 0 58 36 23 cSH 1176 1700 1700 1108 1700 1700 517 340 Volume to Capacity 0.02 0.16 0.10 0.03 0.13 0.10 0.09 0.24 Queue Length 95th (m) 0.5 0.0 0.0 0.7 0.0 0.0 12.7 19.0 Lane LOS A		2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
cM capacity (veh/h) 1176 1108 284 254 790 282 259 787 Direction, Lane # EB 1 EB 2 EB 3 WB 1 WB 2 WB 3 NB 1 SB 1 Volume Total 23 278 163 34 224 170 49 83 Volume Left 23 0 0 34 0 0 5 53 Volume Right 0 0 24 0 0 58 36 23 CSH 1176 1700 1700 1108 1700 1700 517 340 Volume to Capacity 0.02 0.16 0.10 0.03 0.13 0.10 0.09 0.24 Queue Length 95th (m) 0.5 0.0 0.0 0.7 0.0 0.0 2.4 7.1 Control Delay (s) 8.1 0.0 0.0 8.4 0.0 0.0 12.7 19.0 Approach LOS B C<		98			97			98	97	95	81	97	97
Volume Total 23 278 163 34 224 170 49 83 Volume Left 23 0 0 34 0 0 5 53 Volume Right 0 0 24 0 0 58 36 23 cSH 1176 1700 1700 1108 1700 1700 517 340 Volume to Capacity 0.02 0.16 0.10 0.03 0.13 0.10 0.09 0.24 Queue Length 95th (m) 0.5 0.0 0.0 0.7 0.0 0.0 2.4 7.1 Control Delay (s) 8.1 0.0 0.0 8.4 0.0 0.0 12.7 19.0 Lane LOS A A B C Approach Delay (s) 0.4 0.7 12.7 19.0 Approach LOS B C Intersection Summary Average Delay 2.6 Intersection Capacity Utilization <t< td=""><td></td><td>1176</td><td></td><td></td><td>1108</td><td></td><td></td><td>284</td><td>254</td><td>790</td><td>282</td><td>259</td><td>787</td></t<>		1176			1108			284	254	790	282	259	787
Volume Left 23 0 0 34 0 0 5 53 Volume Right 0 0 24 0 0 58 36 23 cSH 1176 1700 1700 1108 1700 1700 517 340 Volume to Capacity 0.02 0.16 0.10 0.03 0.13 0.10 0.09 0.24 Queue Length 95th (m) 0.5 0.0 0.0 0.7 0.0 0.0 2.4 7.1 Control Delay (s) 8.1 0.0 0.0 8.4 0.0 0.0 12.7 19.0 Lane LOS A A B C Approach Delay (s) 0.4 0.7 12.7 19.0 Approach LOS B C Intersection Summary Average Delay 2.6 Intersection Capacity Utilization 35.6% ICU Level of Service A	Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Right 0 0 24 0 0 58 36 23 cSH 1176 1700 1700 1108 1700 1700 517 340 Volume to Capacity 0.02 0.16 0.10 0.03 0.13 0.10 0.09 0.24 Queue Length 95th (m) 0.5 0.0 0.0 0.7 0.0 0.0 2.4 7.1 Control Delay (s) 8.1 0.0 0.0 8.4 0.0 0.0 12.7 19.0 Lane LOS A A B C Approach Delay (s) 0.4 0.7 12.7 19.0 Approach LOS B C Intersection Summary 2.6 Intersection Capacity Utilization 35.6% ICU Level of Service A	Volume Total	23	278	163	34	224	170	49	83				
CSH 1176 1700 1700 1108 1700 1700 517 340 Volume to Capacity 0.02 0.16 0.10 0.03 0.13 0.10 0.09 0.24 Queue Length 95th (m) 0.5 0.0 0.0 0.7 0.0 0.0 2.4 7.1 Control Delay (s) 8.1 0.0 0.0 8.4 0.0 0.0 12.7 19.0 Lane LOS A A B C Approach Delay (s) 0.4 0.7 12.7 19.0 Approach LOS B C Intersection Summary Average Delay 2.6 Intersection Capacity Utilization 35.6% ICU Level of Service A	Volume Left	23	0	0	34	0	0	5	53				
cSH 1176 1700 1700 1108 1700 1700 517 340 Volume to Capacity 0.02 0.16 0.10 0.03 0.13 0.10 0.09 0.24 Queue Length 95th (m) 0.5 0.0 0.0 0.7 0.0 0.0 2.4 7.1 Control Delay (s) 8.1 0.0 0.0 8.4 0.0 0.0 12.7 19.0 Lane LOS A A B C Approach Delay (s) 0.4 0.7 12.7 19.0 Approach LOS B C Intersection Summary B C Intersection Capacity Utilization 35.6% ICU Level of Service A	Volume Right	0	0	24	0	0	58	36	23				
Queue Length 95th (m) 0.5 0.0 0.0 0.7 0.0 0.0 2.4 7.1 Control Delay (s) 8.1 0.0 0.0 8.4 0.0 0.0 12.7 19.0 Lane LOS A A B C Approach Delay (s) 0.4 0.7 12.7 19.0 Approach LOS B C Intersection Summary Average Delay 2.6 Intersection Capacity Utilization 35.6% ICU Level of Service A		1176	1700	1700	1108	1700	1700	517	340				
Queue Length 95th (m) 0.5 0.0 0.0 0.7 0.0 0.0 2.4 7.1 Control Delay (s) 8.1 0.0 0.0 8.4 0.0 0.0 12.7 19.0 Lane LOS A A B C Approach Delay (s) 0.4 0.7 12.7 19.0 Approach LOS B C Intersection Summary Average Delay 2.6 Intersection Capacity Utilization 35.6% ICU Level of Service A	Volume to Capacity	0.02	0.16	0.10	0.03	0.13	0.10	0.09	0.24				
Control Delay (s) 8.1 0.0 0.0 8.4 0.0 0.0 12.7 19.0 Lane LOS A A B C Approach Delay (s) 0.4 0.7 12.7 19.0 Approach LOS B C Intersection Summary Average Delay 2.6 Intersection Capacity Utilization 35.6% ICU Level of Service A		0.5	0.0	0.0	0.7	0.0	0.0	2.4	7.1				
Lane LOS A A B C Approach Delay (s) 0.4 0.7 12.7 19.0 Approach LOS B C Intersection Summary B C Average Delay 2.6 Intersection Capacity Utilization 35.6% ICU Level of Service A	• ,												
Approach Delay (s) 0.4 0.7 12.7 19.0 Approach LOS B C Intersection Summary Average Delay 2.6 Intersection Capacity Utilization 35.6% ICU Level of Service A													
Approach LOS B C Intersection Summary Average Delay 2.6 Intersection Capacity Utilization 35.6% ICU Level of Service A													
Average Delay 2.6 Intersection Capacity Utilization 35.6% ICU Level of Service A													
Average Delay 2.6 Intersection Capacity Utilization 35.6% ICU Level of Service A	Intersection Summary												
Intersection Capacity Utilization 35.6% ICU Level of Service A				2.6									
		tion			IC	CU Level	of Service			Α			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ ∱		7	^	7		4			र्स	7
Traffic Volume (veh/h)	27	446	1	6	345	49	0	1	1	37	2	29
Future Volume (Veh/h)	27	446	1	6	345	49	0	1	1	37	2	29
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	28	469	1	6	363	52	0	1	1	39	2	31
Pedestrians								4				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	363			474			724	904	239	667	905	182
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	363			474			724	904	239	667	905	182
tC, single (s)	4.3			4.8			7.5	6.5	6.9	7.6	6.5	7.2
tC, 2 stage (s)												
tF (s)	2.3			2.5			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	98			99			100	100	100	88	99	96
cM capacity (veh/h)	1130			891			294	269	765	328	269	785
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	28	313	157	6	182	182	52	2	72			
Volume Left	28	0	0	6	0	0	0	0	39			
Volume Right	0	0	1	0	0	0	52	1	31			
cSH	1130	1700	1700	891	1700	1700	1700	398	571			
Volume to Capacity	0.02	0.18	0.09	0.01	0.11	0.11	0.03	0.01	0.13			
Queue Length 95th (m)	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.1	3.3			
Control Delay (s)	8.3	0.0	0.0	9.1	0.0	0.0	0.0	14.1	14.3			
Lane LOS	Α			Α				В	В			
Approach Delay (s)	0.5			0.1				14.1	14.3			
Approach LOS								В	В			
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilizat	tion		34.6%	IC	U Level	of Service			Α			
Analysis Period (min)			15									

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑			414	**	
Traffic Volume (veh/h)	496	1	2	412	0	11
Future Volume (Veh/h)	496	1	2	412	0	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	533	1	2	443	0	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			534		759	267
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			534		759	267
tC, single (s)			4.1		6.8	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			100		100	98
cM capacity (veh/h)			1044		346	710
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	355	179	150	295	12	
Volume Left	0	0	2	0	0	
Volume Right	0	1	0	0	12	
cSH	1700	1700	1044	1700	710	
Volume to Capacity	0.21	0.11	0.00	0.17	0.02	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.4	
Control Delay (s)	0.0	0.0	0.1	0.0	10.2	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.0		10.2	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilizat	tion		23.7%	IC	U Level o	f Service
Analysis Period (min)						

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ħβ		ሻ	ħβ		ሻ	4	7	ሻ		7
Traffic Volume (vph)	25	394	123	180	275	7	127	17	69	7	24	14
Future Volume (vph)	25	394	123	180	275	7	127	17	69	7	24	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.964			0.996				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.963		0.950		
Satd. Flow (prot)	1825	3145	0	1807	3455	0	1387	1474	1617	1825	1779	1633
FIt Permitted	0.567			0.408			0.740	0.758		0.704		
Satd. Flow (perm)	1089	3145	0	776	3455	0	1080	1160	1617	1352	1779	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			5				88			88
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		23.3			27.8			28.0			5.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	5%	34%	1%	5%	14%	25%	0%	1%	0%	8%	0%
Adj. Flow (vph)	27	424	132	194	296	8	137	18	74	8	26	15
Shared Lane Traffic (%)							44%					
Lane Group Flow (vph)	27	556	0	194	304	0	77	78	74	8	26	15
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7	, i		3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	Cl+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
		•						_				

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	45.1	45.1		60.8	59.5		12.8	12.8	12.8	12.8	12.8	12.8
Actuated g/C Ratio	0.57	0.57		0.76	0.75		0.16	0.16	0.16	0.16	0.16	0.16
v/c Ratio	0.04	0.31		0.28	0.12		0.45	0.42	0.22	0.04	0.09	0.04
Control Delay	10.7	10.3		4.8	4.5		40.3	38.8	7.3	29.3	30.2	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	10.3		4.8	4.5		40.3	38.8	7.3	29.3	30.2	0.3
LOS	В	В		Α	Α		D	D	Α	С	С	Α
Approach Delay		10.3			4.6			29.1			20.9	
Approach LOS		В			Α			С			С	
Queue Length 50th (m)	1.8	21.1		7.4	6.9		11.7	11.8	0.0	1.1	3.6	0.0
Queue Length 95th (m)	6.5	37.6		17.0	13.6		25.1	25.2	8.6	4.7	10.2	0.0
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	616	1800		853	2579		398	427	651	498	655	657
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	0.04	0.31		0.23	0.12		0.19	0.18	0.11	0.02	0.04	0.02

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 79.7

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 11.8

Intersection Capacity Utilization 57.3%

Analysis Period (min) 15

Intersection LOS: B
ICU Level of Service B



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†		ሻ	^	ሻ	7
Traffic Volume (vph)	291	46	135	468	164	255
Future Volume (vph)	291	46	135	468	164	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.7	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	1		1	1
Taper Length (m)			80.0		80.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.980	0.50	1.00	0.55	1.00	0.850
Flt Protected	0.000		0.950		0.950	0.000
Satd. Flow (prot)	3205	0	1532	3444	1665	921
Flt Permitted	3203	U	0.511	J -111	0.950	321
Satd. Flow (perm)	3205	0	824	3444	1665	921
	3205	Yes	024	3444	1000	Yes
Right Turn on Red	20	168				
Satd. Flow (RTOR)	30			00	00	274
Link Speed (k/h)	80			200.2	637.0	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0	0.00	0.00	9.0	28.7	0.00
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	12%	9%	10%	6%	6%	4%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	313	49	145	503	176	274
Shared Lane Traffic (%)	222		44-	F00	4-0	67.4
Lane Group Flow (vph)	362	0	145	503	176	274
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7		0.0	28.7	0.0	0.0
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			Cl+Ex		
Detector 2 Channel	OITLA			OLITEX		
	0.0			0.0		
Detector 2 Extend (s)	0.0			0.0		

	-	•	•	_	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	ŗ	m+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%	1	5.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead	-		
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	40.8		55.5	50.0	12.9	12.9
Actuated g/C Ratio	0.53		0.72	0.65	0.17	0.17
v/c Ratio	0.21		0.22	0.23	0.64	0.72
Control Delay	9.8		4.6	6.3	41.2	16.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	9.8		4.6	6.3	41.2	16.2
LOS	А		Α	Α	D	В
Approach Delay	9.8			5.9	26.0	
Approach LOS	А			Α	С	
Queue Length 50th (m)	12.7		5.6	14.5	24.4	0.0
Queue Length 95th (m)	22.1		11.4	22.1	43.6	#30.8
Internal Link Dist (m)	976.2			176.3	613.9	,, 00.0
Turn Bay Length (m)	V. V.Z		180.0		90.0	
Base Capacity (vph)	1702		681	2222	322	399
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	0.21		0.21	0.23	0.55	0.69
Internation Comment	¥.= ·					

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 77.5

Natural Cycle: 70

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.72 Intersection Signal Delay: 13.1

Intersection Capacity Utilization 61.2%

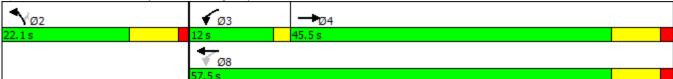
Intersection LOS: B
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 50 & Highway 89



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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		414	↑ ↑		¥	
Traffic Volume (veh/h)	34	511	583	30	13	18
Future Volume (Veh/h)	34	511	583	30	13	18
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	37	549	627	32	14	19
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.98	
vC, conflicting volume	659				992	330
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	659				953	330
tC, single (s)	4.1				7.0	6.9
tC, 2 stage (s)						
tF(s)	2.2				3.6	3.3
p0 queue free %	96				94	97
cM capacity (veh/h)	939				232	672
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	220	366	418	241	33	
Volume Left	37	0	0	0	14	
Volume Right	0	0	0	32	19	
cSH	939	1700	1700	1700	373	
Volume to Capacity	0.04	0.22	0.25	0.14	0.09	
Queue Length 95th (m)	0.04	0.0	0.23	0.0	2.2	
Control Delay (s)	1.8	0.0	0.0	0.0	15.6	
Lane LOS	1.0 A	0.0	0.0	0.0	15.0 C	
Approach Delay (s)	0.7		0.0		15.6	
Approach LOS	0.7		0.0		15.6 C	
					U	
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utiliza	ation		45.5%	IC	U Level c	f Service
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ∱		ሻ	∱ ∱			4			4	
Traffic Volume (veh/h)	20	504	15	60	583	43	22	10	56	32	6	25
Future Volume (Veh/h)	20	504	15	60	583	43	22	10	56	32	6	25
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	21	531	16	63	614	45	23	11	59	34	6	26
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	659			547			1043	1366	274	1134	1352	330
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	659			547			1043	1366	274	1134	1352	330
tC, single (s)	4.1			4.1			7.7	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			94			85	92	92	74	96	96
cM capacity (veh/h)	939			1033			152	136	730	129	139	672
		ED 0	ED 2		WD 0	WD 2		SB 1			100	0.2
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1					
Volume Total	21	354	193	63	409	250	93	66				
Volume Left	21	0	0	63	0	0	23	34				
Volume Right	0	0	16	0	0	45	59	26				
cSH	939	1700	1700	1033	1700	1700	297	191				
Volume to Capacity	0.02	0.21	0.11	0.06	0.24	0.15	0.31	0.34				
Queue Length 95th (m)	0.5	0.0	0.0	1.5	0.0	0.0	9.9	11.0				
Control Delay (s)	8.9	0.0	0.0	8.7	0.0	0.0	22.5	33.4				
Lane LOS	Α			Α			С	D				
Approach Delay (s)	0.3			0.8			22.5	33.4				
Approach LOS							С	D				
Intersection Summary												
Average Delay			3.5									
Intersection Capacity Utilizatio	n		37.7%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ î≽		7	^	7		4			र्स	7
Traffic Volume (veh/h)	46	564	6	12	614	80	0	0	7	67	1	40
Future Volume (Veh/h)	46	564	6	12	614	80	0	0	7	67	1	40
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	48	594	6	13	646	84	0	0	7	71	1	42
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	646			600			1042	1365	300	1072	1368	323
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	646			600			1042	1365	300	1072	1368	323
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			99			100	100	99	57	99	94
cM capacity (veh/h)	902			987			165	139	702	166	138	679
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	48	396	204	13	323	323	84	7	114			
Volume Left	48	0	0	13	0	0	0	0	71			
Volume Right	0	0	6	0	0	0	84	7	42			
cSH	902	1700	1700	987	1700	1700	1700	702	262			
Volume to Capacity	0.05	0.23	0.12	0.01	0.19	0.19	0.05	0.01	0.44			
Queue Length 95th (m)	1.3	0.0	0.0	0.3	0.0	0.0	0.0	0.2	15.8			
Control Delay (s)	9.2	0.0	0.0	8.7	0.0	0.0	0.0	10.2	30.8			
Lane LOS	Α	0.0	0.0	A	0.0	0.0	0.0	В	D			
Approach Delay (s)	0.7			0.2				10.2	30.8			
Approach LOS	0.1			0.2				В	D			
Intersection Summary												
Average Delay			2.7									
Intersection Capacity Utilization	n		40.7%	IC	U Level	of Service			Α			
Analysis Period (min)			15									

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Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑ Ъ			414	W		
Traffic Volume (veh/h)	618	3	4	740	0	10	
Future Volume (Veh/h)	618	3	4	740	0	10	
Sign Control	Free		-	Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	
Hourly flow rate (vph)	637	3	4	763	0	10	
Pedestrians			•		3		
Lane Width (m)					3.7		
Walking Speed (m/s)					1.1		
Percent Blockage					0		
Right turn flare (veh)							
Median type	None			None			
Median storage veh)	140110			110110			
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume			643		1031	323	
vC1, stage 1 conf vol			0-10		1001	020	
vC2, stage 2 conf vol							
vCu, unblocked vol			643		1031	323	
tC, single (s)			4.1		6.8	7.5	
tC, 2 stage (s)			7.1		0.0	7.5	
tF (s)			2.2		3.5	3.6	
p0 queue free %			100		100	98	
cM capacity (veh/h)			949		231	595	
Civi capacity (veri/ii)						333	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1		
Volume Total	425	215	258	509	10		
Volume Left	0	0	4	0	0		
Volume Right	0	3	0	0	10		
cSH	1700	1700	949	1700	595		
Volume to Capacity	0.25	0.13	0.00	0.30	0.02		
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.4		
Control Delay (s)	0.0	0.0	0.2	0.0	11.1		
Lane LOS			Α		В		
Approach Delay (s)	0.0		0.1		11.1		
Approach LOS					В		
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilizat	tion		33.2%	IC	U Level o	f Service	,
Analysis Period (min)			15				

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ }		ሻ	† }		ሻ	ર્ન	7	ሻ	1	7
Traffic Volume (vph)	36	420	208	183	428	20	282	30	134	18	36	54
Future Volume (vph)	36	420	208	183	428	20	282	30	134	18	36	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.950			0.993				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.961		0.950		
Satd. Flow (prot)	1825	3208	0	1825	3553	0	1534	1579	1617	1722	1921	1601
Flt Permitted	0.484			0.339			0.732	0.741		0.600		
Satd. Flow (perm)	929	3208	0	649	3553	0	1179	1214	1588	1082	1921	1577
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		92			8				140			88
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		23.3			27.8			28.0			5.1	
Confl. Peds. (#/hr)	1		8	8		1	3		6	6		3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	17%	0%	2%	0%	13%	3%	1%	6%	0%	2%
Adj. Flow (vph)	38	438	217	191	446	21	294	31	140	19	38	56
Shared Lane Traffic (%)							45%					
Lane Group Flow (vph)	38	655	0	191	467	0	162	163	140	19	38	56
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	Cl+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	44.2	44.2		60.3	57.3		18.7	18.7	18.7	18.7	18.7	18.7
Actuated g/C Ratio	0.50	0.50		0.68	0.64		0.21	0.21	0.21	0.21	0.21	0.21
v/c Ratio	0.08	0.40		0.34	0.20		0.66	0.64	0.32	0.08	0.09	0.14
Control Delay	15.4	14.1		8.0	7.5		44.8	43.6	6.9	27.7	27.5	3.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	14.1		8.0	7.5		44.8	43.6	6.9	27.7	27.5	3.1
LOS	В	В		Α	A		D	D	Α	С	С	Α
Approach Delay		14.1			7.7			32.9			15.4	
Approach LOS		В			Α			С			В	
Queue Length 50th (m)	3.1	28.4		9.9	14.7		26.7	26.8	0.0	2.6	5.3	0.0
Queue Length 95th (m)	10.9	55.7		24.6	29.2		47.2	47.2	13.1	8.0	12.6	4.0
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	461	1638		704	2288		385	397	613	354	628	575
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	0.08	0.40		0.27	0.20		0.42	0.41	0.23	0.05	0.06	0.10

Area Type: Other

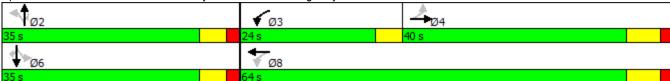
Cycle Length: 99 Actuated Cycle Length: 89 Natural Cycle: 90

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.66 Intersection Signal Delay: 16.5 Intersection Capacity Utilization 76.0%

Intersection LOS: B ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ሻ	^	ሻ	7
Traffic Volume (vph)	368	58	145	400	108	156
Future Volume (vph)	368	58	145	400	108	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	5.1	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	100.0		1	1
Taper Length (m)		U	80.0		80.0	ı
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.979	0.00	1.00	0.00	1.00	0.850
FIt Protected	0.919		0.950		0.950	0.000
Satd. Flow (prot)	3457	0	1668	3544	1713	949
Flt Permitted	3437	U	0.474	3344	0.950	343
	2457	0		2511		040
Satd. Flow (perm)	3457	0	832	3544	1713	949
Right Turn on Red	20	Yes				Yes
Satd. Flow (RTOR)	30			22	22	161
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	12%	1%	3%	3%	1%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	379	60	149	412	111	161
Shared Lane Traffic (%)						
Lane Group Flow (vph)	439	0	149	412	111	161
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane	7.0			1.0	1.0	
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)	0.00	14	24	0.00	24	1.03
Number of Detectors	2	14	1	2	1	14
					I	
Detector Template	Thru		10.0	Thru	10.0	Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	O1 - EX			O. L.		
	0.0			0.0		
Detector 2 Extend (s)	0.0			0.0		

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	41.1		55.5	50.0	11.4	11.4
Actuated g/C Ratio	0.54		0.73	0.66	0.15	0.15
v/c Ratio	0.23		0.22	0.18	0.43	0.58
Control Delay	9.3		4.1	5.5	34.9	14.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	9.3		4.1	5.5	34.9	14.3
LOS	A		Α	Α	С	В
Approach Delay	9.3			5.1	22.7	
Approach LOS	A			Α	С	
Queue Length 50th (m)	14.0		4.6	9.7	14.7	0.0
Queue Length 95th (m)	26.4		11.5	18.0	28.8	16.2
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)			180.0		90.0	
Base Capacity (vph)	1884		718	2332	338	316
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	0.23		0.21	0.18	0.33	0.51
Intersection Summary						
Area Type:	Other					
Cycle Length: 79.6						
Actuated Cycle Length: 76	3					
Natural Cycle: 70						
Control Type: Semi Act-Ur	ncoord					
Maximum v/c Ratio: 0.58						
Later and Company Delta	40.0					100 0

Intersection LOS: B

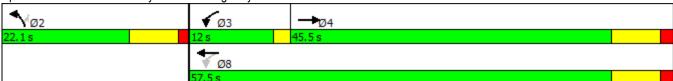
ICU Level of Service B

Intersection Signal Delay: 10.3

Analysis Period (min) 15

Intersection Capacity Utilization 61.0%

Splits and Phases: 1: County Road 50 & Highway 89



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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	ħβ		¥	
Traffic Volume (veh/h)	11	544	495	22	21	10
Future Volume (Veh/h)	11	544	495	22	21	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	591	538	24	23	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.96	
vC, conflicting volume	562				870	281
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	562				791	281
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				93	98
cM capacity (veh/h)	1019				316	722
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	209	394	359	203	34	
Volume Left	12	0	0	0	23	
Volume Right	0	0	0	24	11	
cSH	1019	1700	1700	1700	386	
Volume to Capacity	0.01	0.23	0.21	0.12	0.09	
Queue Length 95th (m)	0.3	0.0	0.0	0.0	2.2	
Control Delay (s)	0.6	0.0	0.0	0.0	15.2	
Lane LOS	Α				С	
Approach Delay (s)	0.2		0.0		15.2	
Approach LOS					С	
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utiliz	zation		32.9%	IC	U Level o	f Service
Analysis Period (min)			15			
sijolo i oliou (iliili)			10			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	¥	∱ î≽		Ť	∱ î≽			4			4	
Traffic Volume (veh/h)	29	486	16	55	517	111	12	9	78	88	22	31
Future Volume (Veh/h)	29	486	16	55	517	111	12	9	78	88	22	31
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	31	512	17	58	544	117	13	9	82	93	23	33
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	661			529			1015	1360	264	1123	1310	330
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	661			529			1015	1360	264	1123	1310	330
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			94			91	93	89	27	84	95
cM capacity (veh/h)	937			1034			153	137	740	127	147	671
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	31	341	188	58	363	298	104	149				
Volume Left	31	0	0	58	0	0	13	93				
Volume Right	0	0	17	0	0	117	82	33				
cSH	937	1700	1700	1034	1700	1700	397	159				
Volume to Capacity	0.03	0.20	0.11	0.06	0.21	0.18	0.26	0.94				
Queue Length 95th (m)	0.8	0.0	0.0	1.4	0.0	0.0	7.9	52.2				
Control Delay (s)	9.0	0.0	0.0	8.7	0.0	0.0	17.2	111.8				
Lane LOS	Α			Α			С	F				
Approach Delay (s)	0.5			0.7			17.2	111.8				
Approach LOS							С	F				
Intersection Summary												
Average Delay			12.6									
Intersection Capacity Utilization	1		45.8%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ⊅		ሻ	^	7		4			4	7
Traffic Volume (veh/h)	45	644	4	18	656	106	1	4	7	103	3	42
Future Volume (Veh/h)	45	644	4	18	656	106	1	4	7	103	3	42
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	47	678	4	19	691	112	1	4	7	108	3	44
Pedestrians								1				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	691			683			1160	1504	342	1171	1506	346
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	691			683			1160	1504	342	1171	1506	346
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			98			99	96	99	19	97	93
cM capacity (veh/h)	900			919			132	114	659	133	113	642
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	47	452	230	19	346	346	112	12	155			
Volume Left	47	0	0	19	0	0	0	1	108			
Volume Right	0	0	4	0	0	0	112	7	44			
cSH	900	1700	1700	919	1700	1700	1700	225	186			
Volume to Capacity	0.05	0.27	0.14	0.02	0.20	0.20	0.07	0.05	0.84			
Queue Length 95th (m)	1.3	0.0	0.0	0.5	0.0	0.0	0.0	1.3	45.2			
Control Delay (s)	9.2	0.0	0.0	9.0	0.0	0.0	0.0	21.9	76.6			
Lane LOS	Α			Α				С	F			
Approach Delay (s)	0.6			0.2				21.9	76.6			
Approach LOS								С	F			
Intersection Summary												
Average Delay			7.4									
Intersection Capacity Utilizati	on		44.0%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† ‡			414	*y#	
Traffic Volume (veh/h)	770	2	4	776	0	6
Future Volume (Veh/h)	770	2	4	776	0	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	819	2	4	826	0	6
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			821		1241	410
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			821		1241	410
tC, single (s)			4.1		6.8	7.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			100		100	99
cM capacity (veh/h)			817		169	550
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	546	275	279	551	6	
Volume Left	0	0	4	0	0	
Volume Right	0	2	0	0	6	
cSH	1700	1700	817	1700	550	
Volume to Capacity	0.32	0.16	0.00	0.32	0.01	
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.3	
Control Delay (s)	0.0	0.0	0.2	0.0	11.6	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		11.6	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliz	ation		34.2%	IC	U Level c	f Service
Analysis Period (min)			15			
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	∱ ∱		ሻ	† }		ሻ	4	7	ች	^	7
Traffic Volume (vph)	96	557	123	298	532	23	169	37	172	34	81	66
Future Volume (vph)	96	557	123	298	532	23	169	37	172	34	81	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.973			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.968		0.950		
Satd. Flow (prot)	1807	3500	0	1825	3590	0	1683	1733	1617	1772	1921	1633
FIt Permitted	0.426			0.307			0.701	0.751		0.679		
Satd. Flow (perm)	809	3500	0	590	3590	0	1238	1341	1593	1263	1921	1607
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			7				185			88
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		23.3			27.8			28.0			5.1	
Confl. Peds. (#/hr)	3		1	1		3	4		3	3		4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	0%	6%	0%	1%	0%	3%	0%	1%	3%	0%	0%
Adj. Flow (vph)	103	599	132	320	572	25	182	40	185	37	87	71
Shared Lane Traffic (%)					V. –		41%			<u> </u>	<u> </u>	
Lane Group Flow (vph)	103	731	0	320	597	0	107	115	185	37	87	71
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru		•	Thru		•	•	•	•	•	•
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		Cl+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel	OI · LX	OI · LX		OI · LX	OI · LX		OI LX	OI LX	OI LX	OI · LX	OI LX	OI LX
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			Cl+Ex							
		CITEX			CITEX							
Detector 2 Channel		0.0			0.0							
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	42.6	42.6		60.2	57.2		14.4	14.4	14.4	14.4	14.4	14.4
Actuated g/C Ratio	0.50	0.50		0.71	0.68		0.17	0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.25	0.41		0.56	0.25		0.51	0.50	0.44	0.17	0.27	0.21
Control Delay	16.6	14.7		8.9	6.0		40.4	39.6	8.2	31.1	32.0	6.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	14.7		8.9	6.0		40.4	39.6	8.2	31.1	32.0	6.3
LOS	В	В		Α	Α		D	D	Α	С	С	Α
Approach Delay		15.0			7.0			25.5			22.5	
Approach LOS		В			Α			С			С	
Queue Length 50th (m)	8.5	33.2		14.3	16.0		16.6	17.8	0.0	5.2	12.3	0.0
Queue Length 95th (m)	24.9	63.8		32.5	30.3		32.5	34.0	15.7	13.1	24.4	7.6
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	407	1777		712	2427		425	461	668	434	660	610
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	0.25	0.41		0.45	0.25		0.25	0.25	0.28	0.09	0.13	0.12
Intersection Summary												

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 84.6

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 14.3

Intersection Capacity Utilization 72.6%

Intersection LOS: B
ICU Level of Service C

Synchro 9 Light Report Page 9

Analysis Period (min) 15

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† ‡	LDIN	ሻ	^	ሻ	7
Traffic Volume (vph)	315	158	267	293	60	138
Future Volume (vph)	315	158	267	293	60	138
` ' '	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)						
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)		0.0	180.0		90.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			80.0		80.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.950					0.850
FIt Protected			0.950		0.950	
Satd. Flow (prot)	2972	0	1620	3093	1471	1426
FIt Permitted			0.437		0.950	
Satd. Flow (perm)	2972	0	745	3093	1471	1426
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	151					152
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
		16%	4%	18%	20%	12%
Heavy Vehicles (%)	17%					
Adj. Flow (vph)	346	174	293	322	66	152
Shared Lane Traffic (%)	500	•	200	222	20	450
Lane Group Flow (vph)	520	0	293	322	66	152
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.01
Turning Speed (k/h)	3.00	14	24	3.00	24	14
Number of Detectors	2	17	1	2	1	1
Detector Template	Thru		ı	Thru	'	Right
			12.0		12.0	12.0
Leading Detector (m)	30.5		12.0	30.5		
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	OI. LX			OI. LX		
Detector 2 Extend (s)	0.0			0.0		
` ,			nm · nt		Drot	Dorm
Turn Type	NA		pm+pt	NA	Prot	Perm

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	4		3	8	2	
Permitted Phases			8	-		2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead	1.0	1.1	7.1
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	39.4		55.5	50.0	10.5	10.5
Actuated g/C Ratio	0.52		0.74	0.67	0.14	0.14
v/c Ratio	0.32		0.74	0.07	0.14	0.14
Control Delay	7.9		5.6	5.0	33.7	10.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
•	7.9		5.6	5.0	33.7	10.5
Total Delay LOS	7.9 A		3.0 A	3.0 A	33.7 C	10.5 B
	7.9		A	5.3	17.5	D
Approach Delay				5.5 A	17.5 B	
Approach LOS	A 13.7		9.9	7.4	8.6	0.0
Queue Length 50th (m)			19.6	13.0	19.3	14.8
Queue Length 95th (m)	24.8		19.0			14.0
Internal Link Dist (m)	976.2		400.0	176.3	613.9	
Turn Bay Length (m)	1000		180.0	0050	90.0	400
Base Capacity (vph)	1632		666	2059	293	406
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	0.32		0.44	0.16	0.23	0.37
Intersection Summary						
Area Type:	Other					

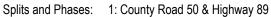
Cycle Length: 79.6 Actuated Cycle Length: 75.1 Natural Cycle: 70

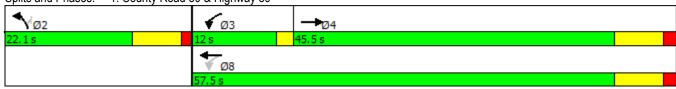
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.46

Intersection Signal Delay: 8.3 Intersection LOS: A Intersection Capacity Utilization 67.8% ICU Level of Service C

Analysis Period (min) 15





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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		414	ħβ		¥	
Traffic Volume (veh/h)	12	423	517	13	23	55
Future Volume (Veh/h)	12	423	517	13	23	55
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	13	470	574	14	26	61
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked						
vC, conflicting volume	588				842	294
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	588				842	294
tC, single (s)	4.3				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	99				91	91
cM capacity (veh/h)	924				303	708
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	170	313	383	205	87	
Volume Left	13	0	0	0	26	
Volume Right	0	0	0	14	61	
cSH	924	1700	1700	1700	506	
Volume to Capacity	0.01	0.18	0.23	0.12	0.17	
Queue Length 95th (m)	0.3	0.0	0.0	0.0	4.7	
Control Delay (s)	0.8	0.0	0.0	0.0	13.6	
Lane LOS	Α				В	
Approach Delay (s)	0.3		0.0		13.6	
Approach LOS					В	
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utiliza	ation		31.7%	IC	U Level o	f Service
Analysis Period (min)			15	.0		
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	↑ ↑		J.	∱ }			4			4	
Traffic Volume (veh/h)	27	499	35	51	401	69	12	9	53	64	8	27
Future Volume (Veh/h)	27	499	35	51	401	69	12	9	53	64	8	27
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	542	38	55	436	75	13	10	58	70	9	29
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	511			580			980	1240	290	976	1222	256
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	511			580			980	1240	290	976	1222	256
tC, single (s)	4.1			4.2			7.5	6.5	6.9	7.5	6.5	7.1
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	97			94			93	94	92	59	95	96
cM capacity (veh/h)	1065			983			179	162	713	171	166	720
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	29	361	219	55	291	220	81	108				
Volume Left	29	0	0	55	0	0	13	70				
Volume Right	0	0	38	0	0	75	58	29				
cSH	1065	1700	1700	983	1700	1700	375	215				
Volume to Capacity	0.03	0.21	0.13	0.06	0.17	0.13	0.22	0.50				
Queue Length 95th (m)	0.6	0.0	0.0	1.3	0.0	0.0	6.1	19.4				
Control Delay (s)	8.5	0.0	0.0	8.9	0.0	0.0	17.2	37.6				
Lane LOS	Α			Α			С	Е				
Approach Delay (s)	0.4			0.9			17.2	37.6				
Approach LOS							С	Е				
Intersection Summary												
Average Delay			4.5									
Intersection Capacity Utiliza	ition		40.5%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			ર્ન	^	
Traffic Volume (veh/h)	15	2	1	59	76	18
Future Volume (Veh/h)	15	2	1	59	76	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	2	1	66	84	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	162	94	104			
vC1, stage 1 conf vol	102	0.	101			
vC2, stage 2 conf vol						
vCu, unblocked vol	162	94	104			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	0.4	0.2	7.1			
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	828	963	1488			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	19	67	104			
Volume Left	17	1	0			
Volume Right	2	0	20			
cSH	841	1488	1700			
Volume to Capacity	0.02	0.00	0.06			
Queue Length 95th (m)	0.5	0.0	0.0			
Control Delay (s)	9.4	0.1	0.0			
Lane LOS	Α	Α				
Approach Delay (s)	9.4	0.1	0.0			
Approach LOS	А					
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utiliza	tion		15.1%	ıc	CU Level of	f Service
Analysis Period (min)	uon		15.176	ic	O LOVEI U	OCTAICE
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ ∱		ሻ	^	7		4			र्स	7
Traffic Volume (veh/h)	35	590	1	8	459	64	0	1	1	48	3	38
Future Volume (Veh/h)	35	590	1	8	459	64	0	1	1	48	3	38
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	37	621	1	8	483	67	0	1	1	51	3	40
Pedestrians								4				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	483			626			958	1198	315	885	1199	242
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	483			626			958	1198	315	885	1199	242
tC, single (s)	4.3			4.8			7.5	6.5	6.9	7.6	6.5	7.2
tC, 2 stage (s)												
tF (s)	2.3			2.5			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	96			99			100	99	100	77	98	94
cM capacity (veh/h)	1015			766			192	178	684	224	178	716
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	37	414	208	8	242	242	67	2	94			
Volume Left	37	0	0	8	0	0	0	0	51			
Volume Right	0	0	1	0	0	0	67	1	40			
cSH	1015	1700	1700	766	1700	1700	1700	282	386			
Volume to Capacity	0.04	0.24	0.12	0.01	0.14	0.14	0.04	0.01	0.24			
Queue Length 95th (m)	0.9	0.0	0.0	0.2	0.0	0.0	0.0	0.2	7.2			
Control Delay (s)	8.7	0.0	0.0	9.8	0.0	0.0	0.0	17.9	19.5			
Lane LOS	Α			Α				С	С			
Approach Delay (s)	0.5			0.1				17.9	19.5			
Approach LOS								С	С			
Intersection Summary												
Average Delay			1.7									
Intersection Capacity Utilizat	tion		39.2%	IC	U Level	of Service			Α			
Analysis Period (min)			15									

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑			414	W	
Traffic Volume (veh/h)	655	1	3	547	0	14
Future Volume (Veh/h)	655	1	3	547	0	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	704	1	3	588	0	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			705		1004	352
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			705		1004	352
tC, single (s)			4.1		6.8	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			100		100	98
cM capacity (veh/h)			902		241	624
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	469	236	199	392	15	
Volume Left	0	0	3	0	0	
Volume Right	0	1	0	0	15	
cSH	1700	1700	902	1700	624	
Volume to Capacity	0.28	0.14	0.00	0.23	0.02	
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.6	
Control Delay (s)	0.0	0.0	0.2	0.0	10.9	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		10.9	
Approach LOS					В	
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utiliza	ation		28.1%	IC	U Level o	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ħ	∱ }		7	∱ }		, j	ર્ન	7	*		7
Traffic Volume (vph)	33	522	160	235	367	9	167	22	90	9	31	18
Future Volume (vph)	33	522	160	235	367	9	167	22	90	9	31	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.965			0.996				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.963		0.950		
Satd. Flow (prot)	1825	3150	0	1807	3455	0	1387	1475	1617	1825	1779	1633
FIt Permitted	0.514			0.309			0.736	0.754		0.687		
Satd. Flow (perm)	987	3150	0	588	3455	0	1075	1155	1617	1320	1779	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			4				97			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	5%	34%	1%	5%	14%	25%	0%	1%	0%	8%	0%
Adj. Flow (vph)	35	561	172	253	395	10	180	24	97	10	33	19
Shared Lane Traffic (%)							44%					
Lane Group Flow (vph)	35	733	0	253	405	0	101	103	97	10	33	19
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7	Ū		3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	

EDI EDI EDD MEL MED MEL MED AND MED MED MED MED MED MED MED MED MED ME	SBT	
Lane Group EBL EBT EBR WBL WBT WBR NBL NBT NBR SE	_ 051	SBR
Permitted Phases 4 8 2 2	3	6
Detector Phase 4 4 3 8 2 2 2	6	6
Switch Phase		
Minimum Initial (s) 18.0 18.0 8.0 18.0 10.0 10.0 10.0 10	10.0	10.0
Minimum Split (s) 40.0 40.0 12.0 40.0 35.0 35.0 35.0 35	35.0	35.0
Total Split (s) 40.0 40.0 24.0 64.0 35.0 35.0 35.0 35	35.0	35.0
Total Split (%) 40.4% 40.4% 24.2% 64.6% 35.4% 35.4% 35.4% 35.4	35.4%	35.4%
Maximum Green (s) 33.0 33.0 20.0 57.0 29.0 29.0 29.0 29	29.0	29.0
Yellow Time (s) 5.0 5.0 4.0 5.0 4.0 4.0 4.0	4.0	4.0
All-Red Time (s) 2.0 2.0 0.0 2.0 2.0 2.0 2.0 2	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) 7.0 7.0 4.0 7.0 6.0 6.0 6.0 6	6.0	6.0
Lead/Lag Lag Lead		
Lead-Lag Optimize? Yes Yes Yes		
Vehicle Extension (s) 3.0 3.0 2.0 3.0 4.0 4.0 4.0 4	4.0	4.0
Recall Mode Max Max None Max None None None None None None None None	e None	None
Walk Time (s) 20.0 20.0 20.0 18.0 18.0 18.0 18	18.0	18.0
Flash Dont Walk (s) 13.0 13.0 13.0 11.0 11.0 11.0	11.0	11.0
Pedestrian Calls (#/hr) 0 0 0 0	0	0
Act Effct Green (s) 43.7 43.7 60.2 57.2 14.7 14.7 14.7 14		14.7
Actuated g/C Ratio 0.51 0.51 0.71 0.67 0.17 0.17 0.17 0.17	7 0.17	0.17
v/c Ratio 0.07 0.45 0.46 0.17 0.54 0.52 0.27 0.00		0.05
Control Delay 13.2 14.2 7.7 5.8 43.0 41.1 8.5 28	-	0.3
Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0		0.0
Total Delay 13.2 14.2 7.7 5.8 43.0 41.1 8.5 28		0.3
	C C	Α
Approach Delay 14.2 6.5 31.2	20.3	
Approach LOS B A C	С	
Queue Length 50th (m) 2.6 33.1 11.3 10.6 15.8 16.1 0.0 1		0.0
Queue Length 95th (m) 9.1 62.0 26.0 20.9 31.5 31.5 5		0.0
Internal Link Dist (m) 493.5 593.4 364.4	46.8	
Turn Bay Length (m) 80.0 95.0 25.0 15		10.0
Base Capacity (vph) 508 1643 704 2327 368 395 617 45	2 609	617
Starvation Cap Reductn 0 0 0 0 0 0	0	0
Spillback Cap Reductn 0 0 0 0 0 0	0	0
Storage Cap Reductn 0 0 0 0 0 0	0	0
Reduced v/c Ratio 0.07 0.45 0.36 0.17 0.27 0.26 0.16 0.0	2 0.05	0.03

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 84.9

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 14.4

Intersection Capacity Utilization 58.6%

Intersection LOS: B
ICU Level of Service B

Analysis Period (min) 15



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ኘ	^	ሻ	7
Traffic Volume (vph)	391	60	176	630	214	333
Future Volume (vph)	391	60	176	630	214	333
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.7	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	100.0		1	1
Taper Length (m)		U	80.0		80.0	ı
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.980	0.30	1.00	0.90	1.00	0.850
FIt Protected	0.300		0.950		0.950	0.000
	3205	0	1532	3444	1665	921
Satd. Flow (prot)	3203	U		3444		921
Flt Permitted	2005	0	0.453	2444	0.950	004
Satd. Flow (perm)	3205	0	730	3444	1665	921
Right Turn on Red	22	Yes				Yes
Satd. Flow (RTOR)	30					358
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	12%	9%	10%	6%	6%	4%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	420	65	189	677	230	358
Shared Lane Traffic (%)						
Lane Group Flow (vph)	485	0	189	677	230	358
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0	5		3.0	3.4	3
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane	7.0			7.5	7.0	
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)	0.33	14	24	0.55	24	1.09
- , , ,	0	14		2		
Number of Detectors	2		1	2 Th	1	1
Detector Template	Thru		40.0	Thru	40.0	Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	OIILX			OITEX		
	0.0			0.0		
Detector 2 Extend (s)	0.0			0.0		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	40.1		55.5	50.0	13.9	13.9
Actuated g/C Ratio	0.51		0.71	0.64	0.18	0.18
v/c Ratio	0.29		0.32	0.31	0.78	0.78
Control Delay	11.4		5.6	7.1	50.9	17.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	11.4		5.6	7.1	50.9	17.5
LOS	В		Α	Α	D	В
Approach Delay	11.4			6.7	30.6	
Approach LOS	В			Α	С	
Queue Length 50th (m)	19.7		8.2	22.1	33.1	0.0
Queue Length 95th (m)	30.9		14.7	30.4	#64.3	#40.3
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)			180.0		90.0	
Base Capacity (vph)	1651		618	2195	318	465
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	0.29		0.31	0.31	0.72	0.77

Area Type: Other

Cycle Length: 79.6
Actuated Cycle Length: 78.5

Natural Cycle: 75

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.78 Intersection Signal Delay: 15.1

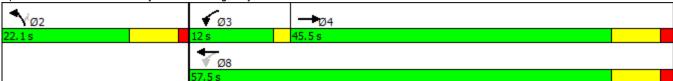
Intersection Signal Delay: 15.1 Intersection LOS: B
Intersection Capacity Utilization 66.3% ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 50 & Highway 89



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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		414	ħβ		¥	
Traffic Volume (veh/h)	44	678	780	42	17	23
Future Volume (Veh/h)	44	678	780	42	17	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	47	729	839	45	18	25
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.95	
vC, conflicting volume	884				1320	442
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	884				1228	442
tC, single (s)	4.1				7.0	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	94				88	96
cM capacity (veh/h)	774				144	569
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	290	486	559	325	43	
Volume Left	47	0	0	0	18	
Volume Right	0	0	0	45	25	
cSH	774	1700	1700	1700	255	
Volume to Capacity	0.06	0.29	0.33	0.19	0.17	
Queue Length 95th (m)	1.5	0.0	0.0	0.0	4.5	
Control Delay (s)	2.2	0.0	0.0	0.0	22.0	
Lane LOS	Α				С	
Approach Delay (s)	0.8		0.0		22.0	
Approach LOS					С	
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utiliz	zation		56.3%	IC	U Level c	f Service
Analysis Period (min)			15			
			10			

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			ર્ન	1>	
Traffic Volume (veh/h)	72	4	4	114	104	79
Future Volume (Veh/h)	72	4	4	114	104	79
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	80	4	4	127	116	88
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	295	160	204			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	295	160	204			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	88	100	100			
cM capacity (veh/h)	694	885	1368			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	84	131	204			
Volume Left	80	4	0			
Volume Right	4	0	88			
cSH	701	1368	1700			
Volume to Capacity	0.12	0.00	0.12			
Queue Length 95th (m)	3.1	0.00	0.0			
Control Delay (s)	10.8	0.3	0.0			
Lane LOS	10.8 B	0.5 A	0.0			
Approach Delay (s)	10.8	0.3	0.0			
Approach LOS	10.8 B	0.0	0.0			
••	D					
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utilizati	on		21.2%	IC	CU Level of	f Service
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ⊅		ሻ	∱ î≽			4			4	
Traffic Volume (veh/h)	26	649	40	135	751	56	60	13	112	42	8	33
Future Volume (Veh/h)	26	649	40	135	751	56	60	13	112	42	8	33
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	27	683	42	142	791	59	63	14	118	44	8	35
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	850			725			1476	1892	362	1625	1884	425
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	850			725			1476	1892	362	1625	1884	425
tC, single (s)	4.1			4.1			7.7	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			84			0	76	82	0	86	94
cM capacity (veh/h)	797			887			59	57	640	40	58	583
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	27	455	270	142	527	323	195	87				
Volume Left	27	0	0	142	0	0	63	44				
Volume Right	0	0	42	0	0	59	118	35				
cSH	797	1700	1700	887	1700	1700	131	66				
Volume to Capacity	0.03	0.27	0.16	0.16	0.31	0.19	1.49	1.31				
Queue Length 95th (m)	0.8	0.0	0.0	4.3	0.0	0.0	102.3	54.3				
Control Delay (s)	9.7	0.0	0.0	9.8	0.0	0.0	318.3	321.3				
Lane LOS	Α			Α			F	F				
Approach Delay (s)	0.3			1.4			318.3	321.3				
Approach LOS							F	F				
Intersection Summary												
Average Delay			45.3									
Intersection Capacity Utilization	n		48.7%	IC	U Level	of Service			Α			
Analysis Period (min)			15									
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ î≽		ሻ	^↑	7		4			र्स	7
Traffic Volume (veh/h)	62	765	8	16	847	104	0	0	9	87	1	53
Future Volume (Veh/h)	62	765	8	16	847	104	0	0	9	87	1	53
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	65	805	8	17	892	109	0	0	9	92	1	56
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	892			813			1420	1865	406	1468	1869	446
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	892			813			1420	1865	406	1468	1869	446
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			98			100	100	98	0	98	90
cM capacity (veh/h)	725			823			80	66	600	81	65	565
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	65	537	276	17	446	446	109	9	149			
Volume Left	65	0	0	17	0	0	0	0	92			
Volume Right	0	0	8	0	0	0	109	9	56			
cSH	725	1700	1700	823	1700	1700	1700	600	130			
Volume to Capacity	0.09	0.32	0.16	0.02	0.26	0.26	0.06	0.02	1.15			
Queue Length 95th (m)	2.2	0.0	0.0	0.5	0.0	0.0	0.0	0.3	66.6			
Control Delay (s)	10.5	0.0	0.0	9.5	0.0	0.0	0.0	11.1	152.8			
Lane LOS	В			Α				В	F			
Approach Delay (s)	0.8			0.2				11.1	152.8			
Approach LOS								В	F			
Intersection Summary												
Average Delay			11.5									
Intersection Capacity Utilization	n		48.4%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									

	-	\rightarrow	•	←	1	/
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† 1>			414	*y*	
Traffic Volume (veh/h)	835	4	5	1012	0	13
Future Volume (Veh/h)	835	4	5	1012	0	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	861	4	5	1043	0	13
Pedestrians					3	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			868		1398	436
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			868		1398	436
tC, single (s)			4.1		6.8	7.5
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.6
p0 queue free %			99		100	97
cM capacity (veh/h)			782		133	496
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	574	291	353	695	13	
Volume Left	0	0	5	0	0	
Volume Right	0	4	0	0	13	
cSH	1700	1700	782	1700	496	
Volume to Capacity	0.34	0.17	0.01	0.41	0.03	
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.6	
Control Delay (s)	0.0	0.0	0.2	0.0	12.4	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		12.4	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliza	ation		41.5%	IC	U Level c	f Service
Analysis Period (min)			15		2 237010	. 5511105
Analysis i chou (min)			10			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ 1≽		ሻ	† }		ሻ	4	7	ች	↑	7
Traffic Volume (vph)	47	577	272	239	603	26	369	39	175	23	47	70
Future Volume (vph)	47	577	272	239	603	26	369	39	175	23	47	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.952			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.961		0.950		
Satd. Flow (prot)	1825	3221	0	1825	3557	0	1534	1579	1617	1722	1921	1601
Flt Permitted	0.403			0.221			0.725	0.734		0.505		
Satd. Flow (perm)	774	3221	0	424	3557	0	1168	1203	1588	911	1921	1577
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		85			7				182			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	1		8	8		1	3		6	6		3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	17%	0%	2%	0%	13%	3%	1%	6%	0%	2%
Adj. Flow (vph)	49	601	283	249	628	27	384	41	182	24	49	73
Shared Lane Traffic (%)							45%					
Lane Group Flow (vph)	49	884	0	249	655	0	211	214	182	24	49	73
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	•	14	24	•	14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template	0.0	Thru		40.5	Thru		40.5	40.5	40.0	40.5	40.5	0.0
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			Cl+Ex							
Detector 2 Channel		0.0			0.0							
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	42.3	42.3		60.3	57.3		22.4	22.4	22.4	22.4	22.4	22.4
Actuated g/C Ratio	0.46	0.46		0.65	0.62		0.24	0.24	0.24	0.24	0.24	0.24
v/c Ratio	0.14	0.58		0.56	0.30		0.75	0.74	0.35	0.11	0.11	0.16
Control Delay	19.9	20.4		12.8	9.4		49.3	48.0	6.2	27.5	26.8	5.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	20.4		12.8	9.4		49.3	48.0	6.2	27.5	26.8	5.3
LOS	В	С		В	Α		D	D	Α	С	С	Α
Approach Delay		20.4			10.3			35.9			16.2	
Approach LOS		С			В			D			В	
Queue Length 50th (m)	4.9	53.4		16.8	26.8		36.6	37.0	0.0	3.3	6.8	0.0
Queue Length 95th (m)	14.9	91.7		31.8	42.1		62.7	62.7	14.7	9.6	15.2	7.6
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	352	1514		579	2200		367	378	623	286	603	556
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	0.14	0.58		0.43	0.30		0.57	0.57	0.29	0.08	0.08	0.13

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 92.7

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 20.3

Intersection Capacity Utilization 78.2%

Intersection LOS: C

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ኘ	^	ሻ	7
Traffic Volume (vph)	507	76	189	565	141	204
Future Volume (vph)	507	76	189	565	141	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.1	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	100.0		1	1
Taper Length (m)		U	80.0		80.0	ı
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.981	0.00	1.00	0.00	1.00	0.850
FIt Protected	0.301		0.950		0.950	0.000
Satd. Flow (prot)	3466	0	1668	3544	1713	949
Flt Permitted	3400	U	0.402	3344	0.950	343
	3466	0	706	3544	1713	949
Satd. Flow (perm)	3400		700	JJ44	1/13	
Right Turn on Red	00	Yes				Yes
Satd. Flow (RTOR)	28			00	20	210
Link Speed (k/h)	80			80	08	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	12%	1%	3%	3%	1%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	523	78	195	582	145	210
Shared Lane Traffic (%)						
Lane Group Flow (vph)	601	0	195	582	145	210
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)	3.00	14	24	2.00	24	14
Number of Detectors	2	17	1	2	1	1
Detector Template	Thru		-	Thru	ı	Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
	0.0		-1.0	0.0	-1.0	6.0
Trailing Detector (m)						
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	Cl+Ex	Cl+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Estation 2 Extend (6)	0.0			0.0		

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases	•		8		_	2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead	7.0	7.1	7.1
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	40.4		55.5	50.0	12.1	12.1
Actuated g/C Ratio	0.53		0.72	0.65	0.16	0.16
v/c Ratio	0.33		0.72	0.05	0.10	0.10
Control Delay	11.0		5.1	6.1	37.6	14.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	11.0		5.1	6.1	37.6	14.6
LOS	В		Α.	Α	57.0 D	В
Approach Delay	11.0			5.8	24.0	U
Approach LOS	В			J.0	24.0 C	
Queue Length 50th (m)	22.6		6.9	15.7	19.6	0.0
Queue Length 95th (m)	38.5		14.8	25.5	36.2	19.4
Internal Link Dist (m)	976.2		1-7.0	176.3	613.9	19.4
Turn Bay Length (m)	310.∠		180.0	170.5	90.0	
Base Capacity (vph)	1839		636	2311	335	354
Starvation Cap Reductn	0		030	2311	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.33		0.31	0.25	0.43	0.59
Neduced V/C Rallo	0.33		0.31	0.20	0.43	0.59
Intersection Summary						
Area Type:	Other			•	•	•

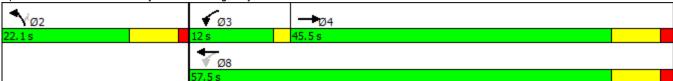
Area Type: Cycle Length: 79.6 Actuated Cycle Length: 76.7 Natural Cycle: 70

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.64 Intersection Signal Delay: 11.4

Intersection LOS: B Intersection Capacity Utilization 63.5% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: County Road 50 & Highway 89



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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		414	↑ ⊅		W	
Traffic Volume (veh/h)	13	677	635	34	28	12
Future Volume (Veh/h)	13	677	635	34	28	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	736	690	37	30	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)			2			
Upstream signal (m)		200				
pX, platoon unblocked					0.92	
vC, conflicting volume	727				1104	364
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	727				949	364
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				87	98
cM capacity (veh/h)	886				238	639
		ED 0	MD 4	MD 0		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	259	491	460	267	43	
Volume Left	14	0	0	0	30	
Volume Right	0	0	0	37	13	
cSH	886	1700	1700	1700	294	
Volume to Capacity	0.02	0.29	0.27	0.16	0.15	
Queue Length 95th (m)	0.4	0.0	0.0	0.0	3.8	
Control Delay (s)	0.7	0.0	0.0	0.0	19.3	
Lane LOS	Α				С	
Approach Delay (s)	0.2		0.0		19.3	
Approach LOS					С	
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilizat	tion		38.0%	IC	U Level c	f Service
Analysis Period (min)			15			

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			4	f)	
Traffic Volume (veh/h)	161	8	13	124	117	187
Future Volume (Veh/h)	161	8	13	124	117	187
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	179	9	14	138	130	208
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	400	234	338			
vC1, stage 1 conf vol	400	201	000			
vC2, stage 2 conf vol						
vCu, unblocked vol	400	234	338			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	0.4	0.2	7.1			
tF (s)	3.5	3.3	2.2			
p0 queue free %	70	99	99			
cM capacity (veh/h)	599	805	1221			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	188	152	338			
Volume Left	179	14	0			
Volume Right	9	0	208			
cSH	606	1221	1700			
Volume to Capacity	0.31	0.01	0.20			
Queue Length 95th (m)	10.0	0.3	0.0			
Control Delay (s)	13.6	8.0	0.0			
Lane LOS	В	Α				
Approach Delay (s)	13.6	0.8	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			4.0			
Intersection Capacity Utiliza	ation		33.7%	ır	CU Level o	f Service
Analysis Period (min)	auon			IC	O LEVEL O	1 OEI VICE
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ∱		ሻ	∱ ∱			4			4	
Traffic Volume (veh/h)	38	613	72	204	653	145	86	12	189	115	29	40
Future Volume (Veh/h)	38	613	72	204	653	145	86	12	189	115	29	40
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	40	645	76	215	687	153	91	13	199	121	31	42
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	840			721			1594	2033	360	1802	1994	420
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	840			721			1594	2033	360	1802	1994	420
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			75			0	69	69	0	29	93
cM capacity (veh/h)	804			877			23	41	642	21	44	588
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	40	430	291	215	458	382	303	194				
Volume Left	40	0	0	215	0	0	91	121				
Volume Right	0	0	76	0	0	153	199	42				
cSH	804	1700	1700	877	1700	1700	67	30				
Volume to Capacity	0.05	0.25	0.17	0.25	0.27	0.22	4.50	6.56				
Queue Length 95th (m)	1.2	0.0	0.0	7.3	0.0	0.0	Err	Err				
Control Delay (s)	9.7	0.0	0.0	10.4	0.0	0.0	Err	Err				
Lane LOS	A	0.0	0.0	В	0.0	0.0	F	F				
Approach Delay (s)	0.5			2.1			Err	Err				
Approach LOS	0.0			=. ,			F	F				
Intersection Summary												
Average Delay			2149.6									
Intersection Capacity Utilizatio	n		60.5%	IC	U Level	of Service			В			
Analysis Period (min)			15									

Movement Lane Configurations Traffic Volume (veh/h)	EBL	EBT										
	×	LDI	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (veh/h)		∱ ⊅		ň	^	7		4			र्स	7
	63	905	5	23	965	138	1	5	9	134	4	56
Future Volume (Veh/h)	63	905	5	23	965	138	1	5	9	134	4	56
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	66	953	5	24	1016	145	1	5	9	141	4	59
Pedestrians								1				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1016			959			1646	2152	480	1684	2155	508
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1016			959			1646	2152	480	1684	2155	508
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			97			98	88	98	0	91	88
cM capacity (veh/h)	678			725			49	42	537	49	42	502
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	66	635	323	24	508	508	145	15	204			
Volume Left	66	000	0	24	0	0	0	1	141			
	0	0	5	0	0	0	145	9	59			
Volume Right cSH	678	1700	1700	725	1700	1700	1700	97	67			
	0.10	0.37	0.19	0.03		0.30						
Volume to Capacity					0.30		0.09	0.15	3.06			
Queue Length 95th (m)	2.4	0.0	0.0	0.8	0.0	0.0	0.0	4.0	Err			
Control Delay (s)	10.9	0.0	0.0	10.1	0.0	0.0	0.0	48.9	Err			
Lane LOS	В			В				E	F			
Approach Delay (s) Approach LOS	0.7			0.2				48.9 E	Err F			
Intersection Summary												
Average Delay			840.8									
Intersection Capacity Utilization	1		54.5%	IC	ULevelo	of Service			Α			
Analysis Period (min)	•		15	10	5 25,010	55/1/100			, ,			

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† ‡			414	¥#	
Traffic Volume (veh/h)	1070	3	5	1122	0	8
Future Volume (Veh/h)	1070	3	5	1122	0	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1138	3	5	1194	0	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1141		1746	570
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1141		1746	570
tC, single (s)			4.1		6.8	7.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			99		100	98
cM capacity (veh/h)			620		78	428
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	759	382	403	796	9	
Volume Left	0	0	5	0	0	
Volume Right	0	3	0	0	9	
cSH	1700	1700	620	1700	428	
Volume to Capacity	0.45	0.22	0.01	0.47	0.02	
Queue Length 95th (m)	0.0	0.0	0.2	0.0	0.5	
Control Delay (s)	0.0	0.0	0.2	0.0	13.6	
Lane LOS	0.0	0.0	A	0.0	В	
Approach Delay (s)	0.0		0.1		13.6	
Approach LOS	0.0		0.1		В	
•						
Intersection Summary			2.4			
Average Delay			0.1			
Intersection Capacity Utiliza	ition		44.5%	IC	U Level o	t Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ }		ሻ	∱ }		ሻ	ર્ન	7	ሻ	1	7
Traffic Volume (vph)	125	791	161	389	802	30	222	48	224	44	106	86
Future Volume (vph)	125	791	161	389	802	30	222	48	224	44	106	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.975			0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.968		0.950		
Satd. Flow (prot)	1807	3510	0	1825	3594	0	1683	1733	1617	1772	1921	1633
Flt Permitted	0.318			0.140			0.684	0.735		0.628		
Satd. Flow (perm)	604	3510	0	269	3594	0	1208	1313	1593	1168	1921	1607
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			6				241			92
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	3		1	1		3	4		3	3		4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	0%	6%	0%	1%	0%	3%	0%	1%	3%	0%	0%
Adj. Flow (vph)	134	851	173	418	862	32	239	52	241	47	114	92
Shared Lane Traffic (%)							41%					
Lane Group Flow (vph)	134	1024	0	418	894	0	141	150	241	47	114	92
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	Cl+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	34.9	34.9		60.3	57.2		17.2	17.2	17.2	17.2	17.2	17.2
Actuated g/C Ratio	0.40	0.40		0.69	0.65		0.20	0.20	0.20	0.20	0.20	0.20
v/c Ratio	0.56	0.72		0.82	0.38		0.59	0.58	0.48	0.21	0.30	0.24
Control Delay	34.7	26.9		31.4	8.2		42.3	40.9	7.2	30.6	31.3	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.7	26.9		31.4	8.2		42.3	40.9	7.2	30.6	31.3	7.8
LOS	С	С		С	Α		D	D	Α	С	С	Α
Approach Delay		27.8			15.6			26.0			22.6	
Approach LOS		С			В			С			С	
Queue Length 50th (m)	17.5	75.1		40.5	31.6		22.7	24.1	0.0	6.6	16.4	0.0
Queue Length 95th (m)	#47.9	116.2		#102.4	57.4		41.3	43.0	16.9	15.4	30.0	10.9
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	240	1417		542	2353		402	437	691	388	639	596
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	0.56	0.72		0.77	0.38		0.35	0.34	0.35	0.12	0.18	0.15

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 87.5

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 22.2

Intersection Capacity Utilization 78.3%

Intersection LOS: C

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: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†	LDIN	ኘ	^	ሻ	7
Traffic Volume (vph)	365	183	310	339	70	160
Future Volume (vph)	365	183	310	339	70	160
` ' '	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)						
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)		0.0	180.0		90.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			80.0		80.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.950					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	2972	0	1620	3093	1471	1426
Flt Permitted			0.401		0.950	
Satd. Flow (perm)	2972	0	684	3093	1471	1426
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	150					176
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
	17%	16%	4%	18%		12%
Heavy Vehicles (%)					20%	
Adj. Flow (vph)	401	201	341	373	77	176
Shared Lane Traffic (%)	000	^	0.14	070	77	470
Lane Group Flow (vph)	602	0	341	373	77	176
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.01
Turning Speed (k/h)	3.00	14	24	3.00	24	14
Number of Detectors	2	17	1	2	1	1
Detector Template	Thru		ı	Thru	'	Right
			12.0		12.0	12.0
Leading Detector (m)	30.5		12.0	30.5		
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	OI'LX			OI? LX		
Detector 2 Extend (s)	0.0			0.0		
. ,			nm · nt		Drot	Dorm
Turn Type	NA		pm+pt	NA	Prot	Perm

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	39.0		55.5	50.0	10.8	10.8
Actuated g/C Ratio	0.52		0.74	0.66	0.14	0.14
v/c Ratio	0.37		0.55	0.18	0.36	0.50
Control Delay	9.1		7.2	5.3	34.5	10.4
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	9.1		7.2	5.3	34.5	10.4
LOS	A		A	A	С	В
Approach Delay	9.1			6.2	17.7	
Approach LOS	A			A	В	
Queue Length 50th (m)	17.8		11.9	8.7	10.1	0.0
Queue Length 95th (m)	31.4		24.5	15.5	21.9	15.6
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)	J. V.L		180.0		90.0	
Base Capacity (vph)	1608		627	2050	292	424
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	0.37		0.54	0.18	0.26	0.42
Intersection Summary	Other					

Area Type: Other

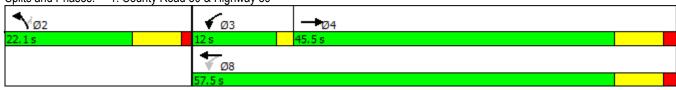
Cycle Length: 79.6 Actuated Cycle Length: 75.4 Natural Cycle: 70

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.55

Intersection Signal Delay: 9.1 Intersection LOS: A Intersection Capacity Utilization 70.2% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: County Road 50 & Highway 89



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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	↑ ↑		**	
Traffic Volume (veh/h)	14	490	599	15	27	64
Future Volume (Veh/h)	14	490	599	15	27	64
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	16	544	666	17	30	71
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked						
vC, conflicting volume	683				978	342
vC1, stage 1 conf vol						V
vC2, stage 2 conf vol						
vCu, unblocked vol	683				978	342
tC, single (s)	4.3				6.8	6.9
tC, 2 stage (s)	7.0				3.0	0.0
tF (s)	2.3				3.5	3.3
p0 queue free %	98				88	89
cM capacity (veh/h)	848				246	660
		ED 0	WD 4	MD		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	197	363	444	239	101	
Volume Left	16	0	0	0	30	
Volume Right	0	0	0	17	71	
cSH	848	1700	1700	1700	440	
Volume to Capacity	0.02	0.21	0.26	0.14	0.23	
Queue Length 95th (m)	0.4	0.0	0.0	0.0	6.6	
Control Delay (s)	0.9	0.0	0.0	0.0	15.6	
Lane LOS	Α				С	
Approach Delay (s)	0.3		0.0		15.6	
Approach LOS					С	
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utiliza	tion		35.7%	IC	U Level c	f Service
Analysis Period (min)	·		15	,,		

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W			4	1>		
Traffic Volume (veh/h)	15	2	1	68	88	18	
Future Volume (Veh/h)	15	2	1	68	88	18	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Hourly flow rate (vph)	17	2	1	76	98	20	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)				140110	140110		
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	186	108	118				
vC1, stage 1 conf vol	100	100	110				
vC2, stage 2 conf vol							
vCu, unblocked vol	186	108	118				
tC, single (s)	6.4	6.2	4.1				
	0.4	0.2	4.1				
tC, 2 stage (s)	3.5	3.3	2.2				
tF (s)							
p0 queue free %	98	100	100				
cM capacity (veh/h)	803	946	1470				
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total	19	77	118				
Volume Left	17	1	0				
Volume Right	2	0	20				
cSH	816	1470	1700				
Volume to Capacity	0.02	0.00	0.07				
Queue Length 95th (m)	0.5	0.0	0.0				
Control Delay (s)	9.5	0.1	0.0				
Lane LOS	Α	Α					
Approach Delay (s)	9.5	0.1	0.0				
Approach LOS	Α						
Intersection Summary							
Average Delay			0.9				
Intersection Capacity Utili	zation		15.7%	IC	CU Level o	of Service	
Analysis Period (min)			15.776	10	2 201010	00. 1100	
maryoro i crioù (iliili)			10				

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ħβ		ሻ	∱ }			4			4	
Traffic Volume (veh/h)	31	579	40	57	465	80	13	10	60	74	9	31
Future Volume (Veh/h)	31	579	40	57	465	80	13	10	60	74	9	31
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	629	43	62	505	87	14	11	65	80	10	34
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	592			672			1134	1434	336	1126	1412	296
vC1, stage 1 conf vol												
vC2, stage 2 conf vol	500			070			1101	4.40.4	000	4.400	4.440	200
vCu, unblocked vol	592			672			1134	1434	336	1126	1412	296
tC, single (s)	4.1			4.2			7.5	6.5	6.9	7.5	6.5	7.1
tC, 2 stage (s)	0.0			0.0			2.5	4.0	2.2	2.5	4.0	2.4
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	97			93			89	91	90	36	92	95
cM capacity (veh/h)	994			908			132	122	666	126	125	677
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	34	419	253	62	337	255	90	124				
Volume Left	34	0	0	62	0	0	14	80				
Volume Right	0	0	43	0	0	87	65	34				
cSH	994	1700	1700	908	1700	1700	306	162				
Volume to Capacity	0.03	0.25	0.15	0.07	0.20	0.15	0.29	0.77				
Queue Length 95th (m)	0.8	0.0	0.0	1.7	0.0	0.0	9.1	36.8				
Control Delay (s)	8.8	0.0	0.0	9.3	0.0	0.0	21.6	76.6				
Lane LOS	Α			Α			С	F				
Approach Delay (s)	0.4			0.9			21.6	76.6				
Approach LOS							С	F				
Intersection Summary												
Average Delay			7.8									
Intersection Capacity Utilization	n		43.7%	IC	U Level o	of Service			Α			
Analysis Period (min)			15									

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ⊅		ሻ	^	7		4			र्स	7
Traffic Volume (veh/h)	41	683	1	9	531	74	0	1	1	56	3	44
Future Volume (Veh/h)	41	683	1	9	531	74	0	1	1	56	3	44
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	43	719	1	9	559	78	0	1	1	59	3	46
Pedestrians								4				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	559			724			1108	1386	364	1024	1387	280
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	559			724			1108	1386	364	1024	1387	280
tC, single (s)	4.3			4.8			7.5	6.5	6.9	7.6	6.5	7.2
tC, 2 stage (s)												
tF (s)	2.3			2.5			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	95			99			100	99	100	66	98	93
cM capacity (veh/h)	948			694			145	136	636	175	135	675
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	43	479	241	9	280	280	78	2	108			
Volume Left	43	0	0	9	0	0	0	0	59			
Volume Right	0	0	1	0	0	0	78	1	46			
cSH	948	1700	1700	694	1700	1700	1700	223	302			
Volume to Capacity	0.05	0.28	0.14	0.01	0.16	0.16	0.05	0.01	0.36			
Queue Length 95th (m)	1.1	0.0	0.0	0.3	0.0	0.0	0.0	0.2	11.9			
Control Delay (s)	9.0	0.0	0.0	10.3	0.0	0.0	0.0	21.3	25.7			
Lane LOS	A	0.0	0.0	В	0.0	0.0	0.0	C	D			
Approach Delay (s)	0.5			0.1				21.3	25.7			
Approach LOS	0.0			V. 1				C	D			
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Utilization	n		42.2%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† 1>			414	*y*	
Traffic Volume (veh/h)	758	1	3	633	0	16
Future Volume (Veh/h)	758	1	3	633	0	16
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	815	1	3	681	0	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			816		1162	408
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			816		1162	408
tC, single (s)			4.1		6.8	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			100		100	97
cM capacity (veh/h)			820		190	573
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	543	273	230	454	17	
Volume Left	0	0	3	0	0	
Volume Right	0	1	0	0	17	
cSH	1700	1700	820	1700	573	
Volume to Capacity	0.32	0.16	0.00	0.27	0.03	
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.7	
Control Delay (s)	0.0	0.0	0.2	0.0	11.5	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		11.5	
Approach LOS					В	
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utiliza	ation		31.0%	IC	U Level c	f Service
Analysis Period (min)	***		15			2220
range of the trial			10			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	† }		ሻ	† }		ሻ	ર્ન	7	ሻ	1	7
Traffic Volume (vph)	38	604	185	272	424	10	193	26	104	10	36	21
Future Volume (vph)	38	604	185	272	424	10	193	26	104	10	36	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.965			0.996				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.963		0.950		
Satd. Flow (prot)	1825	3150	0	1807	3455	0	1387	1475	1617	1825	1779	1633
FIt Permitted	0.484			0.250			0.732	0.750		0.676		
Satd. Flow (perm)	930	3150	0	476	3455	0	1069	1149	1617	1299	1779	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			4				112			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	5%	34%	1%	5%	14%	25%	0%	1%	0%	8%	0%
Adj. Flow (vph)	41	649	199	292	456	11	208	28	112	11	39	23
Shared Lane Traffic (%)							44%					
Lane Group Flow (vph)	41	848	0	292	467	0	116	120	112	11	39	23
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7	_		3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	42.1	42.1		60.2	57.2		15.9	15.9	15.9	15.9	15.9	15.9
Actuated g/C Ratio	0.49	0.49		0.70	0.66		0.18	0.18	0.18	0.18	0.18	0.18
v/c Ratio	0.09	0.54		0.58	0.20		0.59	0.57	0.29	0.05	0.12	0.06
Control Delay	16.2	17.9		10.3	6.4		44.5	42.4	7.9	27.9	29.1	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	17.9		10.3	6.4		44.5	42.4	7.9	27.9	29.1	0.3
LOS	В	В		В	Α		D	D	Α	С	С	Α
Approach Delay		17.8			7.9			32.0			19.8	
Approach LOS		В			Α			С			В	
Queue Length 50th (m)	3.3	43.3		14.3	13.3		18.5	19.0	0.0	1.5	5.4	0.0
Queue Length 95th (m)	12.0	86.8		32.3	25.8		35.6	36.1	12.3	5.7	13.3	0.0
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	454	1562		643	2295		361	388	620	439	601	610
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	0.09	0.54		0.45	0.20		0.32	0.31	0.18	0.03	0.06	0.04

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 86.1

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 16.6

Intersection Capacity Utilization 64.5%

Intersection LOS: B
ICU Level of Service C

Analysis Period (min) 15



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ሻ	^	ች	7
Traffic Volume (vph)	452	70	204	727	248	386
Future Volume (vph)	452	70	204	727	248	386
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	5.1	0.0	180.0	5.1	90.0	0.0
Storage Lanes		0.0	100.0		1	1
Taper Length (m)		U	80.0		80.0	ı
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.980	0.30	1.00	0.90	1.00	0.850
FIt Protected	0.900		0.950		0.950	0.000
	3205	0	1532	3444	1665	921
Satd. Flow (prot)	3205	U		3444		921
Flt Permitted	2005	0	0.418	2444	0.950	004
Satd. Flow (perm)	3205	0	674	3444	1665	921
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	30					415
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	12%	9%	10%	6%	6%	4%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	486	75	219	782	267	415
Shared Lane Traffic (%)						
Lane Group Flow (vph)	561	0	219	782	267	415
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane				1.0	-1.0	
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)	0.00	14	24	0.00	24	1.03
Number of Detectors	2	17	1	2	1	1
Detector Template	Thru			Thru		Right
	30.5		12.0	30.5	12.0	12.0
Leading Detector (m)						
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	Cl+Ex	Cl+Ex	CI+Ex
Detector 1 Channel	_					
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Estation 2 Externa (6)	0.0			0.0		

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Lane Group	EBT	EBR \	WBL	WBT	NBL	NBR
Turn Type	NA	pr	n+pt	NA	Prot	Perm
Protected Phases	4	•	3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%	15	5.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag	Ĺ	ead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max	N	lone	Max	None	None
Act Effct Green (s)	39.7		55.5	50.0	14.6	14.6
Actuated g/C Ratio	0.50		0.70	0.63	0.18	0.18
v/c Ratio	0.35		0.39	0.36	0.87	0.82
Control Delay	12.3		6.4	7.6	61.0	18.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	12.3		6.4	7.6	61.0	18.5
LOS	В		Α	Α	Е	В
Approach Delay	12.3			7.3	35.1	
Approach LOS	В			Α	D	
Queue Length 50th (m)	24.2		9.8	26.5	39.4	0.0
Queue Length 95th (m)	36.3		17.1	36.0	#78.6	#46.4
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)		1	0.08		90.0	
Base Capacity (vph)	1620		580	2175	315	510
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	0.35		0.38	0.36	0.85	0.81

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 79.2 Natural Cycle: 75

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.87

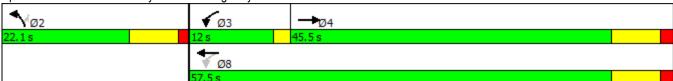
Intersection Signal Delay: 17.0 Intersection LOS: B
Intersection Capacity Utilization 69.7% ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 50 & Highway 89



Movement EBL EBT WBT WBR SBL SBR Lane Configurations 11 15 7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
Lane Configurations Image: Configuration of the confi
Traffic Volume (veh/h) 51 784 901 48 20 27 Future Volume (Veh/h) 51 784 901 48 20 27 Sign Control Free Free Stop Grade 0% 0% 0% Grade 0.93
Future Volume (Veh/h) 51 784 901 48 20 27 Sign Control Free Free Stop Grade 0% 0% 0% 0% Peak Hour Factor 0.93 0.93 0.93 0.93 0.93 0.93 Hourly flow rate (vph) 55 843 969 52 22 29 Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None None Median storage veh) Upstream signal (m) 200 pX, platoon unblocked vC, conflicting volume 1021 1526 510
Grade 0% 0% 0% Peak Hour Factor 0.93
Peak Hour Factor 0.93
Hourly flow rate (vph) 55 843 969 52 22 29 Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None None Median storage veh) Upstream signal (m) 200 pX, platoon unblocked 0.93 vC, conflicting volume 1021 1526 510
Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None Median storage veh) Upstream signal (m) pX, platoon unblocked vC, conflicting volume 1021 1526 510
Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None Median storage veh) Upstream signal (m) pX, platoon unblocked vC, conflicting volume None None None None 1021 1526 510
Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None Median storage veh) Upstream signal (m) pX, platoon unblocked vC, conflicting volume 1021 1526 510
Percent Blockage Right turn flare (veh) Median type None Median storage veh) Upstream signal (m) pX, platoon unblocked vC, conflicting volume 1021 None None None None 1020 1020 1020 1020 1020 1020 1020 102
Right turn flare (veh) Median type Median storage veh) Upstream signal (m) pX, platoon unblocked vC, conflicting volume None None None None 1020 200 1526 1526 510
Median type None None Median storage veh) Upstream signal (m) 200 pX, platoon unblocked 0.93 vC, conflicting volume 1021 1526 510
Median storage veh) Upstream signal (m) pX, platoon unblocked vC, conflicting volume 200 0.93 vC, tonflicting volume 1021 1526 510
Upstream signal (m) 200 pX, platoon unblocked 0.93 vC, conflicting volume 1021 1526 510
pX, platoon unblocked 0.93 vC, conflicting volume 1021 1526 510
vC, conflicting volume 1021 1526 510
vC, conflicting volume 1021 1526 510
vC1 stage 1 conf vol
vo i, stage i com voi
vC2, stage 2 conf vol
vCu, unblocked vol 1021 1411 510
tC, single (s) 4.1 7.0 6.9
tC, 2 stage (s)
tF(s) 2.2 3.6 3.3
p0 queue free % 92 79 94
cM capacity (veh/h) 688 104 513
Direction, Lane # EB 1 EB 2 WB 1 WB 2 SB 1
Volume Total 336 562 646 375 51
Volume Left 55 0 0 0 22
Volume Right 0 0 0 52 29
cSH 688 1700 1700 1700 191
Volume to Capacity 0.08 0.33 0.38 0.22 0.27
Queue Length 95th (m) 2.0 0.0 0.0 7.9
Control Delay (s) 2.6 0.0 0.0 0.0 30.6
Lane LOS A D
Approach Delay (s) 1.0 0.0 30.6
Approach LOS D
Intersection Summary
Average Delay 1.2
Intersection Capacity Utilization 62.9% ICU Level of Service
Analysis Period (min) 15

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			4	ĵ.	
Traffic Volume (veh/h)	80	4	4	114	104	72
Future Volume (Veh/h)	80	4	4	114	104	72
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	89	4	4	127	116	80
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	291	156	196			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	291	156	196			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	100	100			
cM capacity (veh/h)	698	890	1377			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	93	131	196			
Volume Left	89	4	0			
Volume Right	4	0	80			
cSH	704	1377	1700			
Volume to Capacity	0.13	0.00	0.12			
Queue Length 95th (m)	3.4	0.1	0.0			
Control Delay (s)	10.9	0.3	0.0			
Lane LOS	В	Α				
Approach Delay (s)	10.9	0.3	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utiliza	tion		21.2%	IC	CU Level o	of Service
Analysis Period (min)	- ***		15			22
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Ţ	∱ ∱		Ţ	∱ î≽			4			4	
Traffic Volume (veh/h)	30	754	43	147	872	65	65	15	124	49	9	38
Future Volume (Veh/h)	30	754	43	147	872	65	65	15	124	49	9	38
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	32	794	45	155	918	68	68	16	131	52	9	40
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	986			839			1694	2176	420	1862	2165	493
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	986			839			1694	2176	420	1862	2165	493
tC, single (s)	4.1			4.1			7.7	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			81			0	56	78	0	76	92
cM capacity (veh/h)	709			804			35	36	588	20	37	527
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	32	529	310	155	612	374	215	101				
Volume Left	32	0	0	155	0	0	68	52				
Volume Right	0	0	45	0	0	68	131	40				
cSH	709	1700	1700	804	1700	1700	82	34				
Volume to Capacity	0.05	0.31	0.18	0.19	0.36	0.22	2.62	2.98				
Queue Length 95th (m)	1.1	0.0	0.0	5.4	0.0	0.0	156.0	88.4				
Control Delay (s)	10.3	0.0	0.0	10.5	0.0	0.0	840.8	1138.4				
Lane LOS	В			В			F	F				
Approach Delay (s)	0.4			1.4			840.8	1138.4				
Approach LOS							F	F				
Intersection Summary												
Average Delay			127.9									
Intersection Capacity Utilization	on		53.5%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ň	∱ }		Ţ	† †	7		44			र्स	7
Traffic Volume (veh/h)	72	882	9	19	975	121	0	0	10	101	1	61
Future Volume (Veh/h)	72	882	9	19	975	121	0	0	10	101	1	61
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	76	928	9	20	1026	127	0	0	11	106	1	64
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1026			937			1638	2150	468	1693	2155	513
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1026			937			1638	2150	468	1693	2155	513
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	88			97			100	100	98	0	98	87
cM capacity (veh/h)	643			739			52	42	547	53	42	512
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	76	619	318	20	513	513	127	11	171			
Volume Left	76	0	0	20	0	0	0	0	106			
Volume Right	0	0	9	0	0	0	127	11	64			
cSH	643	1700	1700	739	1700	1700	1700	547	82			
Volume to Capacity	0.12	0.36	0.19	0.03	0.30	0.30	0.07	0.02	2.08			
Queue Length 95th (m)	3.0	0.0	0.0	0.6	0.0	0.0	0.0	0.5	116.2			
Control Delay (s)	11.3	0.0	0.0	10.0	0.0	0.0	0.0	11.7	608.4			
Lane LOS	В			В				В	F			
Approach Delay (s)	0.9			0.2				11.7	608.4			
Approach LOS								В	F			
Intersection Summary												
Average Delay			44.4									
Intersection Capacity Utilizatio	n		53.3%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† 1>			414	**	
Traffic Volume (veh/h)	963	5	6	1166	0	15
Future Volume (Veh/h)	963	5	6	1166	0	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	993	5	6	1202	0	15
Pedestrians					3	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1001		1612	502
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1001		1612	502
tC, single (s)			4.1		6.8	7.5
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.6
p0 queue free %			99		100	97
cM capacity (veh/h)			698		96	446
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	662	336	407	801	15	
Volume Left	0	0	6	0	0	
Volume Right	0	5	0	0	15	
cSH	1700	1700	698	1700	446	
Volume to Capacity	0.39	0.20	0.01	0.47	0.03	
Queue Length 95th (m)	0.0	0.0	0.2	0.0	0.8	
Control Delay (s)	0.0	0.0	0.3	0.0	13.4	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		13.4	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliza	ation		46.4%	IC	U Level o	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ }		ሻ	† }		ሻ	ર્ન	7	ሻ	1	7
Traffic Volume (vph)	54	664	315	277	692	30	428	45	203	27	54	81
Future Volume (vph)	54	664	315	277	692	30	428	45	203	27	54	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.952			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.961		0.950		
Satd. Flow (prot)	1825	3220	0	1825	3557	0	1534	1579	1617	1722	1921	1601
Flt Permitted	0.366			0.147			0.720	0.728		0.456		
Satd. Flow (perm)	703	3220	0	282	3557	0	1160	1193	1588	823	1921	1577
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		86			7				211			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	1		8	8		1	3		6	6		3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	17%	0%	2%	0%	13%	3%	1%	6%	0%	2%
Adj. Flow (vph)	56	692	328	289	721	31	446	47	211	28	56	84
Shared Lane Traffic (%)							45%					
Lane Group Flow (vph)	56	1020	0	289	752	0	245	248	211	28	56	84
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	Cl+Ex		CI+Ex	Cl+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	39.3	39.3		60.2	57.2		24.9	24.9	24.9	24.9	24.9	24.9
Actuated g/C Ratio	0.41	0.41		0.63	0.60		0.26	0.26	0.26	0.26	0.26	0.26
v/c Ratio	0.19	0.74		0.72	0.35		0.81	0.79	0.37	0.13	0.11	0.18
Control Delay	24.2	27.7		23.2	10.7		53.9	52.0	5.8	27.7	26.5	6.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.2	27.7		23.2	10.7		53.9	52.0	5.8	27.7	26.5	6.5
LOS	С	С		С	В		D	D	Α	С	С	Α
Approach Delay		27.5			14.1			38.8			16.7	
Approach LOS		С			В			D			В	
Queue Length 50th (m)	7.0	81.4		24.5	37.4		44.2	44.5	0.0	3.9	7.8	0.0
Queue Length 95th (m)	17.8	#128.6		51.3	49.3		#80.3	#80.0	15.8	10.7	16.8	9.9
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	290	1379		504	2141		354	364	632	251	587	543
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	0.19	0.74		0.57	0.35		0.69	0.68	0.33	0.11	0.10	0.15

Intersection Summary

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 95.1

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 24.9

Intersection Capacity Utilization 79.7%

Intersection LOS: C 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: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ Ъ		ች	^	ች	7
Traffic Volume (vph)	583	88	219	648	163	236
Future Volume (vph)	583	88	219	648	163	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	J.,	0.0	180.0	5.1	90.0	0.0
Storage Lanes		0.0	100.0		1	1
Taper Length (m)		J	80.0		80.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.980	0.00	1.00	0.00	1.00	0.850
Flt Protected	0.000		0.950		0.950	0.000
Satd. Flow (prot)	3462	0	1668	3544	1713	949
Flt Permitted	U7UZ	U	0.352	0077	0.950	979
Satd. Flow (perm)	3462	0	618	3544	1713	949
Right Turn on Red	J40Z	Yes	010	3344	1/13	Yes
	29	168				243
Satd. Flow (RTOR)	29 80			90	00	243
Link Speed (k/h)				80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0	0.07	0.07	9.0	28.7	0.07
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	12%	1%	3%	3%	1%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	601	91	226	668	168	243
Shared Lane Traffic (%)						
Lane Group Flow (vph)	692	0	226	668	168	243
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		•	Thru	•	Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
` ,	1.8		13.0	1.8	13.0	6.0
Detector 1 Size(m)						
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel	0.0		0.0	0.0	0.0	
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		

	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	40.0		55.5	50.0	12.7	12.7
Actuated g/C Ratio	0.52		0.72	0.65	0.16	0.16
v/c Ratio	0.38		0.41	0.29	0.60	0.68
Control Delay	12.0		6.2	6.6	39.5	14.8
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	12.0		6.2	6.6	39.5	14.8
LOS	В		Α	А	D	В
Approach Delay	12.0			6.5	24.9	
Approach LOS	В			Α	С	
Queue Length 50th (m)	28.6		8.8	19.5	23.1	0.0
Queue Length 95th (m)	45.3		17.1	29.7	41.4	21.8
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)			180.0		90.0	
Base Capacity (vph)	1806		579	2294	332	380
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	0.38		0.39	0.29	0.51	0.64
Intersection Summary						

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 77.3

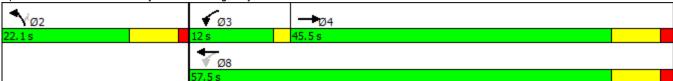
Natural Cycle: 70

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.68 Intersection Signal Delay: 12.2 Intersection Capacity Utilization 65.8%

Intersection LOS: B ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: County Road 50 & Highway 89



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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		414	ħβ		W	
Traffic Volume (veh/h)	14	745	697	37	31	13
Future Volume (Veh/h)	14	745	697	37	31	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	810	758	40	34	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked		_00			0.90	
vC, conflicting volume	798				1213	399
vC1, stage 1 conf vol					12.10	000
vC2, stage 2 conf vol						
vCu, unblocked vol	798				1023	399
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					0.0	0.0
tF (s)	2.2				3.5	3.3
p0 queue free %	98				84	98
cM capacity (veh/h)	833				209	606
						000
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	285	540	505	293	48	
Volume Left	15	0	0	0	34	
Volume Right	0	0	0	40	14	
cSH	833	1700	1700	1700	258	
Volume to Capacity	0.02	0.32	0.30	0.17	0.19	
Queue Length 95th (m)	0.4	0.0	0.0	0.0	5.1	
Control Delay (s)	0.7	0.0	0.0	0.0	22.1	
Lane LOS	Α				С	
Approach Delay (s)	0.2		0.0		22.1	
Approach LOS					С	
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utiliza	ation		40.6%	IC	U Level o	f Service
	20011			10	O LEVEI O	I SELVICE
Analysis Period (min)			15			

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			4	ĵ.	
Traffic Volume (veh/h)	161	8	13	145	136	187
Future Volume (Veh/h)	161	8	13	145	136	187
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	179	9	14	161	151	208
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	444	255	359			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	444	255	359			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	68	99	99			
cM capacity (veh/h)	565	784	1200			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	188	175	359			
Volume Left	179	14	0			
Volume Right	9	0	208			
cSH	572	1200	1700			
Volume to Capacity	0.33	0.01	0.21			
Queue Length 95th (m)	10.8	0.3	0.0			
Control Delay (s)	14.3	0.7	0.0			
Lane LOS	В	A				
Approach Delay (s)	14.3	0.7	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			3.9			
Intersection Capacity Utiliza	ation		34.7%	IC	CU Level c	f Service
Analysis Period (min)			15		. 5 _5.0.0	
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ∱		ሻ	∱ ∱			4			4	
Traffic Volume (veh/h)	44	714	75	215	761	168	89	14	205	133	34	46
Future Volume (Veh/h)	44	714	75	215	761	168	89	14	205	133	34	46
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	46	752	79	226	801	177	94	15	216	140	36	48
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	978			831			1802	2314	416	2033	2264	489
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	978			831			1802	2314	416	2033	2264	489
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			72			0	42	63	0	0	91
cM capacity (veh/h)	714			797			0	26	592	9	28	530
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	46	501	330	226	534	444	325	224				
Volume Left	46	0	0	226	0	0	94	140				
Volume Right	0	0	79	0	0	177	216	48				
cSH	714	1700	1700	797	1700	1700	0	13				
Volume to Capacity	0.06	0.29	0.19	0.28	0.31	0.26	Err	17.17				
Queue Length 95th (m)	1.6	0.0	0.0	8.9	0.0	0.0	Err	Err				
Control Delay (s)	10.4	0.0	0.0	11.3	0.0	0.0	Err	Err				
Lane LOS	В			В			F	F				
Approach Delay (s)	0.5			2.1			Err	Err				
Approach LOS	V. V			-			F	F				
Intersection Summary												
Average Delay			Err									
Intersection Capacity Utilizatio	n		67.7%	IC	CU Level	of Service			С			
Analysis Period (min)			15		. 5 = 5 (0) (
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ∱		7	^	7		4			र्स	7
Traffic Volume (veh/h)	72	1039	6	27	1101	160	1	6	10	155	5	65
Future Volume (Veh/h)	72	1039	6	27	1101	160	1	6	10	155	5	65
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	76	1094	6	28	1159	168	1	6	11	163	5	68
Pedestrians								1				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1159			1101			1888	2465	551	1928	2468	580
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1159			1101			1888	2465	551	1928	2468	580
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	87			96			96	77	98	0	80	85
cM capacity (veh/h)	599			641			28	26	483	28	26	451
Direction, Lane #	EB 1	EB 2	EB3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	76	729	371	28	580	580	168	18	236			
Volume Left	76	0	0	28	0	0	0	1	163			
Volume Right	0	0	6	0	0	0	168	11	68			
cSH	599	1700	1700	641	1700	1700	1700	62	38			
Volume to Capacity	0.13	0.43	0.22	0.04	0.34	0.34	0.10	0.29	6.19			
Queue Length 95th (m)	3.3	0.0	0.0	1.0	0.0	0.0	0.0	7.9	Err			
Control Delay (s)	11.9	0.0	0.0	10.9	0.0	0.0	0.0	86.1	Err			
Lane LOS	В			В				F	F			
Approach Delay (s)	0.8			0.2				86.1	Err			
Approach LOS								F	F			
Intersection Summary												
Average Delay			848.3									
Intersection Capacity Utilization	n		59.9%	IC	CU Level	of Service			В			
Analysis Period (min)			15									

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†			414	W	
Traffic Volume (veh/h)	1230	3	6	1283	0	9
Future Volume (Veh/h)	1230	3	6	1283	0	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1309	3	6	1365	0	10
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1312		2005	656
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1312		2005	656
tC, single (s)			4.1		6.8	7.2
tC, 2 stage (s)					,,,	
tF (s)			2.2		3.5	3.5
p0 queue free %			99		100	97
cM capacity (veh/h)			534		52	374
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	873	439	461	910	10	
Volume Left	0	0	6	0	0	
Volume Right	0	3	0	0	10	
cSH	1700	1700	534	1700	374	
Volume to Capacity	0.51	0.26	0.01	0.54	0.03	
Queue Length 95th (m)	0.0	0.0	0.3	0.0	0.6	
Control Delay (s)	0.0	0.0	0.3	0.0	14.9	
Lane LOS	0.0	0.0	Α	0.0	В	
Approach Delay (s)	0.0		0.1		14.9	
Approach LOS	0.0		0.1		В	
					D	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliz	ation		49.6%	IC	U Level c	of Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ }		ሻ	∱ }		ሻ	ર્ન	7	7	†	7
Traffic Volume (vph)	145	907	186	451	913	35	257	56	260	51	123	100
Future Volume (vph)	145	907	186	451	913	35	257	56	260	51	123	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.974			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.968		0.950		
Satd. Flow (prot)	1807	3506	0	1825	3590	0	1683	1733	1617	1772	1921	1633
Flt Permitted	0.281			0.108			0.673	0.724		0.578		
Satd. Flow (perm)	534	3506	0	207	3590	0	1188	1293	1593	1076	1921	1607
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			7				280			97
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	3		1	1		3	4		3	3		4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	0%	6%	0%	1%	0%	3%	0%	1%	3%	0%	0%
Adj. Flow (vph)	156	975	200	485	982	38	276	60	280	55	132	108
Shared Lane Traffic (%)							41%					
Lane Group Flow (vph)	156	1175	0	485	1020	0	163	173	280	55	132	108
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7	J		3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	Cl+Ex	CI+Ex		CI+Ex	Cl+Ex		Cl+Ex	Cl+Ex	CI+Ex	Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	33.2	33.2		60.3	57.3		19.1	19.1	19.1	19.1	19.1	19.1
Actuated g/C Ratio	0.37	0.37		0.67	0.64		0.21	0.21	0.21	0.21	0.21	0.21
v/c Ratio	0.79	0.89		0.96	0.44		0.64	0.63	0.50	0.24	0.32	0.26
Control Delay	57.3	37.3		58.2	9.7		43.7	42.0	6.8	30.7	31.0	8.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.3	37.3		58.2	9.7		43.7	42.0	6.8	30.7	31.0	8.9
LOS	E	D		Е	Α		D	D	Α	С	С	Α
Approach Delay		39.6			25.3			26.5			22.9	
Approach LOS		D			С			С			С	
Queue Length 50th (m)	23.3	96.0		64.2	41.0		26.9	28.4	0.0	7.8	19.2	1.5
Queue Length 95th (m)	#65.4	#161.7		#147.3	71.9		47.5	49.2	17.7	17.6	33.8	13.4
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	198	1316		503	2301		387	421	707	350	625	588
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	0.79	0.89		0.96	0.44		0.42	0.41	0.40	0.16	0.21	0.18

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 89.5

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 30.4 Intersection Capacity Utilization 95.6%

Intersection LOS: C 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: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†		ኘ	^	ሻ	7
Traffic Volume (vph)	422	212	359	393	81	185
Future Volume (vph)	422	212	359	393	81	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
	3.1	0.0	180.0	3.1	90.0	0.0
Storage Length (m)						
Storage Lanes		0	1		1	1
Taper Length (m)	0.05	0.05	80.0	0.05	80.0	1.00
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.950		0.050		0.050	0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	2972	0	1620	3093	1471	1426
FIt Permitted			0.348		0.950	
Satd. Flow (perm)	2972	0	593	3093	1471	1426
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	150					203
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	17%	16%	4%	18%	20%	12%
Adj. Flow (vph)	464	233	395	432	89	203
	404	233	393	432	09	203
Shared Lane Traffic (%)	607	٥	205	420	00	202
Lane Group Flow (vph)	697	0	395	432	89 No	203
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.01
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
. ,	1.8		13.0	1.8	13.0	6.0
Detector 1 Size(m)				CI+Ex		
Detector 1 Type	Cl+Ex		Cl+Ex	UI+EX	Cl+Ex	Cl+Ex
Detector 1 Channel	0.0		0.0	2.2	0.0	0.0
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
тапт турс	INA		hiii, hr	INA	1 101	i Giiii

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	38.4		55.5	50.0	11.2	11.2
Actuated g/C Ratio	0.51		0.73	0.66	0.15	0.15
v/c Ratio	0.44		0.70	0.21	0.41	0.53
Control Delay	10.4		11.8	5.6	35.4	10.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	10.4		11.8	5.6	35.4	10.2
LOS	В		В	Α	D	В
Approach Delay	10.4			8.6	17.9	
Approach LOS	В			Α	В	
Queue Length 50th (m)	23.0		14.5	10.3	11.7	0.0
Queue Length 95th (m)	39.6		#32.2	18.8	24.6	16.5
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)			180.0		90.0	
Base Capacity (vph)	1581		569	2042	291	444
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	0.44		0.69	0.21	0.31	0.46
Intersection Cummery						

Area Type: Other

Cycle Length: 79.6
Actuated Cycle Length: 75.8

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.70

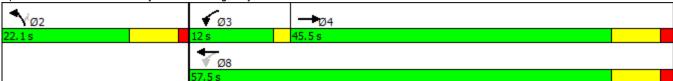
Intersection Signal Delay: 10.8 Intersection LOS: B
Intersection Capacity Utilization 72.9% ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 50 & Highway 89



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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4₽	∱ ∱		W	
Traffic Volume (veh/h)	16	567	694	17	31	74
Future Volume (Veh/h)	16	567	694	17	31	74
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	630	771	19	34	82
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked						
vC, conflicting volume	790				1132	395
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	790				1132	395
tC, single (s)	4.3				6.8	6.9
tC, 2 stage (s)					3.0	3.0
tF (s)	2.3				3.5	3.3
p0 queue free %	98				83	87
cM capacity (veh/h)	770				195	610
						010
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	228	420	514	276	116	
Volume Left	18	0	0	0	34	
Volume Right	0	0	0	19	82	
cSH	770	1700	1700	1700	376	
Volume to Capacity	0.02	0.25	0.30	0.16	0.31	
Queue Length 95th (m)	0.5	0.0	0.0	0.0	9.8	
Control Delay (s)	1.0	0.0	0.0	0.0	18.8	
Lane LOS	Α				С	
Approach Delay (s)	0.4		0.0		18.8	
Approach LOS					С	
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilizat	tion		40.1%	IC	U Level c	f Service
Analysis Period (min)	uon		15	10	C LOVOI C	n Oct vice
Alialysis Feliou (IIIIII)			10			

Movement EBL EBR NBL NBT SBR Lane Configurations Image: Configuration of the co
Traffic Volume (veh/h) 15 2 1 79 102 18 Future Volume (Veh/h) 15 2 1 79 102 18 Sign Control Stop Free Free Free Grade 0% 0% 0% 0% 0% 0% 0% 0% 0% 0.90<
Traffic Volume (veh/h) 15 2 1 79 102 18 Future Volume (Veh/h) 15 2 1 79 102 18 Sign Control Stop Free Free Free Grade 0% 0% 0% 0% 0% 0% 0% 0% 0% 0.90<
Future Volume (Veh/h) 15 2 1 79 102 18 Sign Control Stop Free Free Free Grade 0% 0% 0% 0% Peak Hour Factor 0.90 0.90 0.90 0.90 0.90 Hourly flow rate (vph) 17 2 1 88 113 20 Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None None Median storage veh) None
Sign Control Stop Free Free Grade 0% 0% 0% Peak Hour Factor 0.90 0.90 0.90 0.90 0.90 Hourly flow rate (vph) 17 2 1 88 113 20 Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) None None None Median type None None Median storage veh) None
Grade 0% 0% 0% Peak Hour Factor 0.90
Hourly flow rate (vph) 17 2 1 88 113 20 Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None None Median storage veh)
Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None Median storage veh)
Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None None Median storage veh)
Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None Median storage veh)
Percent Blockage Right turn flare (veh) Median type None Median storage veh)
Right turn flare (veh) Median type None None Median storage veh)
Median type None None Median storage veh)
Median type None None Median storage veh)
Median storage veh)
• ,
pX, platoon unblocked
vC, conflicting volume 213 123 133
vC1, stage 1 conf vol
vC2, stage 2 conf vol
vCu, unblocked vol 213 123 133
tC, single (s) 6.4 6.2 4.1
tC, 2 stage (s)
tF (s) 3.5 3.3 2.2
p0 queue free % 98 100 100
cM capacity (veh/h) 775 928 1452
Direction, Lane # EB 1 NB 1 SB 1
Volume Total 19 89 133
Volume Left 17 1 0
Volume Right 2 0 20
cSH 788 1452 1700
Volume to Capacity 0.02 0.00 0.08
Queue Length 95th (m) 0.6 0.0 0.0
Control Delay (s) 9.7 0.1 0.0
Lane LOS A A
Approach Delay (s) 9.7 0.1 0.0
Approach LOS A
Intersection Summary
Average Delay 0.8
Intersection Capacity Utilization 16.5% ICU Level of Service
Analysis Period (min) 15

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ î≽		ሻ	∱ ∱			4			4	
Traffic Volume (veh/h)	36	672	45	64	539	93	14	12	68	86	10	36
Future Volume (Veh/h)	36	672	45	64	539	93	14	12	68	86	10	36
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	730	49	70	586	101	15	13	74	93	11	39
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	687			779			1310	1660	390	1300	1634	344
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	687			779			1310	1660	390	1300	1634	344
tC, single (s)	4.1			4.2			7.5	6.5	6.9	7.5	6.5	7.1
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	96			92			84	85	88	0	88	94
cM capacity (veh/h)	916			827			92	86	615	85	90	630
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	39	487	292	70	391	296	102	143				
Volume Left	39	0	0	70	0	0	15	93				
Volume Right	0	0	49	0	0	101	74	39				
cSH	916	1700	1700	827	1700	1700	235	112				
Volume to Capacity	0.04	0.29	0.17	0.08	0.23	0.17	0.43	1.28				
Queue Length 95th (m)	1.0	0.0	0.0	2.1	0.0	0.0	15.6	72.2				
Control Delay (s)	9.1	0.0	0.0	9.8	0.0	0.0	31.6	248.2				
Lane LOS	A	0.0	0.0	A	0.0	0.0	D	F				
Approach Delay (s)	0.4			0.9			31.6	248.2				
Approach LOS	V . 1			0.0			D	F				
Intersection Summary												
Average Delay			21.8									
Intersection Capacity Utilizatio	n		47.7%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	↑ ↑		ሻ	^	7		4			र्स	7
Traffic Volume (veh/h)	48	791	1	10	614	86	0	1	1	65	3	51
Future Volume (Veh/h)	48	791	1	10	614	86	0	1	1	65	3	51
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	51	833	1	11	646	91	0	1	1	68	3	54
Pedestrians								4				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	646			838			1286	1608	421	1188	1608	323
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	646			838			1286	1608	421	1188	1608	323
tC, single (s)	4.3			4.8			7.5	6.5	6.9	7.6	6.5	7.2
tC, 2 stage (s)												
tF (s)	2.3			2.5			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	94			98			100	99	100	48	97	91
cM capacity (veh/h)	877			619			103	98	585	131	98	631
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	51	555	279	11	323	323	91	2	125			
Volume Left	51	0	0	11	0	0	0	0	68			
Volume Right	0	0	1	0	0	0	91	1	54			
cSH	877	1700	1700	619	1700	1700	1700	167	227			
Volume to Capacity	0.06	0.33	0.16	0.02	0.19	0.19	0.05	0.01	0.55			
Queue Length 95th (m)	1.4	0.0	0.0	0.4	0.0	0.0	0.0	0.3	22.6			
Control Delay (s)	9.4	0.0	0.0	10.9	0.0	0.0	0.0	26.8	40.4			
Lane LOS	Α			В				D	Е			
Approach Delay (s)	0.5			0.2				26.8	40.4			
Approach LOS								D	Е			
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization	n		45.7%	IC	U Level	of Service			Α			
Analysis Period (min)			15									

	→	\rightarrow	•	←	1	/
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† Þ			414	*y*	
Traffic Volume (veh/h)	877	1	3	732	0	19
Future Volume (Veh/h)	877	1	3	732	0	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	943	1	3	787	0	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			944		1343	472
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			944		1343	472
tC, single (s)			4.1		6.8	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			100		100	96
cM capacity (veh/h)			735		145	520
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	629	315	265	525	20	
Volume Left	0	0	3	0	0	
Volume Right	0	1	0	0	20	
cSH	1700	1700	735	1700	520	
Volume to Capacity	0.37	0.19	0.00	0.31	0.04	
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.9	
Control Delay (s)	0.0	0.0	0.2	0.0	12.2	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		12.2	
Approach LOS					В	
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utiliza	ation		34.3%	IC	U Level c	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	ħβ		ሻ	↑ Ъ		ች	4	7	ሻ		7
Traffic Volume (vph)	44	699	214	315	490	12	224	30	121	12	42	24
Future Volume (vph)	44	699	214	315	490	12	224	30	121	12	42	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.965			0.996				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.963		0.950		
Satd. Flow (prot)	1825	3151	0	1807	3455	0	1387	1474	1617	1825	1779	1633
Flt Permitted	0.451			0.175			0.728	0.746		0.658		
Satd. Flow (perm)	866	3151	0	333	3455	0	1063	1142	1617	1264	1779	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			4				130			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	5%	34%	1%	5%	14%	25%	0%	1%	0%	8%	0%
Adj. Flow (vph)	47	752	230	339	527	13	241	32	130	13	45	26
Shared Lane Traffic (%)							44%					
Lane Group Flow (vph)	47	982	0	339	540	0	135	138	130	13	45	26
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	

	•	-	•	•	•	*	•	†	-	-	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	38.4	38.4		60.3	57.3		17.6	17.6	17.6	17.6	17.6	17.6
Actuated g/C Ratio	0.44	0.44		0.69	0.65		0.20	0.20	0.20	0.20	0.20	0.20
v/c Ratio	0.12	0.70		0.71	0.24		0.64	0.61	0.30	0.05	0.13	0.07
Control Delay	20.5	25.2		19.0	7.4		45.8	43.1	7.2	27.2	28.5	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	25.2		19.0	7.4		45.8	43.1	7.2	27.2	28.5	0.3
LOS	С	С		В	Α		D	D	Α	С	С	Α
Approach Delay		24.9			11.9			32.4			19.6	
Approach LOS		С			В			С			В	
Queue Length 50th (m)	4.6	65.7		19.3	17.0		22.0	22.3	0.0	1.8	6.3	0.0
Queue Length 95th (m)	14.5	#124.4		57.7	32.7		40.8	40.9	12.9	6.2	14.5	0.0
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	378	1401		565	2251		352	378	622	418	589	600
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	0.12	0.70		0.60	0.24		0.38	0.37	0.21	0.03	0.08	0.04

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 87.9

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 21.2

Intersection Capacity Utilization 71.4%

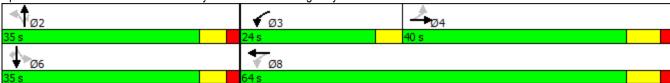
Intersection LOS: C ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



	-	\rightarrow	•	←	4	/
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ Ъ	LDIN	ኘ	†	ሻ	7
Traffic Volume (vph)	522	81	236	840	287	447
Future Volume (vph)	522	81	236	840	287	447
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.1	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	100.0		30.0	1
Taper Length (m)		U	80.0		80.0	i I
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.980	0.33	1.00	0.90	1.00	0.850
FIt Protected	0.900		0.950		0.950	0.000
	2205	0		3444		921
Satd. Flow (prot)	3205	0	1532	3444	1665	921
Flt Permitted	0005	^	0.367	0444	0.950	004
Satd. Flow (perm)	3205	0	592	3444	1665	921
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	30					378
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	12%	9%	10%	6%	6%	4%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	561	87	254	903	309	481
Shared Lane Traffic (%)						
Lane Group Flow (vph)	648	0	254	903	309	481
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0	, agrit	LOIL	3.0	3.4	, vigin
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
` ,	4.9			4.9	4.9	
Two way Left Turn Lane	0.00	0.00	1.00	0.00	1.02	1.00
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)	•	14	24	_	24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7		0.0	28.7	0.0	0.0
. ,						
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		

	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	39.2		55.5	50.0	15.0	15.0
Actuated g/C Ratio	0.49		0.70	0.63	0.19	0.19
v/c Ratio	0.41		0.49	0.42	0.99	1.00
Control Delay	13.3		7.8	8.2	83.1	52.7
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	13.3		7.8	8.2	83.1	52.7
LOS	В		A	Α	F	D
Approach Delay	13.3			8.1	64.6	
Approach LOS	В			A	E	
Queue Length 50th (m)	29.7		11.6	32.1	47.0	~17.1
Queue Length 95th (m)	42.9		19.8	43.2	#94.6	#81.4
Internal Link Dist (m)	976.2		10.0	176.3	613.9	// V 1.1
Turn Bay Length (m)	0.0.2		180.0		90.0	
Base Capacity (vph)	1594		530	2163	313	480
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	0.41		0.48	0.42	0.99	1.00
Internation Comment	¥			J		

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 79.6

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.00
Intersection Signal Delay: 26.6

Intersection Capacity Utilization 73.6%

Intersection LOS: C
ICU Level of Service D

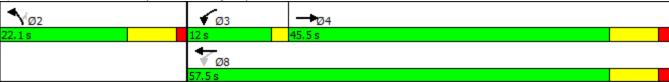
Analysis Period (min) 15

~ 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.

Splits and Phases: 1: County Road 50 & Highway 89



	•	→	←	4	-	4
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		414	↑ ↑		W	
Traffic Volume (veh/h)	59	907	1041	55	23	31
Future Volume (Veh/h)	59	907	1041	55	23	31
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	63	975	1119	59	25	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.90	
vC, conflicting volume	1178				1762	589
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1178				1629	589
tC, single (s)	4.1				7.0	6.9
tC, 2 stage (s)					7.0	0.0
tF (s)	2.2				3.6	3.3
p0 queue free %	90				64	93
cM capacity (veh/h)	600				70	457
		50.0	11/5 4	14/5.0		407
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	388	650	746	432	58	
Volume Left	63	0	0	0	25	
Volume Right	0	0	0	59	33	
cSH	600	1700	1700	1700	136	
Volume to Capacity	0.10	0.38	0.44	0.25	0.43	
Queue Length 95th (m)	2.7	0.0	0.0	0.0	14.3	
Control Delay (s)	3.2	0.0	0.0	0.0	50.0	
Lane LOS	Α				F	
Approach Delay (s)	1.2		0.0		50.0	
Approach LOS					F	
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utiliza	ation		70.6%	IC	U Level c	f Service
Analysis Period (min)			15			

	۶	•	4	†	↓	4
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			ર્ન	ĵ.	
Traffic Volume (veh/h)	72	4	4	153	141	79
Future Volume (Veh/h)	72	4	4	153	141	79
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	80	4	4	170	157	88
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	379	201	245			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	379	201	245			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	100	100			
cM capacity (veh/h)	621	840	1321			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	84	174	245			
Volume Left	80	4	0			
Volume Right	4	0	88			
cSH	629	1321	1700			
Volume to Capacity	0.13	0.00	0.14			
	3.5	0.00	0.14			
Queue Length 95th (m)						
Control Delay (s)	11.6	0.2	0.0			
Lane LOS	B	A	0.0			
Approach Delay (s)	11.6	0.2	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			2.0			
Intersection Capacity Utilization	on		23.1%	IC	CU Level of	Service
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ⊅		ሻ	∱ ∱			4			4	
Traffic Volume (veh/h)	35	876	47	161	1012	75	70	17	138	57	10	44
Future Volume (Veh/h)	35	876	47	161	1012	75	70	17	138	57	10	44
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	37	922	49	169	1065	79	74	18	145	60	11	46
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1144			971			1942	2502	486	2132	2488	572
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1144			971			1942	2502	486	2132	2488	572
tC, single (s)	4.1			4.1			7.7	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			76			0	14	73	0	49	90
cM capacity (veh/h)	618			718			15	21	533	5	21	468
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	37	615	356	169	710	434	237	117				
Volume Left	37	0	0	169	0	0	74	60				
Volume Right	0	0	49	0	0	79	145	46				
cSH	618	1700	1700	718	1700	1700	40	9				
Volume to Capacity	0.06	0.36	0.21	0.24	0.42	0.26	5.91	13.48				
Queue Length 95th (m)	1.4	0.0	0.0	6.9	0.0	0.0	Err	Err				
Control Delay (s)	11.2	0.0	0.0	11.6	0.0	0.0	Err	Err				
Lane LOS	В	0.0	0.0	В	0.0	0.0	F	F				
Approach Delay (s)	0.4			1.5			Err	Err				
Approach LOS	0.1			1.0			F	F				
Intersection Summary												
Average Delay			1324.1									
Intersection Capacity Utilization	on		59.1%	IC	U Level	of Service			В			
Analysis Period (min)			15									

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ⊅		7	^	7		4			र्स	7
Traffic Volume (veh/h)	83	1018	10	22	1123	140	0	0	12	117	1	71
Future Volume (Veh/h)	83	1018	10	22	1123	140	0	0	12	117	1	71
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	87	1072	11	23	1182	147	0	0	13	123	1	75
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1182			1083			1889	2480	542	1951	2485	591
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1182			1083			1889	2480	542	1951	2485	591
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	84			96			100	100	97	0	96	84
cM capacity (veh/h)	559			652			30	25	490	33	24	455
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	87	715	368	23	591	591	147	13	199			
Volume Left	87	0	0	23	0	0	0	0	123			
Volume Right	0	0	11	0	0	0	147	13	75			
cSH	559	1700	1700	652	1700	1700	1700	490	50			
Volume to Capacity	0.16	0.42	0.22	0.04	0.35	0.35	0.09	0.03	3.96			
Queue Length 95th (m)	4.2	0.0	0.0	0.8	0.0	0.0	0.0	0.6	Err			
Control Delay (s)	12.6	0.0	0.0	10.7	0.0	0.0	0.0	12.5	Err			
Lane LOS	В			В				В	F			
Approach Delay (s)	0.9			0.2				12.5	Err			
Approach LOS								В	F			
Intersection Summary												
Average Delay			728.3									
Intersection Capacity Utilization	n		58.8%	IC	CU Level	of Service			В			
Analysis Period (min)			15									

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑			414	W	
Traffic Volume (veh/h)	1112	6	7	1344	0	17
Future Volume (Veh/h)	1112	6	7	1344	0	17
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	1146	6	7	1386	0	18
Pedestrians					3	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)	140110			110110		
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1155		1859	579
vC1, stage 1 conf vol			1100		1000	010
vC2, stage 2 conf vol						
vCu, unblocked vol			1155		1859	579
tC, single (s)			4.1		6.8	7.5
tC, 2 stage (s)			4.1		0.0	1.5
tF (s)			2.2		3.5	3.6
p0 queue free %			99		100	95
			610		65	393
cM capacity (veh/h)			010		00	393
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	764	388	469	924	18	
Volume Left	0	0	7	0	0	
Volume Right	0	6	0	0	18	
cSH	1700	1700	610	1700	393	
Volume to Capacity	0.45	0.23	0.01	0.54	0.05	
Queue Length 95th (m)	0.0	0.0	0.3	0.0	1.1	
Control Delay (s)	0.0	0.0	0.3	0.0	14.6	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		14.6	
Approach LOS					В	
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utiliz	ation		52.0%	IC	U Level c	f Service
Analysis Period (min)			15	10		00, 1100
Alialysis Fellou (IIIIII)			13			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ኻ	∱ ∱		ች	† }		ሻ	4	7	ች	1	7
Traffic Volume (vph)	63	765	365	321	795	35	496	52	235	31	63	94
Future Volume (vph)	63	765	365	321	795	35	496	52	235	31	63	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.952			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.961		0.950		
Satd. Flow (prot)	1825	3219	0	1825	3557	0	1534	1578	1617	1722	1921	1601
Flt Permitted	0.328			0.097			0.714	0.721		0.403		
Satd. Flow (perm)	630	3219	0	186	3557	0	1150	1182	1588	728	1921	1577
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		87			7				245			98
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	1		8	8		1	3		6	6		3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	17%	0%	2%	0%	13%	3%	1%	6%	0%	2%
Adj. Flow (vph)	66	797	380	334	828	36	517	54	245	32	66	98
Shared Lane Traffic (%)							45%					
Lane Group Flow (vph)	66	1177	0	334	864	0	284	287	245	32	66	98
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template	0.0	Thru		10.5	Thru		40.5	40.5	40.0	40.5	40.5	0.0
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			Cl+Ex							
Detector 2 Channel		0.0			0.0							
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	37.2	37.2		60.1	57.1		27.1	27.1	27.1	27.1	27.1	27.1
Actuated g/C Ratio	0.38	0.38		0.62	0.59		0.28	0.28	0.28	0.28	0.28	0.28
v/c Ratio	0.27	0.92		0.87	0.41		0.89	0.87	0.40	0.16	0.12	0.19
Control Delay	27.9	40.5		46.2	11.9		63.3	60.4	5.6	28.5	26.5	6.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	40.5		46.2	11.9		63.3	60.4	5.6	28.5	26.5	6.6
LOS	С	D		D	В		Е	E	Α	С	С	Α
Approach Delay		39.8			21.5			45.0			16.9	
Approach LOS		D			С			D			В	
Queue Length 50th (m)	9.0	108.8		44.8	45.2		53.5	53.8	0.0	4.5	9.2	0.0
Queue Length 95th (m)	21.1	#163.5		#81.6	58.4		#100.4	#100.1	16.8	12.0	19.2	11.1
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0	_	10.0
Base Capacity (vph)	241	1285		452	2091		343	353	646	217	573	540
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	0.27	0.92		0.74	0.41		0.83	0.81	0.38	0.15	0.12	0.18

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 97.2

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 33.4

Intersection Capacity Utilization 87.3%

Intersection LOS: C
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: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ Ъ		ሻ	^	ኘ	7
Traffic Volume (vph)	672	102	245	744	189	274
Future Volume (vph)	672	102	245	744	189	274
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	5.7	0.0	180.0	5.1	90.0	0.0
		0.0	100.0		30.0	1
Storage Lanes		U	80.0		80.0	I
Taper Length (m) Lane Util. Factor	0.95	0.05	1.00	0.95	1.00	1.00
Frt	0.95	0.95	1.00	0.95	1.00	0.850
	0.960		0.050		0.050	0.000
Flt Protected	2400	0	0.950	2544	0.950	0.40
Satd. Flow (prot)	3462	0	1668	3544	1713	949
FIt Permitted	0.100		0.299	0=11	0.950	0.10
Satd. Flow (perm)	3462	0	525	3544	1713	949
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	29					282
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	12%	1%	3%	3%	1%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	693	105	253	767	195	282
Shared Lane Traffic (%)						
Lane Group Flow (vph)	798	0	253	767	195	282
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0	ragiit	LEIL	3.0	3.4	ragni
	0.0				0.0	
Link Offset(m)				0.0		
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane	0.00	0.00	4.00	0.00	4.00	4.00
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel			J. LA	J. L A	J	∪ ∟ ∧
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
	0.0		0.0		0.0	0.0
Detector 1 Delay (s)			0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead	1.0	7.1	7.1
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	39.7		55.5	50.0	13.2	13.2
Actuated g/C Ratio	0.51		0.71	0.64	0.17	0.17
v/c Ratio	0.51		0.71	0.04	0.17	0.17
Control Delay	13.2		7.8	7.0	42.6	15.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	13.2		7.8	7.0	42.6	15.5
LOS	13.2 B		7.8 A			15.5 B
	13.2		А	A 7.2	D 26.6	В
Approach Delay						
Approach LOS	B		40.0	Α	C	0.0
Queue Length 50th (m)	37.0		10.9	24.8	27.2	0.0
Queue Length 95th (m)	53.8		19.2	34.8	47.6	#31.0
Internal Link Dist (m)	976.2		1000	176.3	613.9	
Turn Bay Length (m)			180.0		90.0	
Base Capacity (vph)	1779		521	2279	330	410
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	0.45		0.49	0.34	0.59	0.69

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 77.8

Natural Cycle: 70

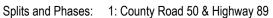
Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.72 Intersection Signal Delay: 13.3 Intersection Capacity Utilization 68.7%

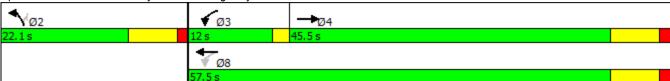
Intersection LOS: B
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.





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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		414	ħβ		W	
Traffic Volume (veh/h)	15	820	765	40	34	14
Future Volume (Veh/h)	15	820	765	40	34	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	891	832	43	37	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.88	
vC, conflicting volume	875				1331	438
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	875				1109	438
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				79	97
cM capacity (veh/h)	780				179	573
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	313	594	555	320	52	
Volume Left	16	0	0	0	37	
Volume Right	0	0	0	43	15	
cSH	780	1700	1700	1700	223	
Volume to Capacity	0.02	0.35	0.33	0.19	0.23	
Queue Length 95th (m)	0.5	0.0	0.0	0.0	6.7	
Control Delay (s)	0.7	0.0	0.0	0.0	26.0	
Lane LOS	Α	0.0	0.0	0.0	20.0 D	
Approach Delay (s)	0.3		0.0		26.0	
Approach LOS	0.0		0.0		20.0 D	
					D	
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utiliza	tion		43.3%	IC	U Level c	f Service
Analysis Period (min)			15			

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			4	î»	
Traffic Volume (veh/h)	161	8	13	169	158	187
Future Volume (Veh/h)	161	8	13	169	158	187
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	179	9	14	188	176	208
Pedestrians	11.0			100		
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				INOHE	INOHE	
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	496	280	384			
vC1, stage 1 conf vol	430	200	304			
vC2, stage 2 conf vol						
vCu, unblocked vol	406	200	384			
•	496	280				
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	2.5	2.2	0.0			
tF (s)	3.5	3.3	2.2			
p0 queue free %	66	99	99			
cM capacity (veh/h)	527	759	1174			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	188	202	384			
Volume Left	179	14	0			
Volume Right	9	0	208			
cSH	535	1174	1700			
Volume to Capacity	0.35	0.01	0.23			
Queue Length 95th (m)	11.9	0.3	0.0			
Control Delay (s)	15.3	0.7	0.0			
Lane LOS	С	Α				
Approach Delay (s)	15.3	0.7	0.0			
Approach LOS	С					
Intersection Summary						
Average Delay			3.9			
Intersection Capacity Utiliza	ation		35.8%	IC	U Level c	of Service
Analysis Period (min)			15		2 20.010	. 3030

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ∱		ሻ	∱ î≽			4			4	
Traffic Volume (veh/h)	51	831	79	228	886	195	92	16	224	154	39	53
Future Volume (Veh/h)	51	831	79	228	886	195	92	16	224	154	39	53
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	54	875	83	240	933	205	97	17	236	162	41	56
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1138			958			2048	2642	479	2306	2582	569
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1138			958			2048	2642	479	2306	2582	569
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF(s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			66			0	0	56	0	0	88
cM capacity (veh/h)	621			714			0	14	538	0	16	470
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	54	583	375	240	622	516	350	259				
Volume Left	54	0	0	240	0	0	97	162				
Volume Right	0	0	83	0	0	205	236	56				
cSH	621	1700	1700	714	1700	1700	0	0				
Volume to Capacity	0.09	0.34	0.22	0.34	0.37	0.30	Err	Err				
Queue Length 95th (m)	2.2	0.0	0.0	11.3	0.0	0.0	Err	Err				
Control Delay (s)	11.3	0.0	0.0	12.6	0.0	0.0	Err	Err				
Lane LOS	В	0.0	0.0	В	0.0	0.0	F	F				
Approach Delay (s)	0.6			2.2			Err	Err				
Approach LOS	0.0			۲.۲			F	F				
Intersection Summary												
Average Delay			Err									
Intersection Capacity Utiliza	ition		76.3%	IC	CU Level	of Service			D			
Analysis Period (min)			15									

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ተ ኈ		ሻ		7		4			र्स	7
Traffic Volume (veh/h)	83	1194	7	31	1259	185	1	7	12	180	6	75
Future Volume (Veh/h)	83	1194	7	31	1259	185	1	7	12	180	6	75
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	87	1257	7	33	1325	195	1	7	13	189	6	79
Pedestrians								1				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1325			1265			2167	2826	633	2210	2830	662
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1325			1265			2167	2826	633	2210	2830	662
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	83			94			92	50	97	0	57	80
cM capacity (veh/h)	517			556			12	14	427	12	14	397
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	87	838	426	33	662	662	195	21	274			
Volume Left	87	0	0	33	0	0	0	1	189			
Volume Right	0	0	7	0	0	0	195	13	79			
cSH	517	1700	1700	556	1700	1700	1700	34	17			
Volume to Capacity	0.17	0.49	0.25	0.06	0.39	0.39	0.11	0.61	16.35			
Queue Length 95th (m)	4.6	0.0	0.0	1.4	0.0	0.0	0.0	15.9	Err			
Control Delay (s)	13.4	0.0	0.0	11.9	0.0	0.0	0.0	213.6	Err			
Lane LOS	В	0.0	0.0	В	0.0	0.0	0.0	F	F			
Approach Delay (s)	0.9			0.3				213.6	Err			
Approach LOS	0.0			0.0				F	F			
Intersection Summary												
Average Delay			858.3									
Intersection Capacity Utiliza	ition		66.4%	IC	CU Level	of Service			С			
Analysis Period (min)			15									
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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† ‡			414	*y*	
Traffic Volume (veh/h)	1416	3	7	1470	0	10
Future Volume (Veh/h)	1416	3	7	1470	0	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1506	3	7	1564	0	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1509		2304	754
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1509		2304	754
tC, single (s)			4.1		6.8	7.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			98		100	97
cM capacity (veh/h)			449		33	320
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	1004	505	528	1043	11	
Volume Left	0	0	7	0	0	
Volume Right	0	3	0	0	11	
cSH	1700	1700	449	1700	320	
Volume to Capacity	0.59	0.30	0.02	0.61	0.03	
Queue Length 95th (m)	0.0	0.0	0.4	0.0	8.0	
Control Delay (s)	0.0	0.0	0.5	0.0	16.6	
Lane LOS			Α		С	
Approach Delay (s)	0.0		0.2		16.6	
Approach LOS					С	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliza	ition		55.5%	IC	U Level c	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Ĭ	ħβ		ř	∱ }		Ť	ર્ન	7	*		7
Traffic Volume (vph)	168	1041	215	523	1041	41	298	65	301	59	143	116
Future Volume (vph)	168	1041	215	523	1041	41	298	65	301	59	143	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00			1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.974			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.968		0.950		
Satd. Flow (prot)	1807	3506	0	1825	3590	0	1683	1733	1617	1772	1921	1633
Flt Permitted	0.244			0.108			0.642	0.694		0.529		
Satd. Flow (perm)	464	3506	0	207	3590	0	1134	1240	1593	985	1921	1607
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			7				324			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	3		1	1		3	4		3	3		4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	0%	6%	0%	1%	0%	3%	0%	1%	3%	0%	0%
Adj. Flow (vph)	181	1119	231	562	1119	44	320	70	324	63	154	125
Shared Lane Traffic (%)							41%					
Lane Group Flow (vph)	181	1350	0	562	1163	0	189	201	324	63	154	125
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	33.2	33.2		60.3	57.3		21.7	21.7	21.7	21.7	21.7	21.7
Actuated g/C Ratio	0.36	0.36		0.65	0.62		0.24	0.24	0.24	0.24	0.24	0.24
v/c Ratio	1.08	1.06		1.15	0.52		0.71	0.69	0.52	0.27	0.34	0.28
Control Delay	128.1	71.4		115.7	11.6		46.9	44.4	6.4	30.9	30.6	11.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	128.1	71.4		115.7	11.6		46.9	44.4	6.4	30.9	30.6	11.7
LOS	F	Е		F	В		D	D	Α	С	С	В
Approach Delay		78.1			45.5			27.8			23.8	
Approach LOS		Е			D			С			С	
Queue Length 50th (m)	~37.0	~140.7		~103.8	56.7		32.3	34.2	0.0	9.1	22.7	5.1
Queue Length 95th (m)	#82.5	#200.3		#181.7	86.2		56.2	58.3	19.0	19.9	38.7	18.2
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	167	1279		488	2236		359	392	725	311	607	568
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	1.08	1.06		1.15	0.52		0.53	0.51	0.45	0.20	0.25	0.22

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 92.1

Natural Cycle: 130

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 52.4

Intersection Capacity Utilization 105.4%

Intersection LOS: D

ICU Level of Service G

Analysis Period (min) 15

- ~ 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.

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†	LDIT	ሻ	^	ሻ	7
Traffic Volume (vph)	315	158	267	293	60	138
Future Volume (vph)	315	158	267	293	60	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	3.1	0.0	180.0	3.7	90.0	0.0
Storage Lanes		0.0	100.0		90.0	1
Taper Length (m)		U	80.0		80.0	ı
Lane Util. Factor	0.95	0.05	1.00	0.95	1.00	1.00
		0.95	1.00	0.95	1.00	
Frt	0.950		0.050		0.050	0.850
Flt Protected	0070	•	0.950	0000	0.950	4400
Satd. Flow (prot)	2972	0	1620	3093	1471	1426
FIt Permitted			0.437		0.950	
Satd. Flow (perm)	2972	0	745	3093	1471	1426
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	151					152
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	17%	16%	4%	18%	20%	12%
Adj. Flow (vph)	346	174	293	322	66	152
Shared Lane Traffic (%)	070	117	200	ULL	00	102
	520	0	293	322	66	152
Lane Group Flow (vph) Enter Blocked Intersection						
	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.01
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
` ,	CI+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Type	UI+EX		OI+EX	UI+EX	UI+EX	OI+EX
Detector 1 Channel	0.0		0.0	0.0	0.0	0.0
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Tani Typo	11/7		hhr	14/-1	1 101	1 01111

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead	1.0		
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	39.4		55.5	50.0	10.5	10.5
Actuated g/C Ratio	0.52		0.74	0.67	0.14	0.14
v/c Ratio	0.32		0.45	0.16	0.32	0.46
Control Delay	7.9		5.6	5.0	33.7	10.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	7.9		5.6	5.0	33.7	10.5
LOS	7.5 A		3.0 A	3.0 A	00.7 C	10.5 B
Approach Delay	7.9		73	5.3	17.5	
Approach LOS	7.5 A			J.5	17.5 B	
Queue Length 50th (m)	13.7		9.9	7.4	8.6	0.0
Queue Length 95th (m)	24.8		19.6	13.0	19.3	14.8
Internal Link Dist (m)	976.2		19.0	176.3	613.9	14.0
Turn Bay Length (m)	310.2		180.0	170.3	90.0	
Base Capacity (vph)	1632		666	2059	293	406
Starvation Cap Reductn	0		000	2059	293	400
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductin	0		0	0	0	0
Reduced v/c Ratio	0.32		0.44	0.16	0.23	0.37
Neudeu V/C Natio	0.32		0.44	0.10	0.23	0.57
Intersection Summary						
Area Type:	Other					

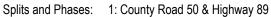
Cycle Length: 79.6 Actuated Cycle Length: 75.1 Natural Cycle: 70

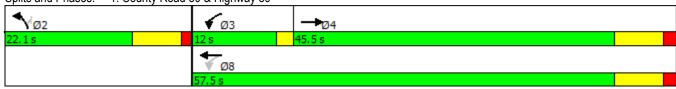
Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.46

Intersection Signal Delay: 8.3 Intersection LOS: A Intersection Capacity Utilization 67.8% ICU Level of Service C

Analysis Period (min) 15





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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	∱ 1≽		W	
Traffic Volume (veh/h)	12	423	517	13	23	55
Future Volume (Veh/h)	12	423	517	13	23	55
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	13	470	574	14	26	61
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked						
vC, conflicting volume	588				842	294
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	588				842	294
tC, single (s)	4.3				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	99				91	91
cM capacity (veh/h)	924				303	708
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	170	313	383	205	87	
Volume Left	13	0	0	0	26	
Volume Right	0	0	0	14	61	
cSH	924	1700	1700	1700	506	
Volume to Capacity	0.01	0.18	0.23	0.12	0.17	
Queue Length 95th (m)	0.3	0.0	0.0	0.0	4.7	
Control Delay (s)	0.8	0.0	0.0	0.0	13.6	
Lane LOS	Α				В	
Approach Delay (s)	0.3		0.0		13.6	
Approach LOS					В	
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utiliza	ation		31.7%	IC	U Level o	f Service
Analysis Period (min)			15			22
raidiyələ i Griod (IIIIII)			10			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ }		ሻ	∱ }			4			4	
Traffic Volume (vph)	27	499	35	51	401	69	12	9	53	64	8	27
Future Volume (vph)	27	499	35	51	401	69	12	9	53	64	8	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.978			0.903			0.964	
FIt Protected	0.950			0.950				0.992			0.969	
Satd. Flow (prot)	1825	3153	0	1772	3164	0	0	1721	0	0	1748	0
FIt Permitted	0.464			0.434				0.937			0.775	
Satd. Flow (perm)	891	3153	0	809	3164	0	0	1625	0	0	1398	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			42			58			19	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		314.7			133.1			224.3			107.2	
Travel Time (s)		18.9			8.0			13.5			7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	9%	3%	14%	6%	0%	0%	0%	0%	0%	10%
Adj. Flow (vph)	29	542	38	55	436	75	13	10	58	70	9	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	580	0	55	511	0	0	81	0	0	108	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		Cl+Ex	CI+Ex	
Detector 1 Channel	OI LX	OI LX		OI - EX	OI - EX		OI - EX	OI LX		OI LX	OI LX	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	28.7		0.0	28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel		OI - LX			OI. LX			OI - LA			O1 · LX	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	Fellil	NA 4		Fellii	1NA 8		Fellii	2		FUIII	6	
FIOLECIEU FIIdSES		4			0						Ö	

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Lane Group		•	→	\rightarrow	•	←	•	4	†	~	>	↓	4
Detector Phase 4	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase Minimum Initial (s)	Permitted Phases	4			8			2			6		
Minimum Initial (s) 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 Minimum Split (s) 25.0 25.	Detector Phase	4	4		8	8		2	2		6	6	
Minimum Split (s) 25.0 2	Switch Phase												
Total Split (s) 64.0 64.0 64.0 64.0 64.0 26.0 26.0 26.0 26.0 26.0 Total Split (%) 71.1% 71.1% 71.1% 71.1% 28.9% 28													
Total Split (%) 71.1% 71.1% 71.1% 71.1% 28.9% 28.9% 28.9% 28.9% 28.9% Maximum Green (s) 57.0 57.0 57.0 57.0 57.0 57.0 59.0 50	Minimum Split (s)	25.0	25.0		25.0	25.0		25.0					
Maximum Green (s) 57.0 57.0 57.0 57.0 57.0 19.0 19.0 19.0 19.0 Yellow Time (s) 5.0													
Yellow Time (s) 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 All-Red Time (s) 2.0	Total Split (%)	71.1%	71.1%					28.9%	28.9%		28.9%	28.9%	
All-Red Time (s)	Maximum Green (s)		57.0		57.0	57.0		19.0	19.0		19.0	19.0	
Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 7.0 7.0 7.0 7.0 Lead/Lag Detimize? Vehicle Extension (s) 3.0	Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Total Lost Time (s) 7.0 3.0		2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag Lead-Lag Optimize? Vehicle Extension (s) 3.0	Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Lead-Lag Optimize?	Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Vehicle Extension (s) 3.0	Lead/Lag												
Recall Mode Max Max Max Max Max Mone None None Walk Time (s) 7.0 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Lead-Lag Optimize?												
Walk Time (s) 7.0 <	Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Flash Dont Walk (s) 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.	Recall Mode	Max	Max		Max	Max		None	None		None	None	
Pedestrian Calls (#/hr) 0	Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Act Effct Green (s) 62.5 62.5 62.5 62.5 10.7 10.8 Actuated g/C Ratio 0.75 0.75 0.75 0.75 0.13 0.13 v/c Ratio 0.04 0.24 0.09 0.21 0.31 0.55 Control Delay 5.0 4.8 5.3 4.4 16.5 37.9 Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 Total Delay 5.0 4.8 5.3 4.4 16.5 37.9 LOS A A A B D Approach Delay 4.8 4.5 16.5 37.9 Approach LOS A A A B D Queue Length 50th (m) 1.2 14.3 2.4 11.4 3.2 13.0 Queue Length 95th (m) 1.2 14.3 2.4 11.4 3.2 13.0 Internal Link Dist (m) 290.7 109.1 200.3 83.2 Tu	Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Actuated g/C Ratio 0.75 0.75 0.75 0.75 0.13 0.13 v/c Ratio 0.04 0.24 0.09 0.21 0.31 0.55 Control Delay 5.0 4.8 5.3 4.4 16.5 37.9 Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 Total Delay 5.0 4.8 5.3 4.4 16.5 37.9 LOS A A A A B D Approach Delay 4.8 4.5 16.5 37.9 Approach LOS A A A B D Queue Length 50th (m) 1.2 14.3 2.4 11.4 3.2 13.0 Queue Length 95th (m) 4.3 25.9 7.2 21.4 14.6 28.0 Internal Link Dist (m) 290.7 109.1 200.3 83.2 Turn Bay Length (m) 100.0 70.0 Base Capacity (vph) 669 2374	Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio 0.04 0.24 0.09 0.21 0.31 0.55 Control Delay 5.0 4.8 5.3 4.4 16.5 37.9 Queue Delay 0.0 0.0 0.0 0.0 0.0 Total Delay 5.0 4.8 5.3 4.4 16.5 37.9 LOS A A A A B D Approach Delay 4.8 A A A B D Approach LOS A A A A B D Queue Length 50th (m) 1.2 14.3 2.4 11.4 3.2 13.0 Queue Length 95th (m) 1.2 14.3 2.4 11.4 3.2 13.0 Queue Length 95th (m) 4.3 25.9 7.2 21.4 14.6 28.0 Internal Link Dist (m) 290.7 109.1 200.3 83.2 Turn Bay Length (m) 100.0 70.0 Base Capacity (vph) 669<	Act Effct Green (s)	62.5	62.5		62.5	62.5			10.7			10.8	
Control Delay 5.0 4.8 5.3 4.4 16.5 37.9 Queue Delay 0.0 0.0 0.0 0.0 0.0 Total Delay 5.0 4.8 5.3 4.4 16.5 37.9 LOS A A A B D Approach Delay 4.8 4.5 16.5 37.9 Approach LOS A A A B D Queue Length 50th (m) 1.2 14.3 2.4 11.4 3.2 13.0 Queue Length 95th (m) 1.2 14.3 2.4 11.4 3.2 13.0 Queue Length 95th (m) 4.3 25.9 7.2 21.4 14.6 28.0 Internal Link Dist (m) 290.7 109.1 200.3 83.2 Turn Bay Length (m) 100.0 70.0 Base Capacity (vph) 669 2374 608 2389 416 334 Starvation Cap Reductn 0 0 0 0	Actuated g/C Ratio	0.75	0.75		0.75	0.75			0.13			0.13	
Queue Delay 0.0 0.0 0.0 0.0 0.0 Total Delay 5.0 4.8 5.3 4.4 16.5 37.9 LOS A A A B D Approach Delay 4.8 4.5 16.5 37.9 Approach LOS A A B D Queue Length 50th (m) 1.2 14.3 2.4 11.4 3.2 13.0 Queue Length 95th (m) 1.2 14.3 2.4 11.4 3.2 13.0 Queue Length 95th (m) 4.3 25.9 7.2 21.4 14.6 28.0 Internal Link Dist (m) 290.7 109.1 200.3 83.2 Turn Bay Length (m) 100.0 70.0 70.0 Base Capacity (vph) 669 2374 608 2389 416 334 Starvation Cap Reductn 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0	v/c Ratio	0.04	0.24		0.09	0.21			0.31			0.55	
Total Delay 5.0 4.8 5.3 4.4 16.5 37.9 LOS A A A B D Approach Delay 4.8 4.5 16.5 37.9 Approach LOS A A B D Queue Length 50th (m) 1.2 14.3 2.4 11.4 3.2 13.0 Queue Length 95th (m) 4.3 25.9 7.2 21.4 14.6 28.0 Internal Link Dist (m) 290.7 109.1 200.3 83.2 Turn Bay Length (m) 100.0 70.0 8 Base Capacity (vph) 669 2374 608 2389 416 334 Starvation Cap Reductn 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 0 Reduced v/c Ratio 0.04 0.24 0.09 0.21 0.19 <td< td=""><td>Control Delay</td><td>5.0</td><td>4.8</td><td></td><td>5.3</td><td>4.4</td><td></td><td></td><td>16.5</td><td></td><td></td><td>37.9</td><td></td></td<>	Control Delay	5.0	4.8		5.3	4.4			16.5			37.9	
LOS A A A A A B D Approach Delay 4.8 4.5 16.5 37.9 Approach LOS A A B D Queue Length 50th (m) 1.2 14.3 2.4 11.4 3.2 13.0 Queue Length 95th (m) 4.3 25.9 7.2 21.4 14.6 28.0 Internal Link Dist (m) 290.7 109.1 200.3 83.2 Turn Bay Length (m) 100.0 70.0 Base Capacity (vph) 669 2374 608 2389 416 334 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 0.04 0.24 0.09 0.21 0.19 0.32	Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Approach Delay 4.8 4.5 16.5 37.9 Approach LOS A A B D Queue Length 50th (m) 1.2 14.3 2.4 11.4 3.2 13.0 Queue Length 95th (m) 4.3 25.9 7.2 21.4 14.6 28.0 Internal Link Dist (m) 290.7 109.1 200.3 83.2 Turn Bay Length (m) 100.0 70.0 Base Capacity (vph) 669 2374 608 2389 416 334 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 0.04 0.24 0.09 0.21 0.19 0.32 Intersection Summary	Total Delay	5.0	4.8		5.3	4.4			16.5			37.9	
Approach LOS A A B D Queue Length 50th (m) 1.2 14.3 2.4 11.4 3.2 13.0 Queue Length 95th (m) 4.3 25.9 7.2 21.4 14.6 28.0 Internal Link Dist (m) 290.7 109.1 200.3 83.2 Turn Bay Length (m) 100.0 70.0 Base Capacity (vph) 669 2374 608 2389 416 334 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 0.04 0.24 0.09 0.21 0.19 0.32	LOS	Α	Α		Α	Α			В			D	
Queue Length 50th (m) 1.2 14.3 2.4 11.4 3.2 13.0 Queue Length 95th (m) 4.3 25.9 7.2 21.4 14.6 28.0 Internal Link Dist (m) 290.7 109.1 200.3 83.2 Turn Bay Length (m) 100.0 70.0 Base Capacity (vph) 669 2374 608 2389 416 334 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 0.04 0.24 0.09 0.21 0.19 0.32	Approach Delay		4.8			4.5			16.5			37.9	
Queue Length 95th (m) 4.3 25.9 7.2 21.4 14.6 28.0 Internal Link Dist (m) 290.7 109.1 200.3 83.2 Turn Bay Length (m) 100.0 70.0 Base Capacity (vph) 669 2374 608 2389 416 334 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 0.04 0.24 0.09 0.21 0.19 0.32 Intersection Summary	Approach LOS		Α			Α						D	
Internal Link Dist (m) 290.7 109.1 200.3 83.2 Turn Bay Length (m) 100.0 70.0 Base Capacity (vph) 669 2374 608 2389 416 334 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 0 Reduced v/c Ratio 0.04 0.24 0.09 0.21 0.19 0.32	Queue Length 50th (m)	1.2	14.3		2.4	11.4			3.2			13.0	
Turn Bay Length (m) 100.0 70.0 Base Capacity (vph) 669 2374 608 2389 416 334 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 0.04 0.24 0.09 0.21 0.19 0.32 Intersection Summary	Queue Length 95th (m)	4.3	25.9		7.2	21.4			14.6			28.0	
Base Capacity (vph) 669 2374 608 2389 416 334 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 0.04 0.24 0.09 0.21 0.19 0.32 Intersection Summary	Internal Link Dist (m)		290.7			109.1			200.3			83.2	
Starvation Cap Reductn 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 Reduced v/c Ratio 0.04 0.24 0.09 0.21 0.19 0.32 Intersection Summary	Turn Bay Length (m)	100.0			70.0								
Spillback Cap Reductn 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 0 Reduced v/c Ratio 0.04 0.24 0.09 0.21 0.19 0.32 Intersection Summary	Base Capacity (vph)	669	2374		608	2389			416			334	
Storage Cap Reductn 0 0 0 0 0 Reduced v/c Ratio 0.04 0.24 0.09 0.21 0.19 0.32 Intersection Summary	Starvation Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio 0.04 0.24 0.09 0.21 0.19 0.32 Intersection Summary	Spillback Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio 0.04 0.24 0.09 0.21 0.19 0.32 Intersection Summary		0	0		0	0			0			0	
,		0.04	0.24		0.09	0.21			0.19			0.32	

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 83.1

Natural Cycle: 50

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.55

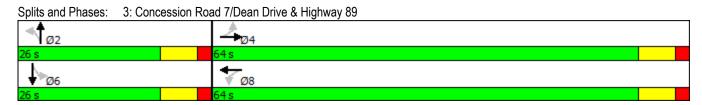
Intersection Signal Delay: 8.0

Intersection Capacity Utilization 48.9%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service A



	•	•	•	†	 	√
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			4	ĵ.	
Traffic Volume (veh/h)	15	2	1	59	76	18
Future Volume (Veh/h)	15	2	1	59	76	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	2	1	66	84	20
Pedestrians		_				
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)					7.55	
Upstream signal (m)					224	
pX, platoon unblocked					'	
vC, conflicting volume	162	94	104			
vC1, stage 1 conf vol		<u> </u>				
vC2, stage 2 conf vol						
vCu, unblocked vol	162	94	104			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	0.1	0.2				
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	828	963	1488			
			SB 1			
Direction, Lane # Volume Total	EB 1	NB 1 67	104			
	19					
Volume Left	17	1	0			
Volume Right	2	0	20			
cSH	841	1488	1700			
Volume to Capacity	0.02	0.00	0.06			
Queue Length 95th (m)	0.5	0.0	0.0			
Control Delay (s)	9.4	0.1	0.0			
Lane LOS	A	A	0.0			
Approach Delay (s)	9.4	0.1	0.0			
Approach LOS	Α					
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utiliz	zation		15.1%	IC	CU Level c	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	† }		ř	^	7		4			र्स	7
Traffic Volume (vph)	35	590	1	8	459	64	0	1	1	48	3	38
Future Volume (vph)	35	590	1	8	459	64	0	1	1	48	3	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt						0.850		0.932				0.850
Flt Protected	0.950			0.950							0.955	
Satd. Flow (prot)	1644	3259	0	1372	3230	1570	0	1790	0	0	1752	1396
Flt Permitted	0.476			0.416							0.737	
Satd. Flow (perm)	824	3259	0	598	3230	1570	0	1790	0	0	1352	1396
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						133		1				133
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Confl. Peds. (#/hr)			4	4								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	11%	12%	0%	33%	13%	4%	0%	0%	0%	5%	0%	17%
Adj. Flow (vph)	37	621	1	8	483	67	0	1	1	51	3	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	622	0	8	483	67	0	2	0	0	54	40
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	Cl+Ex		Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			Cl+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Free		NA		Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	58.0	58.0		58.0	58.0		32.0	32.0		32.0	32.0	
Total Split (%)	64.4%	64.4%		64.4%	64.4%		35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	51.0	51.0		51.0	51.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		,	0.0		,	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag				7.0				7.0				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	67.1	67.1		67.1	67.1	80.8	U	8.3		U	8.6	80.8
Actuated g/C Ratio	0.83	0.83		0.83	0.83	1.00		0.10			0.11	1.00
v/c Ratio	0.05	0.23		0.02	0.18	0.04		0.10			0.38	0.03
Control Delay	3.8	3.4		3.9	3.2	0.0		28.5			41.7	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	3.8	3.4		3.9	3.2	0.0		28.5			41.7	0.0
LOS	A	3. 4		J.5	3.2 A	Α		20.5 C			71.7 D	Α
Approach Delay		3.4			2.9			28.5			24.0	
Approach LOS		3.4 A			2.9 A			20.5 C			24.0 C	
Queue Length 50th (m)	1.4	14.3		0.3	10.5	0.0		0.1			8.8	0.0
Queue Length 95th (m)	4.4	23.5		1.6	18.0	0.0		m1.8			17.8	0.0
Internal Link Dist (m)	7.7	180.7		1.0	224.7	0.0		4.0			102.5	0.0
Turn Bay Length (m)	110.0	100.1		35.0	224.1	100.0		4.0			102.5	70.0
Base Capacity (vph)	683	2704		496	2680	1570		558			421	1396
Starvation Cap Reductn	003	0		490	2000	0		0			0	1390
Spillback Cap Reductn	0	0		0	0	0		0			0	
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio				0.02		0.04						-
	0.05	0.23		0.02	0.18	0.04		0.00			0.13	0.03
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 80	0.8											
Natural Cycle: 50												
Control Type: Semi Act-Ur	ncoord											

Intersection LOS: A

2026 Future Background - AM: Add'l Signals 06/13/2017 Baseline

Maximum v/c Ratio: 0.38 Intersection Signal Delay: 4.7

MNF

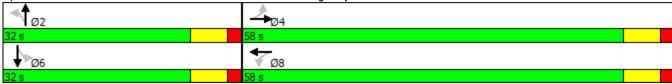
Intersection Capacity Utilization 47.5%

ICU Level of Service A

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Elizabeth Street/Concession Road 7 & Highway 89



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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†			414	W	
Traffic Volume (veh/h)	655	1	3	547	0	14
Future Volume (Veh/h)	655	1	3	547	0	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	704	1	3	588	0	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	249					
pX, platoon unblocked			0.99		0.99	0.99
vC, conflicting volume			705		1004	352
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			678		981	322
tC, single (s)			4.1		6.8	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			100		100	98
cM capacity (veh/h)			913		246	646
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	469	236	199	392	15	
Volume Left	0	0	3	0	0	
Volume Right	0	1	0	0	15	
cSH	1700	1700	913	1700	646	
Volume to Capacity	0.28	0.14	0.00	0.23	0.02	
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.5	
Control Delay (s)	0.0	0.0	0.2	0.0	10.7	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		10.7	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilizati	on		28.1%	IC	U Level o	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ħ	∱ }		7	∱ }		, j	ર્ન	7	*		7
Traffic Volume (vph)	33	522	160	235	367	9	167	22	90	9	31	18
Future Volume (vph)	33	522	160	235	367	9	167	22	90	9	31	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.965			0.996				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.963		0.950		
Satd. Flow (prot)	1825	3150	0	1807	3455	0	1387	1475	1617	1825	1779	1633
FIt Permitted	0.514			0.309			0.736	0.754		0.687		
Satd. Flow (perm)	987	3150	0	588	3455	0	1075	1155	1617	1320	1779	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			4				97			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	5%	34%	1%	5%	14%	25%	0%	1%	0%	8%	0%
Adj. Flow (vph)	35	561	172	253	395	10	180	24	97	10	33	19
Shared Lane Traffic (%)							44%					
Lane Group Flow (vph)	35	733	0	253	405	0	101	103	97	10	33	19
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	

EDI EDI EDD MEL MED MEL MED AND MED MED MED MED MED MED MED MED MED ME	SBT	
Lane Group EBL EBT EBR WBL WBT WBR NBL NBT NBR SE	_ 051	SBR
Permitted Phases 4 8 2 2	3	6
Detector Phase 4 4 3 8 2 2 2	6	6
Switch Phase		
Minimum Initial (s) 18.0 18.0 8.0 18.0 10.0 10.0 10.0 10	10.0	10.0
Minimum Split (s) 40.0 40.0 12.0 40.0 35.0 35.0 35.0 35	35.0	35.0
Total Split (s) 40.0 40.0 24.0 64.0 35.0 35.0 35.0 35	35.0	35.0
Total Split (%) 40.4% 40.4% 24.2% 64.6% 35.4% 35.4% 35.4% 35.4	35.4%	35.4%
Maximum Green (s) 33.0 33.0 20.0 57.0 29.0 29.0 29.0 29	29.0	29.0
Yellow Time (s) 5.0 5.0 4.0 5.0 4.0 4.0 4.0	4.0	4.0
All-Red Time (s) 2.0 2.0 0.0 2.0 2.0 2.0 2.0 2	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) 7.0 7.0 4.0 7.0 6.0 6.0 6.0 6	6.0	6.0
Lead/Lag Lag Lead		
Lead-Lag Optimize? Yes Yes Yes		
Vehicle Extension (s) 3.0 3.0 2.0 3.0 4.0 4.0 4.0 4	4.0	4.0
Recall Mode Max Max None Max None None None None None None None None	e None	None
Walk Time (s) 20.0 20.0 20.0 18.0 18.0 18.0 18	18.0	18.0
Flash Dont Walk (s) 13.0 13.0 13.0 11.0 11.0 11.0 11	11.0	11.0
Pedestrian Calls (#/hr) 0 0 0 0	0	0
Act Effct Green (s) 43.7 43.7 60.2 57.2 14.7 14.7 14.7 14		14.7
Actuated g/C Ratio 0.51 0.51 0.71 0.67 0.17 0.17 0.17 0.17	7 0.17	0.17
v/c Ratio 0.07 0.45 0.46 0.17 0.54 0.52 0.27 0.00		0.05
Control Delay 13.2 14.2 7.7 5.8 43.0 41.1 8.5 28	-	0.3
Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0		0.0
Total Delay 13.2 14.2 7.7 5.8 43.0 41.1 8.5 28		0.3
	C C	Α
Approach Delay 14.2 6.5 31.2	20.3	
Approach LOS B A C	С	
Queue Length 50th (m) 2.6 33.1 11.3 10.6 15.8 16.1 0.0 1		0.0
Queue Length 95th (m) 9.1 62.0 26.0 20.9 31.5 31.5 5		0.0
Internal Link Dist (m) 493.5 593.4 364.4	46.8	
Turn Bay Length (m) 80.0 95.0 25.0 15		10.0
Base Capacity (vph) 508 1643 704 2327 368 395 617 45	2 609	617
Starvation Cap Reductn 0 0 0 0 0 0	0	0
Spillback Cap Reductn 0 0 0 0 0 0	0	0
Storage Cap Reductn 0 0 0 0 0 0	0	0
Reduced v/c Ratio 0.07 0.45 0.36 0.17 0.27 0.26 0.16 0.0	2 0.05	0.03

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 84.9

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 14.4

Intersection Capacity Utilization 58.6%

Intersection LOS: B
ICU Level of Service B

Analysis Period (min) 15



	-	•	•	•	4	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ኘ	^	ሻ	7
Traffic Volume (vph)	391	60	176	630	214	333
Future Volume (vph)	391	60	176	630	214	333
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.7	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	100.0		1	1
Taper Length (m)		U	80.0		80.0	ı
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.980	0.30	1.00	0.90	1.00	0.850
FIt Protected	0.300		0.950		0.950	0.000
	3205	0	1532	3444	1665	921
Satd. Flow (prot)	3203	U		3444		921
Flt Permitted	2005	0	0.453	2444	0.950	004
Satd. Flow (perm)	3205	0	730	3444	1665	921
Right Turn on Red	22	Yes				Yes
Satd. Flow (RTOR)	30					358
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	12%	9%	10%	6%	6%	4%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	420	65	189	677	230	358
Shared Lane Traffic (%)						
Lane Group Flow (vph)	485	0	189	677	230	358
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0	5		3.0	3.4	3
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane	7.0			7.5	7.0	
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)	0.33	14	24	0.55	24	1.09
- , , ,	0	14		2		
Number of Detectors	2		1	2 Th	1	1
Detector Template	Thru		40.0	Thru	40.0	Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	Cl+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	OIILX			OITEX		
	0.0			0.0		
Detector 2 Extend (s)	0.0			0.0		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	40.1		55.5	50.0	13.9	13.9
Actuated g/C Ratio	0.51		0.71	0.64	0.18	0.18
v/c Ratio	0.29		0.32	0.31	0.78	0.78
Control Delay	11.4		5.6	7.1	50.9	17.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	11.4		5.6	7.1	50.9	17.5
LOS	В		Α	Α	D	В
Approach Delay	11.4			6.7	30.6	
Approach LOS	В			Α	С	
Queue Length 50th (m)	19.7		8.2	22.1	33.1	0.0
Queue Length 95th (m)	30.9		14.7	30.4	#64.3	#40.3
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)			180.0		90.0	
Base Capacity (vph)	1651		618	2195	318	465
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	0.29		0.31	0.31	0.72	0.77

Area Type: Other

Cycle Length: 79.6
Actuated Cycle Length: 78.5

Natural Cycle: 75

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.78 Intersection Signal Delay: 15.1

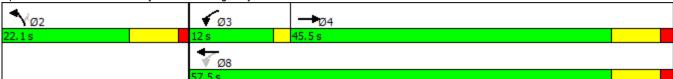
Intersection Signal Delay: 15.1 Intersection LOS: B
Intersection Capacity Utilization 66.3% ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 50 & Highway 89



	•	→	+	1	/	4
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	ħβ		W	
Traffic Volume (veh/h)	44	678	780	42	17	23
Future Volume (Veh/h)	44	678	780	42	17	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	47	729	839	45	18	25
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.95	
vC, conflicting volume	884				1320	442
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	884				1228	442
tC, single (s)	4.1				7.0	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	94				88	96
cM capacity (veh/h)	774				144	569
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	290	486	559	325	43	
Volume Left	47	0	0	0	18	
Volume Right	0	0	0	45	25	
cSH	774	1700	1700	1700	255	
Volume to Capacity	0.06	0.29	0.33	0.19	0.17	
Queue Length 95th (m)	1.5	0.0	0.0	0.0	4.5	
Control Delay (s)	2.2	0.0	0.0	0.0	22.0	
Lane LOS	Α				С	
Approach Delay (s)	0.8		0.0		22.0	
Approach LOS					С	
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utiliza	ation		56.3%	IC	U Level o	of Service
Analysis Period (min)			15			22
, thatyoid i offou (IIIII)			10			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	∱ }		ሻ	∱ }			4			4	
Traffic Volume (vph)	26	649	40	135	751	56	60	13	112	42	8	33
Future Volume (vph)	26	649	40	135	751	56	60	13	112	42	8	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991			0.990			0.918			0.946	
Flt Protected	0.950			0.950				0.984			0.975	
Satd. Flow (prot)	1825	3271	0	1825	3393	0	0	1686	0	0	1772	0
FIt Permitted	0.323			0.376				0.865			0.683	
Satd. Flow (perm)	621	3271	0	722	3393	0	0	1482	0	0	1241	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			16			80			35	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		310.5			133.1			226.8			107.2	
Travel Time (s)		18.6			8.0			13.6			7.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	10%	20%	0%	7%	0%	9%	0%	0%	0%	0%	0%
Adj. Flow (vph)	27	683	42	142	791	59	63	14	118	44	8	35
Shared Lane Traffic (%)		000	'-		, , ,				1.0			
Lane Group Flow (vph)	27	725	0	142	850	0	0	195	0	0	87	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		1.0			1.0			1.0			1.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	1	2		1	2	• •	1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	OI · LX	OI · LX		OI LX	OI · LX		OI LX	OI · LX		OI LX	OI · LX	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	28.7		0.0	28.7	
Detector 2 Fosition(m) Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel		OLITEX			OLITEX			OLITEX			OLITEX	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
` '	Dorm	NA		Dorm	NA		Perm	NA		Dorm	NA	
Turn Type	Perm			Perm			reilli			Perm		
Protected Phases		4			8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	62.0	62.0		62.0	62.0		28.0	28.0		28.0	28.0	
Total Split (%)	68.9%	68.9%		68.9%	68.9%		31.1%	31.1%		31.1%	31.1%	
Maximum Green (s)	55.0	55.0		55.0	55.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	57.2	57.2		57.2	57.2			12.1			12.1	
Actuated g/C Ratio	0.69	0.69		0.69	0.69			0.15			0.15	
v/c Ratio	0.06	0.32		0.29	0.36			0.69			0.41	
Control Delay	6.2	6.2		8.1	6.5			31.8			25.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.2	6.2		8.1	6.5			31.8			25.8	
LOS	Α	Α		Α	Α			С			С	
Approach Delay		6.2			6.7			31.8			25.8	
Approach LOS		Α			Α			С			С	
Queue Length 50th (m)	1.2	20.1		7.5	24.4			16.6			7.2	
Queue Length 95th (m)	4.9	37.6		20.9	45.0			37.0			19.8	
Internal Link Dist (m)		286.5			109.1			202.8			83.2	
Turn Bay Length (m)	100.0			70.0								
Base Capacity (vph)	426	2248		495	2333			433			339	
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	0.06	0.32		0.29	0.36			0.45			0.26	
Intersection Summary												

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 83.4

Natural Cycle: 50

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 9.8

Intersection Capacity Utilization 56.2%

Analysis Period (min) 15

Intersection LOS: A ICU Level of Service B

	•	*	4	†	 	4
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			ર્ન	f)	
Traffic Volume (veh/h)	72	4	4	114	104	79
Future Volume (Veh/h)	72	4	4	114	104	79
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	80	4	4	127	116	88
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				113110	110110	
Upstream signal (m)					227	
pX, platoon unblocked						
vC, conflicting volume	295	160	204			
vC1, stage 1 conf vol	200	100	201			
vC2, stage 2 conf vol						
vCu, unblocked vol	295	160	204			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	0.4	0.2	7.1			
tF (s)	3.5	3.3	2.2			
p0 queue free %	88	100	100			
cM capacity (veh/h)	694	885	1368			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	84	131	204			
Volume Left	80	4	0			
Volume Right	4	0	88			
cSH	701	1368	1700			
Volume to Capacity	0.12	0.00	0.12			
Queue Length 95th (m)	3.1	0.1	0.0			
Control Delay (s)	10.8	0.3	0.0			
Lane LOS	В	Α				
Approach Delay (s)	10.8	0.3	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utili	ization		21.2%	IC	CU Level o	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	↑ ↑		ኻ	^	7		4			4	7
Traffic Volume (vph)	62	765	8	16	847	104	0	0	9	87	1	53
Future Volume (vph)	62	765	8	16	847	104	0	0	9	87	1	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.865				0.850
Flt Protected	0.950			0.950							0.953	
Satd. Flow (prot)	1706	3379	0	1825	3444	1633	0	1662	0	0	1813	1633
Flt Permitted /	0.312			0.343							0.722	
Satd. Flow (perm)	560	3379	0	659	3444	1633	0	1662	0	0	1373	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				133		213				133
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	8%	0%	0%	6%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	65	805	8	17	892	109	0	0	9	92	1	56
Shared Lane Traffic (%)		000			002	.00				02		
Lane Group Flow (vph)	65	813	0	17	892	109	0	9	0	0	93	56
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		1.0			1.0			1.0			1.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		CI+Ex	Cl+Ex	CI+Ex	Cl+Ex	CI+Ex		Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel	OITEX	OI · LX		OI · LX	OI · LX	OI · LX	OI · LX	OI · LX		OI · LX	OI · LX	OI · LX
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	0.0	28.7		0.0	28.7	0.0	0.0	28.7		0.0	28.7	0.0
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			CI+Ex			Cl+Ex	
Detector 2 Channel		OLILA			OIFLX			OLITEX			OLITEX	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
. ,	Perm	NA		Perm	NA	Free		NA		Perm	NA	Free
Turn Type	reiiii			reim		riee				reilli		riee
Protected Phases		4			8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	65.0	65.0		65.0	65.0		25.0	25.0		25.0	25.0	
Total Split (%)	72.2%	72.2%		72.2%	72.2%		27.8%	27.8%		27.8%	27.8%	
Maximum Green (s)	58.0	58.0		58.0	58.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	67.8	67.8		67.8	67.8	88.6		11.1			11.3	88.6
Actuated g/C Ratio	0.77	0.77		0.77	0.77	1.00		0.13			0.13	1.00
v/c Ratio	0.15	0.31		0.03	0.34	0.07		0.02			0.53	0.03
Control Delay	6.0	5.1		4.9	5.2	0.1		0.1			46.9	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	6.0	5.1		4.9	5.2	0.1		0.1			46.9	0.0
LOS	Α	Α		Α	Α	Α		Α			D	Α
Approach Delay		5.2			4.7			0.1			29.3	
Approach LOS		Α			Α			Α			С	
Queue Length 50th (m)	3.0	23.1		0.7	26.1	0.0		0.0			15.7	0.0
Queue Length 95th (m)	9.0	37.9		3.0	42.2	0.0		m0.0			28.0	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	428	2585		504	2634	1633		508			279	1633
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.15	0.31		0.03	0.34	0.07		0.02			0.33	0.03

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 88.6

Natural Cycle: 50

Control Type: Semi Act-Uncoord

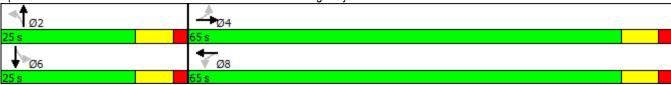
Maximum v/c Ratio: 0.53

Intersection Signal Delay: 6.7 Intersection LOS: A Intersection Capacity Utilization 56.6% ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Elizabeth Street/Concession Road 7 & Highway 89



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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	∱ 1>			414	*/*	
Traffic Volume (veh/h)	835	4	5	1012	0	13
Future Volume (Veh/h)	835	4	5	1012	0	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	861	4	5	1043	0	13
Pedestrians					3	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	249					
pX, platoon unblocked			0.94		0.94	0.94
vC, conflicting volume			868		1398	436
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			740		1301	281
tC, single (s)			4.1		6.8	7.5
tC, 2 stage (s)					3.0	
tF (s)			2.2		3.5	3.6
p0 queue free %			99		100	98
cM capacity (veh/h)			824		145	600
	ED 4	ED 2		WB 2		000
Direction, Lane #	EB 1	EB 2	WB 1		NB 1	
Volume Total	574	291	353	695	13	
Volume Left	0	0	5	0	0	
Volume Right	0	4	0	0	13	
cSH	1700	1700	824	1700	600	
Volume to Capacity	0.34	0.17	0.01	0.41	0.02	
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.5	
Control Delay (s)	0.0	0.0	0.2	0.0	11.1	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		11.1	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliza	ation		41.5%	IC	U Level o	f Service
Analysis Period (min)			15			
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ 1≽		ሻ	† }		ሻ	4	7	ች	↑	7
Traffic Volume (vph)	47	577	272	239	603	26	369	39	175	23	47	70
Future Volume (vph)	47	577	272	239	603	26	369	39	175	23	47	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.952			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.961		0.950		
Satd. Flow (prot)	1825	3221	0	1825	3557	0	1534	1579	1617	1722	1921	1601
Flt Permitted	0.403			0.221			0.725	0.734		0.505		
Satd. Flow (perm)	774	3221	0	424	3557	0	1168	1203	1588	911	1921	1577
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		85			7				182			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	1		8	8		1	3		6	6		3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	17%	0%	2%	0%	13%	3%	1%	6%	0%	2%
Adj. Flow (vph)	49	601	283	249	628	27	384	41	182	24	49	73
Shared Lane Traffic (%)							45%					
Lane Group Flow (vph)	49	884	0	249	655	0	211	214	182	24	49	73
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	•	14	24	•	14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template	0.0	Thru		40.5	Thru		40.5	40.5	40.0	40.5	40.5	0.0
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			Cl+Ex							
Detector 2 Channel		0.0			0.0							
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	42.3	42.3		60.3	57.3		22.4	22.4	22.4	22.4	22.4	22.4
Actuated g/C Ratio	0.46	0.46		0.65	0.62		0.24	0.24	0.24	0.24	0.24	0.24
v/c Ratio	0.14	0.58		0.56	0.30		0.75	0.74	0.35	0.11	0.11	0.16
Control Delay	19.9	20.4		12.8	9.4		49.3	48.0	6.2	27.5	26.8	5.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	20.4		12.8	9.4		49.3	48.0	6.2	27.5	26.8	5.3
LOS	В	С		В	Α		D	D	Α	С	С	Α
Approach Delay		20.4			10.3			35.9			16.2	
Approach LOS		С			В			D			В	
Queue Length 50th (m)	4.9	53.4		16.8	26.8		36.6	37.0	0.0	3.3	6.8	0.0
Queue Length 95th (m)	14.9	91.7		31.8	42.1		62.7	62.7	14.7	9.6	15.2	7.6
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	352	1514		579	2200		367	378	623	286	603	556
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	0.14	0.58		0.43	0.30		0.57	0.57	0.29	0.08	0.08	0.13

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 92.7

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 20.3

Intersection Capacity Utilization 78.2%

Intersection LOS: C

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ኘ	^	ሻ	7
Traffic Volume (vph)	507	76	189	565	141	204
Future Volume (vph)	507	76	189	565	141	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.7	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	100.0		1	1
Taper Length (m)		U	80.0		80.0	ı
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.981	0.00	1.00	0.00	1.00	0.850
FIt Protected	0.301		0.950		0.950	0.000
Satd. Flow (prot)	3466	0	1668	3544	1713	949
Flt Permitted	5400	U	0.402	3344	0.950	343
	2466	0		2511		040
Satd. Flow (perm)	3466	0	706	3544	1713	949
Right Turn on Red	00	Yes				Yes
Satd. Flow (RTOR)	28			00	00	210
Link Speed (k/h)	80			80	08	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	12%	1%	3%	3%	1%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	523	78	195	582	145	210
Shared Lane Traffic (%)						
Lane Group Flow (vph)	601	0	195	582	145	210
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane	7.0			7.5	7.0	
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)	0.33	14	24	0.55	24	1.09
_ , , ,	0	14		2		
Number of Detectors	2		1	2 Th	1	1
Detector Template	Thru		40.0	Thru	40.0	Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	Cl+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	OIILX			OITEX		
	0.0			0.0		
Detector 2 Extend (s)	0.0			0.0		

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8	-		2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead	7.0		7.,
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	40.4		55.5	50.0	12.1	12.1
Actuated g/C Ratio	0.53		0.72	0.65	0.16	0.16
v/c Ratio	0.33		0.32	0.25	0.54	0.64
Control Delay	11.0		5.1	6.1	37.6	14.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	11.0		5.1	6.1	37.6	14.6
LOS	В		Α.	Α.	07.0 D	14.0
Approach Delay	11.0			5.8	24.0	U
Approach LOS	В			J.0	24.0 C	
Queue Length 50th (m)	22.6		6.9	15.7	19.6	0.0
Queue Length 95th (m)	38.5		14.8	25.5	36.2	19.4
Internal Link Dist (m)	976.2		1-7.0	176.3	613.9	19.4
Turn Bay Length (m)	310.2		180.0	170.5	90.0	
Base Capacity (vph)	1839		636	2311	335	354
Starvation Cap Reductn	0		030	2311	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.33		0.31	0.25	0.43	0.59
Neudoed We Rallo	0.33		0.31	0.20	0.43	0.59
Intersection Summary						
Area Type:	Other					

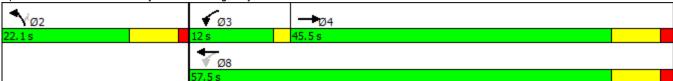
Area Type: Cycle Length: 79.6 Actuated Cycle Length: 76.7 Natural Cycle: 70

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.64 Intersection Signal Delay: 11.4

Intersection LOS: B Intersection Capacity Utilization 63.5% ICU Level of Service B

Analysis Period (min) 15

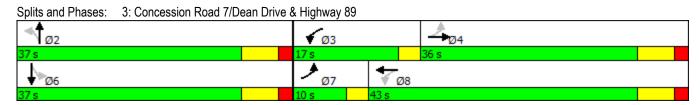
Splits and Phases: 1: County Road 50 & Highway 89



	•	→	+	•	/	✓
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	ħβ		W	
Traffic Volume (veh/h)	13	677	635	34	28	12
Future Volume (Veh/h)	13	677	635	34	28	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	736	690	37	30	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.92	
vC, conflicting volume	727				1104	364
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	727				949	364
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				87	98
cM capacity (veh/h)	886				238	639
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	259	491	460	267	43	
Volume Left	14	0	0	0	30	
Volume Right	0	0	0	37	13	
cSH	886	1700	1700	1700	294	
Volume to Capacity	0.02	0.29	0.27	0.16	0.15	
Queue Length 95th (m)	0.4	0.0	0.0	0.0	3.8	
Control Delay (s)	0.7	0.0	0.0	0.0	19.3	
Lane LOS	Α				С	
Approach Delay (s)	0.2		0.0		19.3	
Approach LOS					С	
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilizati	ion		38.0%	IC	U Level c	f Service
Analysis Period (min)			15			

	۶	→	•	•	←	•	•	†	<i>></i>	/	↓	✓
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ∱		ሻ	↑ ↑			4			4	
Traffic Volume (vph)	38	613	72	204	653	145	86	12	189	115	29	40
Future Volume (vph)	38	613	72	204	653	145	86	12	189	115	29	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984			0.973			0.911			0.971	
Flt Protected	0.950			0.950				0.985			0.970	
Satd. Flow (prot)	1825	3529	0	1789	3467	0	0	1724	0	0	1798	0
FIt Permitted	0.336			0.296				0.845			0.573	
Satd. Flow (perm)	645	3529	0	557	3467	0	0	1479	0	0	1062	0
Right Turn on Red	0.0	70-0	Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15	100		35	100		115	100		17	. 00
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		312.3			133.1			226.7			107.2	
Travel Time (s)		18.7			8.0			13.6			7.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	0%	2%	3%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	40	645	76	215	687	153	91	13	199	121	31	42
Shared Lane Traffic (%)	70	010	10	210	001	100	31	10	100	121	01	72
Lane Group Flow (vph)	40	721	0	215	840	0	0	303	0	0	194	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	Lon	3.7	rugiit	Loit	3.7	rugiit	Loit	0.0	rugiit	Loit	0.0	ragne
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		7.0			7.0			7.0			7.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.55	14	24	0.00	14
Number of Detectors	1	2	17	1	2	17	1	2	17	1	2	17
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		Cl+Ex	Cl+Ex		Cl+Ex	CI+Ex		Cl+Ex	CI+Ex	
Detector 1 Channel	OIILX	OIILX		OITEX	OITEX		OITEX	OIILX		OITEX	OITEX	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	28.7		0.0	28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			CI+Ex			Cl+Ex	
		CITEX			CITEX			CITEX			CITEX	
Detector 2 Channel		0.0			0.0			0.0			0.0	
Detector 2 Extend (s)	n no . mł	0.0		n m t	0.0		Dema			Derm		
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	25.0		9.5	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	10.0	36.0		17.0	43.0		37.0	37.0		37.0	37.0	
Total Split (%)	11.1%	40.0%		18.9%	47.8%		41.1%	41.1%		41.1%	41.1%	
Maximum Green (s)	7.0	29.0		14.0	36.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	3.0	5.0		3.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	0.0	2.0		0.0	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)	3.0	7.0		3.0	7.0			7.0			7.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	Max		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	41.0	30.8		47.4	38.1			17.0			17.0	
Actuated g/C Ratio	0.55	0.41		0.64	0.51			0.23			0.23	
v/c Ratio	0.09	0.49		0.42	0.47			0.71			0.76	
Control Delay	7.6	18.9		9.5	14.5			25.9			44.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.6	18.9		9.5	14.5			25.9			44.1	
LOS	Α	В		Α	В			С			D	
Approach Delay		18.3			13.5			25.9			44.1	
Approach LOS		В			В			С			D	
Queue Length 50th (m)	1.8	36.6		10.9	40.1			24.7			24.0	
Queue Length 95th (m)	6.8	69.7		27.3	71.4			50.3			46.2	
Internal Link Dist (m)		288.3			109.1			202.7			83.2	
Turn Bay Length (m)	100.0			70.0								
Base Capacity (vph)	475	1466		589	1787			673			444	
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	0.08	0.49		0.37	0.47			0.45			0.44	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 74	.5											
Natural Cycle: 60												
Control Type: Semi Act-Ur	ncoord											
Maximum v/c Ratio: 0.76												
Intersection Signal Delay:					ntersection							
Intersection Capacity Utiliz	ation 65.5%			IC	CU Level of	of Service	e C					
Analysis Period (min) 15												



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W/			4	î»	
Traffic Volume (veh/h)	161	8	13	124	117	187
Future Volume (Veh/h)	161	8	13	124	117	187
Sign Control	Stop		.,	Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	179	9	14	138	130	208
Pedestrians	170	J	17	100	100	200
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				INUITE	NONE	
Upstream signal (m)					227	
pX, platoon unblocked	0.96	0.96	0.96		221	
vC, conflicting volume	400	234	338			
	400	234	330			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol	250	107	205			
vCu, unblocked vol	359	187	295			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	2 -		2.0			
tF (s)	3.5	3.3	2.2			
p0 queue free %	71	99	99			
cM capacity (veh/h)	610	824	1221			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	188	152	338			
Volume Left	179	14	0			
Volume Right	9	0	208			
cSH	617	1221	1700			
Volume to Capacity	0.30	0.01	0.20			
Queue Length 95th (m)	9.8	0.3	0.0			
Control Delay (s)	13.4	0.8	0.0			
Lane LOS	В	Α				
Approach Delay (s)	13.4	0.8	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			3.9			
Intersection Capacity Utili	ization		33.7%	IC	CU Level c	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ∱		ኻ	^	7		4			ર્ન	7
Traffic Volume (vph)	63	905	5	23	965	138	1	5	9	134	4	56
Future Volume (vph)	63	905	5	23	965	138	1	5	9	134	4	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt		0.999				0.850		0.919				0.850
Flt Protected	0.950			0.950				0.997			0.954	
Satd. Flow (prot)	1789	3575	0	1825	3579	1601	0	1760	0	0	1781	1555
Flt Permitted	0.258			0.278				0.978			0.721	
Satd. Flow (perm)	486	3575	0	534	3579	1601	0	1727	0	0	1346	1555
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				145		9				133
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	0%	0%	2%	2%	0%	0%	0%	3%	0%	5%
Adj. Flow (vph)	66	953	5	24	1016	145	1	5	9	141	4	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	958	0	24	1016	145	0	15	0	0	145	59
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	Cl+Ex		Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			Cl+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Free	Perm	NA		Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	63.0	63.0		63.0	63.0		27.0	27.0		27.0	27.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	56.0	56.0		56.0	56.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	56.1	56.1		56.1	56.1	84.2		14.0			14.0	84.2
Actuated g/C Ratio	0.67	0.67		0.67	0.67	1.00		0.17			0.17	1.00
v/c Ratio	0.20	0.40		0.07	0.43	0.09		0.05			0.65	0.04
Control Delay	8.5	7.5		6.7	7.7	0.1		19.0			46.5	0.1
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	8.5	7.5		6.7	7.7	0.1		19.0			46.5	0.1
LOS	Α	Α		Α	Α	Α		В			D	Α
Approach Delay		7.6			6.8			19.0			33.0	
Approach LOS		Α			Α			В			С	
Queue Length 50th (m)	3.6	32.2		1.2	35.0	0.0		0.8			22.0	0.0
Queue Length 95th (m)	11.2	52.8		4.6	57.2	0.0		m5.3			40.1	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	324	2384		356	2386	1601		418			320	1555
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.20	0.40		0.07	0.43	0.09		0.04			0.45	0.04
Intersection Summary												

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 84.2

Natural Cycle: 55

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.65 Intersection Signal Delay: 9.4

Intersection Capacity Utilization 62.6%

Intersection LOS: A ICU Level of Service B

09/21/2017

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Elizabeth Street/Concession Road 7 & Highway 89



Movement
Lane Configurations
Traffic Volume (veh/h) 1070 3 5 1122 0 8 Future Volume (Veh/h) 1070 3 5 1122 0 8 Sign Control Free Free Stop 0 0% 0% Grade 0% 0.94 <
Future Volume (Veh/h) 1070 3 5 1122 0 8 Sign Control Free Stop Grade 0% 0% 0% 0% Peak Hour Factor 0.94 0.94 0.94 0.94 0.94 0.94 Hourly flow rate (vph) 1138 3 5 1194 0 9 Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None None Median storage veh) Upstream signal (m) 249 pX, platoon unblocked vol., stage 1 conf vol vC2, stage 2 conf vol vC4, single (s) tC, csingle (s) tF (s) 99 100 99 tC, 2 stage (s) tF (s) 99 100 99 cM capacity (veh/h) 678 89 630 Direction, Lane # EB1 EB2 WB1 WB2 NB1 Volume Total 759 382 403 796 9 Volume Right 0 3 0 0 9 cSH 1700 1700 678 1700 630
Grade 0% 0% 0% Peak Hour Factor 0.94
Peak Hour Factor 0.94
Hourly flow rate (vph) 1138 3 5 1194 0 9 Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None None Median storage veh) Upstream signal (m) pX, platoon unblocked 0.88 0.88 0.88 vC, conflicting volume 1141 1746 570 vC1, stage 1 conf vol vC2, stage 2 conf vol vC4, unblocked vol 890 1577 242 tC, single (s) 4.1 6.8 7.2 tC, 2 stage (s) tF (s) 2.2 3.5 3.5 p0 queue free % 99 100 99 cM capacity (veh/h) 678 89 630 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 759 382 403 796 9 Volume Left 0 0 5 0 0 Volume Right 0 3 0 0 9 cSH 1700 1700 678 1700 630
Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None Median storage veh) Upstream signal (m) 249 pX, platoon unblocked 0.88 0.88 vC, conflicting volume 1141 1746 570 vC1, stage 1 conf vol 20 20 20 20 20 20 20 20 20 20 20 20 20 3.5
Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None Median storage veh) Upstream signal (m) 249 pX, platoon unblocked 0.88 0.88 vC, conflicting volume 1141 1746 570 vC1, stage 1 conf vol 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 3.5
Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None None Median storage veh) Upstream signal (m) 249 pX, platoon unblocked 0.88 0.88 0.88 vC, conflicting volume 1141 1746 570 vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 890 1577 242 tC, single (s) 4.1 6.8 7.2 157 157 242 157 242 157 157 242 157 157 242 157
Percent Blockage Right turn flare (veh) Median type None Median storage veh) Vercent Storage veh Upstream signal (m) 249 pX, platoon unblocked 0.88 0.88 vC, conflicting volume 1141 1746 570 vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC4, unblocked vol 890 1577 242 tC, single (s) 4.1 6.8 7.2 tC, 2 stage (s) tF (s) 2.2 3.5 3.5 p0 queue free % 99 100 99 cM capacity (veh/h) 678 89 630 630 630 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 759 382 403 796 9 Volume Left 0 0 5 0 0 0 Volume Right 0 3 0 0 9 cSH CSH 1700 1700 678 1700 630 0 0 0 0 0 0
Right turn flare (veh) Median type None None Median storage veh) 249 Upstream signal (m) 249 pX, platoon unblocked 0.88 0.88 0.88 vC, conflicting volume 1141 1746 570 vC1, stage 1 conf vol VC2, stage 2 conf vol VC2, stage 2 conf vol VC3, stage 2 conf vol VC4, unblocked vol 6.8 7.2 tC, 2 stage (s) 4.1 6.8 7.2 10.8 7.2 10.8 7.2 10.8 10.8 7.2 10.8 7.2 10.8 7.2 10.8 10.8 7.2 10.8 10.8 7.2 10.8 10.8 7.2 10.8 10.8 7.2 10.8 10.8 7.2 10.8 10.8 7.2 10.8 10.8 7.2 10.8 10.8 10.8 7.2 10.8 <td< td=""></td<>
Median type None None Median storage veh) Upstream signal (m) 249 pX, platoon unblocked 0.88 0.88 0.88 vC, conflicting volume 1141 1746 570 vC1, stage 1 conf vol VC2, stage 2 conf vol VCU, unblocked vol 890 1577 242 tC, single (s) 4.1 6.8 7.2 157 157 242 157 157 242 157 242 157 157 242 157 157 242 157 157 242 157 157 242 157 157 242 157 157 242 157 157 242 157 157 242 157 157 242 157 157 242 157 157 242 157 157 242 157 157 242 157 157 157 242 157 157 157 157 157 157 157 157 157 157
Median type None None Median storage veh) 249 pX, platoon unblocked 0.88 0.88 0.88 vC, conflicting volume 1141 1746 570 vC1, stage 1 conf vol 20 1577 242 vCu, unblocked vol 890 1577 242 tC, single (s) 4.1 6.8 7.2 tC, 2 stage (s) 2.2 3.5 3.5 p0 queue free % 99 100 99 cM capacity (veh/h) 678 89 630 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 759 382 403 796 9 Volume Left 0 0 5 0 0 Volume Right 0 3 0 0 9 cSH 1700 1700 678 1700 630
Upstream signal (m) 249 pX, platoon unblocked 0.88 0.88 0.88 vC, conflicting volume 1141 1746 570 vC1, stage 1 conf vol VC2, stage 2 conf vol vCu, unblocked vol 890 1577 242 tC, single (s) 4.1 6.8 7.2 tC, 2 stage (s) 5 5 5 3.5
Upstream signal (m) 249 pX, platoon unblocked 0.88 0.88 0.88 vC, conflicting volume 1141 1746 570 vC1, stage 1 conf vol 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 3.5 <
pX, platoon unblocked 0.88 0.88 0.88 vC, conflicting volume 1141 1746 570 vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 890 1577 242 tC, single (s) 4.1 6.8 7.2 tC, 2 stage (s) tF (s) 2.2 3.5 3.5 p0 queue free % 99 100 99 cM capacity (veh/h) 678 89 630 \frac{\text{Direction, Lane #}}{\text{EB 1} \text{EB 2} \text{WB 1} \text{WB 2} \text{NB 1} \text{VB 2} \text{VB 1} \text{Volume Total} 759 382 403 796 9 volume Left 0 3 0 0 9 cSH 1700 678 1700 630
vC, conflicting volume 1141 1746 570 vC1, stage 1 conf vol VC2, stage 2 conf vol VC2, stage (s) 1577 242 tC, single (s) 4.1 6.8 7.2
vC2, stage 2 conf vol vCu, unblocked vol 890 1577 242 tC, single (s) 4.1 6.8 7.2 tC, 2 stage (s) 2.2 3.5 3.5 p0 queue free % 99 100 99 cM capacity (veh/h) 678 89 630 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 759 382 403 796 9 Volume Left 0 0 5 0 0 Volume Right 0 3 0 0 9 cSH 1700 1700 678 1700 630
vC2, stage 2 conf vol vCu, unblocked vol 890 1577 242 tC, single (s) 4.1 6.8 7.2 tC, 2 stage (s) 2.2 3.5 3.5 p0 queue free % 99 100 99 cM capacity (veh/h) 678 89 630 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 759 382 403 796 9 Volume Left 0 0 5 0 0 Volume Right 0 3 0 0 9 cSH 1700 1700 678 1700 630
vCu, unblocked vol 890 1577 242 tC, single (s) 4.1 6.8 7.2 tC, 2 stage (s) 7.2 3.5 3.5 tF (s) 2.2 3.5 3.5 p0 queue free % 99 100 99 cM capacity (veh/h) 678 89 630 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 759 382 403 796 9 Volume Left 0 0 5 0 0 Volume Right 0 3 0 0 9 cSH 1700 1700 678 1700 630
tC, 2 stage (s) tF (s) 2.2 3.5 3.5 p0 queue free % 99 100 99 cM capacity (veh/h) 678 89 630 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 759 382 403 796 9 Volume Left 0 0 5 0 0 Volume Right 0 3 0 0 9 cSH 1700 1700 678 1700 630
tC, 2 stage (s) tF (s) 2.2 3.5 3.5 p0 queue free % 99 100 99 cM capacity (veh/h) 678 89 630 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 759 382 403 796 9 Volume Left 0 0 5 0 0 Volume Right 0 3 0 0 9 cSH 1700 1700 678 1700 630
tF (s) 2.2 3.5 3.5 p0 queue free % 99 100 99 cM capacity (veh/h) 678 89 630 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 759 382 403 796 9 Volume Left 0 0 5 0 0 Volume Right 0 3 0 0 9 cSH 1700 678 1700 630
p0 queue free % 99 100 99 cM capacity (veh/h) 678 89 630 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 759 382 403 796 9 Volume Left 0 0 5 0 0 Volume Right 0 3 0 0 9 cSH 1700 1700 678 1700 630
CM capacity (veh/h) 678 89 630 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 759 382 403 796 9 Volume Left 0 0 5 0 0 Volume Right 0 3 0 0 9 cSH 1700 1700 678 1700 630
Volume Total 759 382 403 796 9 Volume Left 0 0 5 0 0 Volume Right 0 3 0 0 9 cSH 1700 1700 678 1700 630
Volume Total 759 382 403 796 9 Volume Left 0 0 5 0 0 Volume Right 0 3 0 0 9 cSH 1700 1700 678 1700 630
Volume Left 0 0 5 0 0 Volume Right 0 3 0 0 9 cSH 1700 1700 678 1700 630
Volume Right 0 3 0 0 9 cSH 1700 1700 678 1700 630
cSH 1700 1700 678 1700 630
Volume to Capacity 0.45 0.22 0.01 0.47 0.01
Queue Length 95th (m) 0.0 0.0 0.2 0.0 0.3
Control Delay (s) 0.0 0.0 0.2 0.0 10.8
Lane LOS A B
Approach Delay (s) 0.0 0.1 10.8
Approach LOS B
Intersection Summary
Average Delay 0.1
Intersection Capacity Utilization 44.5% ICU Level of Service
Analysis Period (min) 15

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ }		ሻ	∱ }		ሻ	ર્ન	7	ሻ	1	7
Traffic Volume (vph)	125	791	161	389	802	30	222	48	224	44	106	86
Future Volume (vph)	125	791	161	389	802	30	222	48	224	44	106	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.975			0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.968		0.950		
Satd. Flow (prot)	1807	3510	0	1825	3594	0	1683	1733	1617	1772	1921	1633
Flt Permitted	0.318			0.140			0.684	0.735		0.628		
Satd. Flow (perm)	604	3510	0	269	3594	0	1208	1313	1593	1168	1921	1607
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			6				241			92
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	3		1	1		3	4		3	3		4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	0%	6%	0%	1%	0%	3%	0%	1%	3%	0%	0%
Adj. Flow (vph)	134	851	173	418	862	32	239	52	241	47	114	92
Shared Lane Traffic (%)							41%					
Lane Group Flow (vph)	134	1024	0	418	894	0	141	150	241	47	114	92
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	Cl+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	34.9	34.9		60.3	57.2		17.2	17.2	17.2	17.2	17.2	17.2
Actuated g/C Ratio	0.40	0.40		0.69	0.65		0.20	0.20	0.20	0.20	0.20	0.20
v/c Ratio	0.56	0.72		0.82	0.38		0.59	0.58	0.48	0.21	0.30	0.24
Control Delay	34.7	26.9		31.4	8.2		42.3	40.9	7.2	30.6	31.3	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.7	26.9		31.4	8.2		42.3	40.9	7.2	30.6	31.3	7.8
LOS	С	С		С	Α		D	D	Α	С	С	Α
Approach Delay		27.8			15.6			26.0			22.6	
Approach LOS		С			В			С			С	
Queue Length 50th (m)	17.5	75.1		40.5	31.6		22.7	24.1	0.0	6.6	16.4	0.0
Queue Length 95th (m)	#47.9	116.2		#102.4	57.4		41.3	43.0	16.9	15.4	30.0	10.9
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	240	1417		542	2353		402	437	691	388	639	596
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	0.56	0.72		0.77	0.38		0.35	0.34	0.35	0.12	0.18	0.15

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 87.5

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 22.2

Intersection Capacity Utilization 78.3%

Intersection LOS: C

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: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† ‡	LDIN	ኘ	^	ሻ	7
Traffic Volume (vph)	365	183	310	339	70	160
Future Volume (vph)	365	183	310	339	70	160
` ' '	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)						
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)		0.0	180.0		90.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			80.0		80.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.950					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	2972	0	1620	3093	1471	1426
Flt Permitted			0.401		0.950	
Satd. Flow (perm)	2972	0	684	3093	1471	1426
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	150					176
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
	17%	16%	4%	18%		12%
Heavy Vehicles (%)					20%	
Adj. Flow (vph)	401	201	341	373	77	176
Shared Lane Traffic (%)	000	^	0.14	070	77	470
Lane Group Flow (vph)	602	0	341	373	77	176
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.01
Turning Speed (k/h)	3.00	14	24	3.00	24	14
Number of Detectors	2	17	1	2	1	1
Detector Template	Thru		ı	Thru	'	Right
			12.0		12.0	12.0
Leading Detector (m)	30.5		12.0	30.5		
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	OI'LX			OI? LX		
Detector 2 Extend (s)	0.0			0.0		
. ,			nm · nt		Drot	Dorm
Turn Type	NA		pm+pt	NA	Prot	Perm

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	39.0		55.5	50.0	10.8	10.8
Actuated g/C Ratio	0.52		0.74	0.66	0.14	0.14
v/c Ratio	0.37		0.55	0.18	0.36	0.50
Control Delay	9.1		7.2	5.3	34.5	10.4
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	9.1		7.2	5.3	34.5	10.4
LOS	A		A	A	С	В
Approach Delay	9.1			6.2	17.7	
Approach LOS	A			A	В	
Queue Length 50th (m)	17.8		11.9	8.7	10.1	0.0
Queue Length 95th (m)	31.4		24.5	15.5	21.9	15.6
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)	J. V.L		180.0		90.0	
Base Capacity (vph)	1608		627	2050	292	424
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	0.37		0.54	0.18	0.26	0.42
Intersection Summary	Other					

Area Type: Other

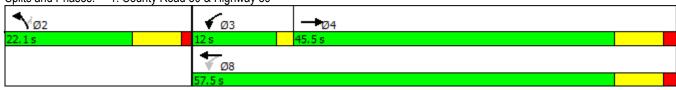
Cycle Length: 79.6 Actuated Cycle Length: 75.4 Natural Cycle: 70

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.55

Intersection Signal Delay: 9.1 Intersection LOS: A Intersection Capacity Utilization 70.2% ICU Level of Service C

Analysis Period (min) 15

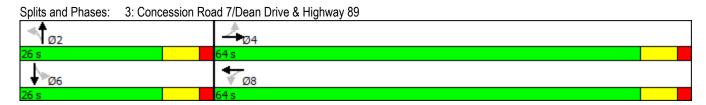
Splits and Phases: 1: County Road 50 & Highway 89



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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	ħβ		W	
Traffic Volume (veh/h)	14	490	599	15	27	64
Future Volume (Veh/h)	14	490	599	15	27	64
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	16	544	666	17	30	71
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked						
vC, conflicting volume	683				978	342
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	683				978	342
tC, single (s)	4.3				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	98				88	89
cM capacity (veh/h)	848				246	660
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	197	363	444	239	101	
Volume Left	16	0	0	0	30	
Volume Right	0	0	0	17	71	
cSH	848	1700	1700	1700	440	
Volume to Capacity	0.02	0.21	0.26	0.14	0.23	
Queue Length 95th (m)	0.4	0.0	0.0	0.0	6.6	
Control Delay (s)	0.9	0.0	0.0	0.0	15.6	
Lane LOS	Α				С	
Approach Delay (s)	0.3		0.0		15.6	
Approach LOS					С	
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization	on		35.7%	IC	U Level c	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ħβ		ሻ	∱ Ъ			4			4	
Traffic Volume (vph)	31	579	40	57	465	80	13	10	60	74	9	31
Future Volume (vph)	31	579	40	57	465	80	13	10	60	74	9	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.978			0.902			0.963	
Flt Protected	0.950			0.950				0.992			0.969	
Satd. Flow (prot)	1825	3153	0	1772	3164	0	0	1719	0	0	1745	0
FIt Permitted	0.428			0.396				0.937			0.802	
Satd. Flow (perm)	822	3153	0	739	3164	0	0	1624	0	0	1444	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			42			65			19	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		314.7			133.1			218.7			107.2	
Travel Time (s)		18.9			8.0			13.1			7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	9%	3%	14%	6%	0%	0%	0%	0%	0%	10%
Adj. Flow (vph)	34	629	43	62	505	87	14	11	65	80	10	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	672	0	62	592	0	0	90	0	0	124	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	64.0	64.0		64.0	64.0		26.0	26.0		26.0	26.0	
Total Split (%)	71.1%	71.1%		71.1%	71.1%		28.9%	28.9%		28.9%	28.9%	
Maximum Green (s)	57.0	57.0		57.0	57.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	60.1	60.1		60.1	60.1			11.9			11.9	
Actuated g/C Ratio	0.70	0.70		0.70	0.70			0.14			0.14	
v/c Ratio	0.06	0.30		0.12	0.27			0.32			0.57	
Control Delay	5.5	5.8		6.0	5.2			15.5			38.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	5.5	5.8		6.0	5.2			15.5			38.8	
LOS	Α	Α		Α	Α			В			D	
Approach Delay		5.7			5.3			15.5			38.8	
Approach LOS		Α			Α			В			D	
Queue Length 50th (m)	1.5	18.0		2.8	14.5			3.5			15.6	
Queue Length 95th (m)	5.2	32.6		8.6	26.8			15.4			31.7	
Internal Link Dist (m)		290.7			109.1			194.7			83.2	
Turn Bay Length (m)	100.0			70.0								
Base Capacity (vph)	574	2207		516	2223			410			334	
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	0.06	0.30		0.12	0.27			0.22			0.37	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 86	i											
Natural Cycle: 50												
Control Type: Semi Act-Ur	ncoord											
Maximum v/c Ratio: 0.57												
Intersection Signal Delay:	8.7			Ir	ntersection	LOS: A						
Intersection Capacity Utiliz				IC	CU Level o	of Service	e A					
Analysis Period (min) 15												
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Movement EBL EBR NBL NBT SBT SBR
Lane Configurations 🌱 👍
Traffic Volume (veh/h) 15 2 1 68 88 18
Future Volume (Veh/h) 15 2 1 68 88 18
Sign Control Stop Free Free
Grade 0% 0% 0%
Peak Hour Factor 0.90 0.90 0.90 0.90 0.90 0.90
Hourly flow rate (vph) 17 2 1 76 98 20
Pedestrians
Lane Width (m)
Walking Speed (m/s)
Percent Blockage
Right turn flare (veh)
Median type None None
Median storage veh)
Upstream signal (m) 219
pX, platoon unblocked
vC1, stage 1 conf vol
vC2, stage 2 conf vol
vCu, unblocked vol 186 108 118
tC, single (s) 6.4 6.2 4.1
tC, 2 stage (s)
tF (s) 3.5 3.3 2.2
p0 queue free % 98 100 100
cM capacity (veh/h) 803 946 1470
Direction, Lane # EB 1 NB 1 SB 1
Volume Total 19 77 118
Volume Left 17 1 0
Volume Right 2 0 20
cSH 816 1470 1700
Volume to Capacity 0.02 0.00 0.07
Queue Length 95th (m) 0.5 0.0 0.0
Control Delay (s) 9.5 0.1 0.0
Lane LOS A A
Approach Delay (s) 9.5 0.1 0.0
Approach LOS A
Intersection Summary
Average Delay 0.9
Intersection Capacity Utilization 15.7% ICU Level of Service
Analysis Period (min) 15

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ }		ř	^	7		4			र्स	7
Traffic Volume (vph)	41	683	1	9	531	74	0	1	1	56	3	44
Future Volume (vph)	41	683	1	9	531	74	0	1	1	56	3	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt						0.850		0.932				0.850
Flt Protected	0.950			0.950							0.955	
Satd. Flow (prot)	1644	3259	0	1372	3230	1570	0	1790	0	0	1751	1396
Flt Permitted	0.442			0.378							0.735	
Satd. Flow (perm)	765	3259	0	544	3230	1570	0	1790	0	0	1348	1396
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						133		1				133
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Confl. Peds. (#/hr)			4	4								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	11%	12%	0%	33%	13%	4%	0%	0%	0%	5%	0%	17%
Adj. Flow (vph)	43	719	1	9	559	78	0	1	1	59	3	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	720	0	9	559	78	0	2	0	0	62	46
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	Cl+Ex		Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			Cl+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Free		NA		Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	58.0	58.0		58.0	58.0		32.0	32.0		32.0	32.0	
Total Split (%)	64.4%	64.4%		64.4%	64.4%		35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	51.0	51.0		51.0	51.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	66.0	66.0		66.0	66.0	80.2		8.6			9.0	80.2
Actuated g/C Ratio	0.82	0.82		0.82	0.82	1.00		0.11			0.11	1.00
v/c Ratio	0.07	0.27		0.02	0.21	0.05		0.01			0.41	0.03
Control Delay	4.2	3.8		4.2	3.5	0.1		27.0			41.6	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	4.2	3.8		4.2	3.5	0.1		27.0			41.6	0.0
LOS	Α	Α		Α	Α	Α		С			D	Α
Approach Delay		3.8			3.1			27.0			23.9	
Approach LOS		Α			Α			С			С	
Queue Length 50th (m)	1.7	17.7		0.3	13.0	0.0		0.1			10.2	0.0
Queue Length 95th (m)	5.2	29.0		1.8	21.7	0.0		m1.8			19.2	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	630	2684		448	2660	1570		562			423	1396
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.07	0.27		0.02	0.21	0.05		0.00			0.15	0.03
Intersection Summary												

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 80.2

Natural Cycle: 50

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.41 Intersection Signal Delay: 5.0

Intersection Capacity Utilization 50.5%

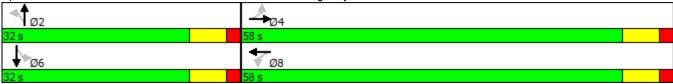
Intersection LOS: A ICU Level of Service A

09/21/2017

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Elizabeth Street/Concession Road 7 & Highway 89



	-	•	•	←	•	/
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† ‡			414	¥	
Traffic Volume (veh/h)	758	1	3	633	0	16
Future Volume (Veh/h)	758	1	3	633	0	16
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	815	1	3	681	0	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	249					
pX, platoon unblocked			0.97		0.97	0.97
vC, conflicting volume			816		1162	408
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			742		1100	320
tC, single (s)			4.1		6.8	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			100		100	97
cM capacity (veh/h)			846		202	634
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	543	273	230	454	17	
Volume Left	0	0	3	0	0	
Volume Right	0	1	0	0	17	
cSH	1700	1700	846	1700	634	
Volume to Capacity	0.32	0.16	0.00	0.27	0.03	
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.6	
Control Delay (s)	0.0	0.0	0.2	0.0	10.8	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		10.8	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliza	ition		31.0%	IC	U Level o	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	† Ъ		ሻ	∱ }		ሻ	ર્ન	7	ሻ	1	7
Traffic Volume (vph)	38	604	185	272	424	10	193	26	104	10	36	21
Future Volume (vph)	38	604	185	272	424	10	193	26	104	10	36	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.965			0.996				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.963		0.950		
Satd. Flow (prot)	1825	3150	0	1807	3455	0	1387	1475	1617	1825	1779	1633
FIt Permitted	0.484			0.250			0.732	0.750		0.676		
Satd. Flow (perm)	930	3150	0	476	3455	0	1069	1149	1617	1299	1779	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			4				112			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	5%	34%	1%	5%	14%	25%	0%	1%	0%	8%	0%
Adj. Flow (vph)	41	649	199	292	456	11	208	28	112	11	39	23
Shared Lane Traffic (%)							44%					
Lane Group Flow (vph)	41	848	0	292	467	0	116	120	112	11	39	23
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7	_		3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	42.1	42.1		60.2	57.2		15.9	15.9	15.9	15.9	15.9	15.9
Actuated g/C Ratio	0.49	0.49		0.70	0.66		0.18	0.18	0.18	0.18	0.18	0.18
v/c Ratio	0.09	0.54		0.58	0.20		0.59	0.57	0.29	0.05	0.12	0.06
Control Delay	16.2	17.9		10.3	6.4		44.5	42.4	7.9	27.9	29.1	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	17.9		10.3	6.4		44.5	42.4	7.9	27.9	29.1	0.3
LOS	В	В		В	Α		D	D	Α	С	С	Α
Approach Delay		17.8			7.9			32.0			19.8	
Approach LOS		В			Α			С			В	
Queue Length 50th (m)	3.3	43.3		14.3	13.3		18.5	19.0	0.0	1.5	5.4	0.0
Queue Length 95th (m)	12.0	86.8		32.3	25.8		35.6	36.1	12.3	5.7	13.3	0.0
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	454	1562		643	2295		361	388	620	439	601	610
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	0.09	0.54		0.45	0.20		0.32	0.31	0.18	0.03	0.06	0.04

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 86.1

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 16.6

Intersection Capacity Utilization 64.5%

Intersection LOS: B
ICU Level of Service C

Analysis Period (min) 15



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ሻ	^	ች	7
Traffic Volume (vph)	452	70	204	727	248	386
Future Volume (vph)	452	70	204	727	248	386
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	5.1	0.0	180.0	5.1	90.0	0.0
Storage Lanes		0.0	100.0		1	1
Taper Length (m)		U	80.0		80.0	ı
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.980	0.30	1.00	0.90	1.00	0.850
FIt Protected	0.900		0.950		0.950	0.000
	3205	0	1532	3444	1665	921
Satd. Flow (prot)	3205	U		3444		921
Flt Permitted	2005	0	0.418	2444	0.950	004
Satd. Flow (perm)	3205	0	674	3444	1665	921
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	30					415
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	12%	9%	10%	6%	6%	4%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	486	75	219	782	267	415
Shared Lane Traffic (%)						
Lane Group Flow (vph)	561	0	219	782	267	415
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane				1.0	-1.0	
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)	0.00	14	24	0.00	24	1.03
Number of Detectors	2	17	1	2	1	1
Detector Template	Thru			Thru		Right
	30.5		12.0	30.5	12.0	12.0
Leading Detector (m)						
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel	_					
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Estator E Exterio (6)	0.0			0.0		

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Lane Group	EBT	EBR \	WBL	WBT	NBL	NBR
Turn Type	NA	pr	n+pt	NA	Prot	Perm
Protected Phases	4	•	3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%	15	5.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag	Ĺ	ead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max	N	lone	Max	None	None
Act Effct Green (s)	39.7		55.5	50.0	14.6	14.6
Actuated g/C Ratio	0.50		0.70	0.63	0.18	0.18
v/c Ratio	0.35		0.39	0.36	0.87	0.82
Control Delay	12.3		6.4	7.6	61.0	18.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	12.3		6.4	7.6	61.0	18.5
LOS	В		Α	Α	Е	В
Approach Delay	12.3			7.3	35.1	
Approach LOS	В			Α	D	
Queue Length 50th (m)	24.2		9.8	26.5	39.4	0.0
Queue Length 95th (m)	36.3		17.1	36.0	#78.6	#46.4
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)		1	0.08		90.0	
Base Capacity (vph)	1620		580	2175	315	510
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	0.35		0.38	0.36	0.85	0.81

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 79.2 Natural Cycle: 75

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.87

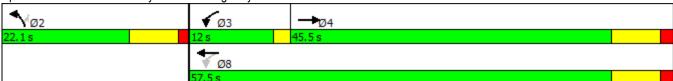
Intersection Signal Delay: 17.0 Intersection LOS: B
Intersection Capacity Utilization 69.7% ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 50 & Highway 89



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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	∱ 1≽		W	
Traffic Volume (veh/h)	51	784	901	48	20	27
Future Volume (Veh/h)	51	784	901	48	20	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	55	843	969	52	22	29
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.93	
vC, conflicting volume	1021				1526	510
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1021				1411	510
tC, single (s)	4.1				7.0	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	92				79	94
cM capacity (veh/h)	688				104	513
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	336	562	646	375	51	
Volume Left	55	0	0	0	22	
Volume Right	0	0	0	52	29	
cSH	688	1700	1700	1700	191	
Volume to Capacity	0.08	0.33	0.38	0.22	0.27	
Queue Length 95th (m)	2.0	0.0	0.0	0.0	7.9	
Control Delay (s)	2.6	0.0	0.0	0.0	30.6	
Lane LOS	Α				D	
Approach Delay (s)	1.0		0.0		30.6	
Approach LOS					D	
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilizat	tion		62.9%	IC	U Level c	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	ħβ		ሻ	ħβ			4			4	
Traffic Volume (vph)	30	754	43	147	872	65	65	15	124	49	9	38
Future Volume (vph)	30	754	43	147	872	65	65	15	124	49	9	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt	,,,,,,	0.992	0.00		0.990			0.918			0.947	
Flt Protected	0.950			0.950				0.984			0.975	
Satd. Flow (prot)	1825	3276	0	1825	3393	0	0	1687	0	0	1774	0
FIt Permitted	0.270			0.325			-	0.877		-	0.657	
Satd. Flow (perm)	519	3276	0	624	3393	0	0	1504	0	0	1195	0
Right Turn on Red		V=. V	Yes	V = .	0000	Yes			Yes			Yes
Satd. Flow (RTOR)		12	100		16	100		81	100		34	100
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		310.5			133.1			218.4			107.2	
Travel Time (s)		18.6			8.0			13.1			7.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	10%	20%	0%	7%	0%	9%	0%	0%	0%	0%	0%
Adj. Flow (vph)	32	794	45	155	918	68	68	16	131	52	9	40
Shared Lane Traffic (%)	02	701	10	100	010		00	10	101	UL.		10
Lane Group Flow (vph)	32	839	0	155	986	0	0	215	0	0	101	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	Loit	3.7	rugiit	Loit	3.7	rugiit	Loit	0.0	rugiit	LOIL	0.0	ragin
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		7.0			7.0			7.0			7.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.55	14	24	0.00	14	24	0.55	14	24	0.55	14
Number of Detectors	1	2	17	1	2	17	1	2	17	1	2	17
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		Cl+Ex	Cl+Ex		Cl+Ex	CI+Ex	
Detector 1 Channel	OITLX	OITLX		CITLX	CITLX		CITLX	OITLX		CITLX	OITLX	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	28.7		0.0	28.7	
		1.8			1.8			1.8			1.8	
Detector 2 Size(m)					CI+Ex			CI+Ex			CI+Ex	
Detector 2 Type		CI+Ex			UI+EX			UI+EX			UI+EX	
Detector 2 Channel		0.0			0.0			0.0			0.0	
Detector 2 Extend (s)	De	0.0		De	0.0		De	0.0		D	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	62.0	62.0		62.0	62.0		28.0	28.0		28.0	28.0	
Total Split (%)	68.9%	68.9%		68.9%	68.9%		31.1%	31.1%		31.1%	31.1%	
Maximum Green (s)	55.0	55.0		55.0	55.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	56.2	56.2		56.2	56.2			13.1			13.1	
Actuated g/C Ratio	0.67	0.67		0.67	0.67			0.16			0.16	
v/c Ratio	0.09	0.38		0.37	0.43			0.71			0.47	
Control Delay	7.0	7.1		10.3	7.5			32.9			28.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.0	7.1		10.3	7.5			32.9			28.4	
LOS	Α	Α		В	Α			С			С	
Approach Delay		7.1			7.9			32.9			28.4	
Approach LOS		Α			A			C			C	
Queue Length 50th (m)	1.5	25.8		9.1	31.7			19.6			9.5	
Queue Length 95th (m)	6.0	47.4		26.8	57.4			41.3			23.3	
Internal Link Dist (m)	0.0	286.5		20.0	109.1			194.4			83.2	
Turn Bay Length (m)	100.0	200.0		70.0	100.1			10 1.1			00.2	
Base Capacity (vph)	350	2213		420	2293			440			326	
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	0.09	0.38		0.37	0.43			0.49			0.31	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 83.	4											

Actuated Cycle Length: 83.4

Natural Cycle: 60

Control Type: Semi Act-Uncoord

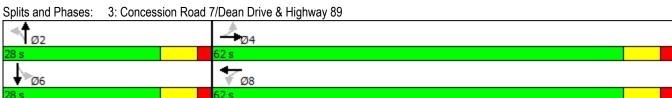
Maximum v/c Ratio: 0.71

Intersection Signal Delay: 10.8

Intersection Capacity Utilization 61.0%

Intersection LOS: B ICU Level of Service B

Analysis Period (min) 15



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			4	ĵ.	
Traffic Volume (veh/h)	80	4	4	132	121	72
Future Volume (Veh/h)	80	4	4	132	121	72
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	89	4	4	147	134	80
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					219	
pX, platoon unblocked						
vC, conflicting volume	329	174	214			
vC1, stage 1 conf vol	0_0					
vC2, stage 2 conf vol						
vCu, unblocked vol	329	174	214			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	V	V. <u> </u>				
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	100	100			
cM capacity (veh/h)	664	869	1356			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	93	151	214			
Volume Left	89	4	0			
Volume Right	4	0	80			
cSH	670	1356	1700			
Volume to Capacity	0.14	0.00	0.13			
Queue Length 95th (m)	3.6	0.1	0.0			
Control Delay (s)	11.2	0.2	0.0			
Lane LOS	В	Α				
Approach Delay (s)	11.2	0.2	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			2.4			
Intersection Capacity Util	ization		22.1%	IC	CU Level c	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ }		7	^	7		4			4	7
Traffic Volume (vph)	72	882	9	19	975	121	0	0	10	101	1	61
Future Volume (vph)	72	882	9	19	975	121	0	0	10	101	1	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.865				0.850
Flt Protected	0.950			0.950							0.953	
Satd. Flow (prot)	1706	3379	0	1825	3444	1633	0	1662	0	0	1813	1633
Flt Permitted /	0.264			0.294							0.721	
Satd. Flow (perm)	474	3379	0	565	3444	1633	0	1662	0	0	1372	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				133		165				133
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	8%	0%	0%	6%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	76	928	9	20	1026	127	0	0	11	106	1	64
Shared Lane Traffic (%)	70	020			1020	161				100		
Lane Group Flow (vph)	76	937	0	20	1026	127	0	11	0	0	107	64
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	20.0	3.7	ı uğılı	LOIL	3.7	rugiit	20.0	0.0	. ug.ii	20.0	0.0	i tigiit
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		1.0			1.0			1.0			1.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	Cl+Ex	Cl+Ex	CI+Ex	CI+Ex		Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel	OITEX	OITEX		OIILX	OIILX	OIILX	OIILX	OIILX		OITEX	OITEX	OIILX
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	0.0	28.7		0.0	28.7	0.0	0.0	28.7		0.0	28.7	0.0
` '		1.8			1.8			1.8			1.8	
Detector 2 Size(m)												
Detector 2 Type		Cl+Ex			Cl+Ex			CI+Ex			Cl+Ex	
Detector 2 Channel		0.0			0.0			0.0			0.0	
Detector 2 Extend (s)	Dagge	0.0		Dar	0.0	Γ		0.0		Dar	0.0	Г
Turn Type	Perm	NA		Perm	NA	Free		NA		Perm	NA	Free
Protected Phases		4			8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	65.0	65.0		65.0	65.0		25.0	25.0		25.0	25.0	
Total Split (%)	72.2%	72.2%		72.2%	72.2%		27.8%	27.8%		27.8%	27.8%	
Maximum Green (s)	58.0	58.0		58.0	58.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	66.9	66.9		66.9	66.9	88.5		11.9			12.1	88.5
Actuated g/C Ratio	0.76	0.76		0.76	0.76	1.00		0.13			0.14	1.00
v/c Ratio	0.21	0.37		0.05	0.39	0.08		0.03			0.57	0.04
Control Delay	7.5	5.8		5.4	6.0	0.1		0.2			47.1	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	7.5	5.8		5.4	6.0	0.1		0.2			47.1	0.0
LOS	Α	Α		Α	Α	Α		Α			D	Α
Approach Delay		5.9			5.4			0.2			29.5	
Approach LOS		Α			Α			Α			С	
Queue Length 50th (m)	3.9	29.0		0.9	32.8	0.0		0.0			17.4	0.0
Queue Length 95th (m)	11.8	47.9		3.6	53.9	0.0		m0.0			31.5	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	358	2553		427	2602	1633		470			280	1633
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.21	0.37		0.05	0.39	0.08		0.02			0.38	0.04

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 88.5

Natural Cycle: 55

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.57

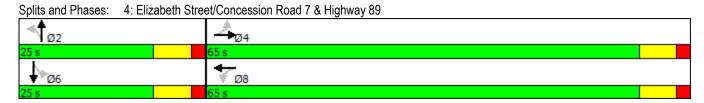
Intersection Signal Delay: 7.3

Intersection Capacity Utilization 60.9%

Intersection LOS: A ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.



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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	∱ 1>			414	¥#	
Traffic Volume (veh/h)	963	5	6	1166	0	15
Future Volume (Veh/h)	963	5	6	1166	0	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	993	5	6	1202	0	15
Pedestrians					3	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	249					
pX, platoon unblocked			0.92		0.92	0.92
vC, conflicting volume			1001		1612	502
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			816		1483	270
tC, single (s)			4.1		6.8	7.5
tC, 2 stage (s)					0.0	7.0
tF (s)			2.2		3.5	3.6
p0 queue free %			99		100	97
cM capacity (veh/h)			749		107	593
	ED 4	ED 0		WD 0		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	662	336	407	801	15	
Volume Left	0	0	6	0	0	
Volume Right	0	5	0	0	15	
cSH	1700	1700	749	1700	593	
Volume to Capacity	0.39	0.20	0.01	0.47	0.03	
Queue Length 95th (m)	0.0	0.0	0.2	0.0	0.6	
Control Delay (s)	0.0	0.0	0.2	0.0	11.2	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		11.2	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliza	ation		46.4%	IC	U Level c	f Service
Analysis Period (min)			15			
7 inaly 310 1 01100 (111111)			13			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ }		ሻ	† }		ሻ	ર્ન	7	ሻ	1	7
Traffic Volume (vph)	54	664	315	277	692	30	428	45	203	27	54	81
Future Volume (vph)	54	664	315	277	692	30	428	45	203	27	54	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.952			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.961		0.950		
Satd. Flow (prot)	1825	3220	0	1825	3557	0	1534	1579	1617	1722	1921	1601
Flt Permitted	0.366			0.147			0.720	0.728		0.456		
Satd. Flow (perm)	703	3220	0	282	3557	0	1160	1193	1588	823	1921	1577
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		86			7				211			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	1		8	8		1	3		6	6		3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	17%	0%	2%	0%	13%	3%	1%	6%	0%	2%
Adj. Flow (vph)	56	692	328	289	721	31	446	47	211	28	56	84
Shared Lane Traffic (%)							45%					
Lane Group Flow (vph)	56	1020	0	289	752	0	245	248	211	28	56	84
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	Cl+Ex		CI+Ex	Cl+Ex		Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	39.3	39.3		60.2	57.2		24.9	24.9	24.9	24.9	24.9	24.9
Actuated g/C Ratio	0.41	0.41		0.63	0.60		0.26	0.26	0.26	0.26	0.26	0.26
v/c Ratio	0.19	0.74		0.72	0.35		0.81	0.79	0.37	0.13	0.11	0.18
Control Delay	24.2	27.7		23.2	10.7		53.9	52.0	5.8	27.7	26.5	6.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.2	27.7		23.2	10.7		53.9	52.0	5.8	27.7	26.5	6.5
LOS	С	С		С	В		D	D	Α	С	С	Α
Approach Delay		27.5			14.1			38.8			16.7	
Approach LOS		С			В			D			В	
Queue Length 50th (m)	7.0	81.4		24.5	37.4		44.2	44.5	0.0	3.9	7.8	0.0
Queue Length 95th (m)	17.8	#128.6		51.3	49.3		#80.3	#80.0	15.8	10.7	16.8	9.9
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	290	1379		504	2141		354	364	632	251	587	543
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	0.19	0.74		0.57	0.35		0.69	0.68	0.33	0.11	0.10	0.15

Intersection Summary

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 95.1

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 24.9

Intersection Capacity Utilization 79.7%

Intersection LOS: C 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: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ Ъ		ሻ	^	ኘ	7
Traffic Volume (vph)	583	88	219	648	163	236
Future Volume (vph)	583	88	219	648	163	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.7	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	100.0		1	1
Taper Length (m)		<u> </u>	80.0		80.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.980	0.50	1.00	0.00	1.00	0.850
Flt Protected	0.000		0.950		0.950	0.000
Satd. Flow (prot)	3462	0	1668	3544	1713	949
Flt Permitted	J40Z	U	0.352	JJ44	0.950	343
	3462	0	618	3544	1713	949
Satd. Flow (perm)	340Z		010	JJ44	1/13	
Right Turn on Red	20	Yes				Yes
Satd. Flow (RTOR)	29			00	00	243
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0	0.07	0.07	9.0	28.7	0.07
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	12%	1%	3%	3%	1%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	601	91	226	668	168	243
Shared Lane Traffic (%)						
Lane Group Flow (vph)	692	0	226	668	168	243
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		•	Thru	•	Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel	0.0		0.0	0.0	0.0	0.0
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	40.0		55.5	50.0	12.7	12.7
Actuated g/C Ratio	0.52		0.72	0.65	0.16	0.16
v/c Ratio	0.38		0.41	0.29	0.60	0.68
Control Delay	12.0		6.2	6.6	39.5	14.8
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	12.0		6.2	6.6	39.5	14.8
LOS	В		Α	Α	D	В
Approach Delay	12.0			6.5	24.9	
Approach LOS	В			А	С	
Queue Length 50th (m)	28.6		8.8	19.5	23.1	0.0
Queue Length 95th (m)	45.3		17.1	29.7	41.4	21.8
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)			180.0		90.0	
Base Capacity (vph)	1806		579	2294	332	380
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	0.38		0.39	0.29	0.51	0.64
Intersection Summary						

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 77.3

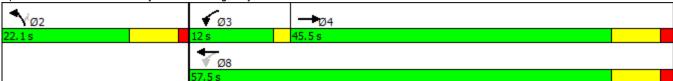
Natural Cycle: 70

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.68 Intersection Signal Delay: 12.2 Intersection Capacity Utilization 65.8%

Intersection LOS: B ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: County Road 50 & Highway 89



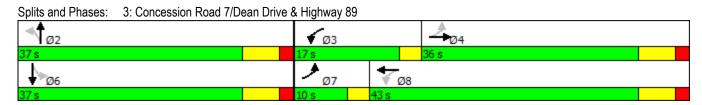
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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	∱ }		W	
Traffic Volume (veh/h)	14	745	697	37	31	13
Future Volume (Veh/h)	14	745	697	37	31	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	810	758	40	34	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.90	
vC, conflicting volume	798				1213	399
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	798				1023	399
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				84	98
cM capacity (veh/h)	833				209	606
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	285	540	505	293	48	
Volume Left	15	0	0	0	34	
Volume Right	0	0	0	40	14	
cSH	833	1700	1700	1700	258	
Volume to Capacity	0.02	0.32	0.30	0.17	0.19	
Queue Length 95th (m)	0.4	0.0	0.0	0.0	5.1	
Control Delay (s)	0.7	0.0	0.0	0.0	22.1	
Lane LOS	Α				С	
Approach Delay (s)	0.2		0.0		22.1	
Approach LOS					С	
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization	n		40.6%	IC	U Level c	of Service
Analysis Period (min)						

09/21/2017

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ∱		ሻ	↑ ↑			4			4	
Traffic Volume (vph)	44	714	75	215	761	168	89	14	205	133	34	46
Future Volume (vph)	44	714	75	215	761	168	89	14	205	133	34	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986			0.973			0.910			0.971	
Flt Protected	0.950			0.950				0.986			0.970	
Satd. Flow (prot)	1825	3535	0	1789	3466	0	0	1724	0	0	1798	0
Flt Permitted /	0.267			0.232				0.838			0.560	
Satd. Flow (perm)	513	3535	0	437	3466	0	0	1465	0	0	1038	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			35			119			16	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		312.3			133.1			219.3			107.2	
Travel Time (s)		18.7			8.0			13.2			7.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	0%	2%	3%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	46	752	79	226	801	177	94	15	216	140	36	48
Shared Lane Traffic (%)		. 02			001		<u> </u>		2.0			.0
Lane Group Flow (vph)	46	831	0	226	978	0	0	325	0	0	224	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		1.0			1.0			1.0			1.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		Cl+Ex	CI+Ex	
Detector 1 Channel	OI · LX	OI · LX		OI · LX	OI · LX		OI LX	OI · LX		OI · LX	OI · LX	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	28.7		0.0	28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			Cl+Ex			CI+Ex			Cl+Ex	
Detector 2 Channel		OLILA			OLITEA			OLITEX			OLITEX	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
. ,	nmint	NA		nmint	NA		Perm	NA		Dorm	NA	
Turn Type	pm+pt			pm+pt			reiIII			Perm		
Protected Phases	7	4		3	8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	25.0		9.5	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	10.0	36.0		17.0	43.0		37.0	37.0		37.0	37.0	
Total Split (%)	11.1%	40.0%		18.9%	47.8%		41.1%	41.1%		41.1%	41.1%	
Maximum Green (s)	7.0	29.0		14.0	36.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	3.0	5.0		3.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	0.0	2.0		0.0	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)	3.0	7.0		3.0	7.0			7.0			7.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	Max		Min	Min		Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	41.0	30.6		47.6	38.2			19.6			19.6	
Actuated g/C Ratio	0.53	0.40		0.61	0.49			0.25			0.25	
v/c Ratio	0.12	0.59		0.51	0.57			0.71			0.82	
Control Delay	8.9	22.2		12.2	17.3			25.2			48.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.9	22.2		12.2	17.3			25.2			48.7	
LOS	Α	С		В	В			С			D	
Approach Delay		21.5			16.3			25.2			48.7	
Approach LOS		С			В			С			D	
Queue Length 50th (m)	2.4	48.6		13.2	54.4			27.9			29.6	
Queue Length 95th (m)	8.0	86.1		30.6	91.3			55.0			55.2	
Internal Link Dist (m)		288.3			109.1			195.3			83.2	
Turn Bay Length (m)	100.0			70.0								
Base Capacity (vph)	397	1403		518	1729			649			418	
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	0.12	0.59		0.44	0.57			0.50			0.54	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 77	' .4											
Natural Cycle: 60												
Control Type: Semi Act-Ur	ncoord											
Maximum v/c Ratio: 0.82												
Intersection Signal Delay:	21.9				ntersection							
Intersection Capacity Utiliz	zation 72.7%			10	CU Level o	of Service	e C					
Analysis Period (min) 15												



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			4	f _a	
Traffic Volume (veh/h)	161	8	13	145	136	187
Future Volume (Veh/h)	161	8	13	145	136	187
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	179	9	14	161	151	208
Pedestrians						200
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				None	NONE	
Upstream signal (m)					219	
pX, platoon unblocked	0.95	0.95	0.95		213	
vC, conflicting volume	444	255	359			
vC1, stage 1 conf vol	444	233	333			
vC2, stage 2 conf vol						
vCu, unblocked vol	389	190	300			
	6.4	6.2	4.1			
tC, single (s)	0.4	0.2	4.1			
tC, 2 stage (s)	3.5	3.3	2.2			
tF (s)	3.5 69	3.3 99	99			
p0 queue free %						
cM capacity (veh/h)	577	809	1199			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	188	175	359			
Volume Left	179	14	0			
Volume Right	9	0	208			
cSH	585	1199	1700			
Volume to Capacity	0.32	0.01	0.21			
Queue Length 95th (m)	10.5	0.3	0.0			
Control Delay (s)	14.0	0.7	0.0			
Lane LOS	В	Α				
Approach Delay (s)	14.0	0.7	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			3.8			
Intersection Capacity Utili	zation		34.7%	IC	CU Level o	f Service
Analysis Period (min)			15	10	.5 254010	. 55, 1100
Analysis i Gilou (IIIII)			IJ			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ ∱		ኻ	^	7		4			ર્ન	7
Traffic Volume (vph)	72	1039	6	27	1101	160	1	6	10	155	5	65
Future Volume (vph)	72	1039	6	27	1101	160	1	6	10	155	5	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt		0.999				0.850		0.917				0.850
Flt Protected	0.950			0.950				0.997			0.954	
Satd. Flow (prot)	1789	3575	0	1825	3579	1601	0	1756	0	0	1781	1555
Flt Permitted	0.210			0.228				0.981			0.719	
Satd. Flow (perm)	396	3575	0	438	3579	1601	0	1728	0	0	1342	1555
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				156		11				133
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	0%	0%	2%	2%	0%	0%	0%	3%	0%	5%
Adj. Flow (vph)	76	1094	6	28	1159	168	1	6	11	163	5	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	1100	0	28	1159	168	0	18	0	0	168	68
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex		Cl+Ex	CI+Ex	CI+Ex	CI+Ex	Cl+Ex		Cl+Ex	CI+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			Cl+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Free	Perm	NA		Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	63.0	63.0		63.0	63.0		27.0	27.0		27.0	27.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	56.0	56.0		56.0	56.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	56.1	56.1		56.1	56.1	85.3		15.2			15.2	85.3
Actuated g/C Ratio	0.66	0.66		0.66	0.66	1.00		0.18			0.18	1.00
v/c Ratio	0.29	0.47		0.10	0.49	0.10		0.06			0.71	0.04
Control Delay	11.1	8.5		7.5	8.8	0.1		17.9			49.2	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	11.1	8.5		7.5	8.8	0.1		17.9			49.2	0.0
LOS	В	Α		Α	Α	Α		В			D	Α
Approach Delay		8.7			7.7			17.9			35.1	
Approach LOS		Α			Α			В			D	
Queue Length 50th (m)	4.7	42.0		1.5	45.3	0.0		1.0			25.9	0.0
Queue Length 95th (m)	14.3	63.6		5.4	68.4	0.0		m5.9			46.3	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	260	2351		287	2353	1601		414			315	1555
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.29	0.47		0.10	0.49	0.10		0.04			0.53	0.04
Intersection Summary												

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 85.3

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 10.5

Intersection Capacity Utilization 67.6%

Intersection LOS: B ICU Level of Service C

09/21/2017

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Elizabeth Street/Concession Road 7 & Highway 89



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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑			414	¥#	
Traffic Volume (veh/h)	1230	3	6	1283	0	9
Future Volume (Veh/h)	1230	3	6	1283	0	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1309	3	6	1365	0	10
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	249					
pX, platoon unblocked	,		0.84		0.84	0.84
vC, conflicting volume			1312		2005	656
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			997		1820	219
tC, single (s)			4.1		6.8	7.2
tC, 2 stage (s)					0.0	
tF (s)			2.2		3.5	3.5
p0 queue free %			99		100	98
cM capacity (veh/h)			592		59	624
	ED 4	ED 0		WD 0		02 1
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	873	439	461	910	10	
Volume Left	0	0	6	0	0	
Volume Right	0	3	0	0	10	
cSH	1700	1700	592	1700	624	
Volume to Capacity	0.51	0.26	0.01	0.54	0.02	
Queue Length 95th (m)	0.0	0.0	0.2	0.0	0.4	
Control Delay (s)	0.0	0.0	0.3	0.0	10.9	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		10.9	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization	ation		49.6%	IC	U Level c	f Service
Analysis Period (min)			15			
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ }		ሻ	∱ }		ሻ	ર્ન	7	7	†	7
Traffic Volume (vph)	145	907	186	451	913	35	257	56	260	51	123	100
Future Volume (vph)	145	907	186	451	913	35	257	56	260	51	123	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.974			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.968		0.950		
Satd. Flow (prot)	1807	3506	0	1825	3590	0	1683	1733	1617	1772	1921	1633
Flt Permitted	0.281			0.108			0.673	0.724		0.578		
Satd. Flow (perm)	534	3506	0	207	3590	0	1188	1293	1593	1076	1921	1607
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			7				280			97
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	3		1	1		3	4		3	3		4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	0%	6%	0%	1%	0%	3%	0%	1%	3%	0%	0%
Adj. Flow (vph)	156	975	200	485	982	38	276	60	280	55	132	108
Shared Lane Traffic (%)							41%					
Lane Group Flow (vph)	156	1175	0	485	1020	0	163	173	280	55	132	108
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							_
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	33.2	33.2		60.3	57.3		19.1	19.1	19.1	19.1	19.1	19.1
Actuated g/C Ratio	0.37	0.37		0.67	0.64		0.21	0.21	0.21	0.21	0.21	0.21
v/c Ratio	0.79	0.89		0.96	0.44		0.64	0.63	0.50	0.24	0.32	0.26
Control Delay	57.3	37.3		58.2	9.7		43.7	42.0	6.8	30.7	31.0	8.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.3	37.3		58.2	9.7		43.7	42.0	6.8	30.7	31.0	8.9
LOS	E	D		Е	Α		D	D	Α	С	С	Α
Approach Delay		39.6			25.3			26.5			22.9	
Approach LOS		D			С			С			С	
Queue Length 50th (m)	23.3	96.0		64.2	41.0		26.9	28.4	0.0	7.8	19.2	1.5
Queue Length 95th (m)	#65.4	#161.7		#147.3	71.9		47.5	49.2	17.7	17.6	33.8	13.4
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	198	1316		503	2301		387	421	707	350	625	588
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	0.79	0.89		0.96	0.44		0.42	0.41	0.40	0.16	0.21	0.18

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 89.5

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 30.4 Intersection Capacity Utilization 95.6%

Intersection LOS: C 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: 6: Industrial Parkway/Private Access & Highway 89



	→	•	•	•	4	/
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ሻ	^	ሻ	7
Traffic Volume (vph)	422	212	359	393	81	185
Future Volume (vph)	422	212	359	393	81	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	5.1	0.0	180.0	5.1	90.0	0.0
Storage Lanes		0.0	100.0		30.0	1
		U	80.0		80.0	I
Taper Length (m) Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
		0.95	1.00	0.95	1.00	
Frt	0.950		0.050		0.050	0.850
Flt Protected	2072	•	0.950	0000	0.950	4.400
Satd. Flow (prot)	2972	0	1620	3093	1471	1426
FIt Permitted			0.348		0.950	
Satd. Flow (perm)	2972	0	593	3093	1471	1426
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	150					203
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	17%	16%	4%	18%	20%	12%
Adj. Flow (vph)	464	233	395	432	89	203
Shared Lane Traffic (%)	707	200	000	702	03	200
Lane Group Flow (vph)	697	0	395	432	89	203
,						
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.01
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
	1.8			1.8	13.0	6.0
Detector 1 Size(m)			13.0			
Detector 1 Type	Cl+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel	• •					2.2
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
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	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	38.4		55.5	50.0	11.2	11.2
Actuated g/C Ratio	0.51		0.73	0.66	0.15	0.15
v/c Ratio	0.44		0.70	0.21	0.41	0.53
Control Delay	10.4		11.8	5.6	35.4	10.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	10.4		11.8	5.6	35.4	10.2
LOS	В		В	Α	D	В
Approach Delay	10.4			8.6	17.9	
Approach LOS	В			Α	В	
Queue Length 50th (m)	23.0		14.5	10.3	11.7	0.0
Queue Length 95th (m)	39.6		#32.2	18.8	24.6	16.5
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)			180.0		90.0	
Base Capacity (vph)	1581		569	2042	291	444
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	0.44		0.69	0.21	0.31	0.46
Intersection Cummery						

Area Type: Other

Cycle Length: 79.6
Actuated Cycle Length: 75.8

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.70

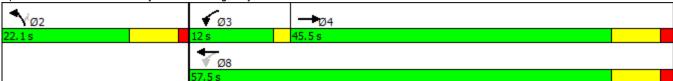
Intersection Signal Delay: 10.8 Intersection LOS: B
Intersection Capacity Utilization 72.9% ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 50 & Highway 89



	•	→	+	•	/	4
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		414	ħβ		W	
Traffic Volume (veh/h)	16	567	694	17	31	74
Future Volume (Veh/h)	16	567	694	17	31	74
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	630	771	19	34	82
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked						
vC, conflicting volume	790				1132	395
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	790				1132	395
tC, single (s)	4.3				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	98				83	87
cM capacity (veh/h)	770				195	610
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	228	420	514	276	116	
Volume Left	18	0	0	0	34	
Volume Right	0	0	0	19	82	
cSH	770	1700	1700	1700	376	
Volume to Capacity	0.02	0.25	0.30	0.16	0.31	
Queue Length 95th (m)	0.5	0.0	0.0	0.0	9.8	
Control Delay (s)	1.0	0.0	0.0	0.0	18.8	
Lane LOS	Α				С	
Approach Delay (s)	0.4		0.0		18.8	
Approach LOS					С	
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilizat	tion		40.1%	IC	U Level c	of Service
Analysis Period (min)			15			

3: Concession Road	a //Dea	an Driv	e & H	ignway	7 89						09/2	21/2017
	۶	→	•	•	←	•	4	†	/	>	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Ť	ħβ		¥	∱ }			4			4	
Traffic Volume (vph)	36	672	45	64	539	93	14	12	68	86	10	36
Future Volume (vph)	36	672	45	64	539	93	14	12	68	86	10	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991	0.00		0.978			0.902			0.963	
Flt Protected	0.950			0.950				0.993			0.969	
Satd. Flow (prot)	1825	3156	0	1772	3164	0	0	1721	0	0	1745	0
FIt Permitted	0.390	0.00	•	0.351				0.939			0.797	
Satd. Flow (perm)	749	3156	0	655	3164	0	0	1627	0	0	1435	0
Right Turn on Red		0.00	Yes	000	0.0.	Yes		.02.	Yes		1 100	Yes
Satd. Flow (RTOR)		15	100		42	100		74	100		19	100
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		314.7			133.1			218.1			107.2	
Travel Time (s)		18.9			8.0			13.1			7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0.32	15%	9%	3%	14%	6%	0.32	0.32	0.32	0.32	0.32	10%
Adj. Flow (vph)	39	730	49	70	586	101	15	13	74	93	11	39
Shared Lane Traffic (%)	39	730	43	70	300	101	13	13	74	90	11	39
Lane Group Flow (vph)	39	779	0	70	687	0	0	102	0	0	143	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	
Median Width(m)	Leit	3.7	rtigiit	Leit	3.7	Right	Leit	0.0	rtigiit	Leit	0.0	Right
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		4.3			4.3			4.3			4.3	
•	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Headway Factor	24	0.99	14	24	0.99	14	24	0.99	14	24	0.99	14
Turning Speed (k/h) Number of Detectors	1	2	14	1	2	14	1	2	14	1	2	14
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5 0.0		6.1	30.5		6.1	30.5 0.0		6.1 0.0	30.5 0.0	
Trailing Detector (m)	0.0			0.0	0.0		0.0					
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			Cl+Ex	
Detector 2 Channel		0.0			0.0			0.0			0.0	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

	٠	→	•	•	+	•	•	†	~	/	+	√
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	64.0	64.0		64.0	64.0		26.0	26.0		26.0	26.0	
Total Split (%)	71.1%	71.1%		71.1%	71.1%		28.9%	28.9%		28.9%	28.9%	
Maximum Green (s)	57.0	57.0		57.0	57.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	59.9	59.9		59.9	59.9			12.9			12.9	
Actuated g/C Ratio	0.69	0.69		0.69	0.69			0.15			0.15	
v/c Ratio	0.08	0.36		0.16	0.31			0.34			0.62	
Control Delay	6.0	6.5		6.8	5.9			14.8			41.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.0	6.5		6.8	5.9			14.8			41.2	
LOS	Α	Α		Α	Α			В			D	
Approach Delay		6.5			6.0			14.8			41.2	
Approach LOS		Α			Α			В			D	
Queue Length 50th (m)	1.8	23.2		3.4	18.6			3.9			18.6	
Queue Length 95th (m)	6.1	40.7		10.3	33.5			16.5			36.2	
Internal Link Dist (m)		290.7			109.1			194.1			83.2	
Turn Bay Length (m)	100.0			70.0								
Base Capacity (vph)	516	2181		451	2195			414			329	
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	0.08	0.36		0.16	0.31			0.25			0.43	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 86	5.9											
Natural Cycle: 50												
Control Type: Semi Act-Ur	ncoord											
Maximum v/c Ratio: 0.62												
Intersection Signal Delay:					ntersection		_					
Intersection Capacity Utiliz	ation 55.8%			IC	CU Level o	ot Service	В					
Analysis Period (min) 15												

	•	•	4	†	 	4
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			4	î,	
Traffic Volume (veh/h)	15	2	1	79	102	18
Future Volume (Veh/h)	15	2	1	79	102	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	2	1	88	113	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				113110	110110	
Upstream signal (m)					218	
pX, platoon unblocked					210	
vC, conflicting volume	213	123	133			
vC1, stage 1 conf vol	210	120	100			
vC2, stage 2 conf vol						
vCu, unblocked vol	213	123	133			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	0.4	0.2	7.1			
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	775	928	1452			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	19	89	133			
Volume Left	17	1	0			
Volume Right	2	0	20			
cSH	788	1452	1700			
Volume to Capacity	0.02	0.00	0.08			
Queue Length 95th (m)	0.6	0.0	0.0			
Control Delay (s)	9.7	0.1	0.0			
Lane LOS	Α	Α				
Approach Delay (s)	9.7	0.1	0.0			
Approach LOS	Α					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Util	ization		16.5%	IC	CU Level o	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ∱		ኻ	^	7		4			4	7
Traffic Volume (vph)	48	791	1	10	614	86	0	1	1	65	3	51
Future Volume (vph)	48	791	1	10	614	86	0	1	1	65	3	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt						0.850		0.932				0.850
Flt Protected	0.950			0.950							0.954	
Satd. Flow (prot)	1644	3259	0	1372	3230	1570	0	1790	0	0	1749	1396
Flt Permitted	0.406		-	0.337			•				0.734	
Satd. Flow (perm)	703	3259	0	485	3230	1570	0	1790	0	0	1346	1396
Right Turn on Red	7.00	0200	Yes	100	0200	Yes	•	1100	Yes		10.10	Yes
Satd. Flow (RTOR)						133		1				133
Link Speed (k/h)		60			60	100		50			60	100
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Confl. Peds. (#/hr)		12.0	4	4	11.0			2.0			7.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	11%	12%	0%	33%	13%	4%	0%	0%	0%	5%	0%	17%
Adj. Flow (vph)	51	833	1	11	646	91	0	1	1	68	3	54
Shared Lane Traffic (%)	0.	000			0.10	01		•	'			01
Lane Group Flow (vph)	51	834	0	11	646	91	0	2	0	0	71	54
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	Loit	3.7	rtigitt	Loit	3.7	rugiit	LOIL	0.0	rtigiit	Loit	0.0	rtigrit
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		7.0			7.0			7.0			4.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.55	14	24	0.55	14	24	0.55	14	24	0.55	14
Number of Detectors	1	2	17	1	2	1	1	2	17	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	Cl+Ex	CI+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel	CITLX	CITLX		CITLX	CITEX	CITLX	CITLX	CITLX		CITEX	CITLX	CITEX
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
` ,	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0		0.0	0.0			0.0		0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			Cl+Ex			CI+Ex			Cl+Ex	
Detector 2 Channel					2.2							
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Free		NA		Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	58.0	58.0		58.0	58.0		32.0	32.0		32.0	32.0	
Total Split (%)	64.4%	64.4%		64.4%	64.4%		35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	51.0	51.0		51.0	51.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	63.5	63.5		63.5	63.5	82.8		9.6			9.7	82.8
Actuated g/C Ratio	0.77	0.77		0.77	0.77	1.00		0.12			0.12	1.00
v/c Ratio	0.09	0.33		0.03	0.26	0.06		0.01			0.46	0.04
Control Delay	4.9	4.9		4.7	4.5	0.1		26.0			42.9	0.1
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	4.9	4.9		4.7	4.5	0.1		26.0			42.9	0.1
LOS	Α	Α		Α	Α	Α		С			D	Α
Approach Delay		4.9			4.0			26.0			24.4	
Approach LOS		Α			Α			С			С	
Queue Length 50th (m)	2.1	22.4		0.4	16.2	0.0		0.1			11.7	0.0
Queue Length 95th (m)	6.3	36.0		2.1	26.6	0.0		m1.5			21.1	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	539	2499		372	2477	1570		544			408	1396
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.09	0.33		0.03	0.26	0.06		0.00			0.17	0.04
Intersection Summary												
Area Type:	Other											

Area Type: Othe

Cycle Length: 90

Actuated Cycle Length: 82.8

Natural Cycle: 50

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.46

Intersection Signal Delay: 5.9
Intersection Capacity Utilization 54.0%

Intersection LOS: A

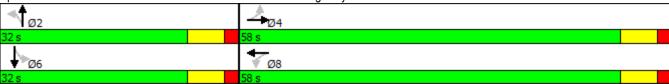
ICU Level of Service A

09/21/2017

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Elizabeth Street/Concession Road 7 & Highway 89



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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	∱ 1>			414	*/*	
Traffic Volume (veh/h)	877	1	3	732	0	19
Future Volume (Veh/h)	877	1	3	732	0	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	943	1	3	787	0	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	249					
pX, platoon unblocked			0.93		0.93	0.93
vC, conflicting volume			944		1343	472
vC1, stage 1 conf vol			• • •			
vC2, stage 2 conf vol						
vCu, unblocked vol			797		1225	292
tC, single (s)			4.1		6.8	7.1
tC, 2 stage (s)					0.0	7.1
tF (s)			2.2		3.5	3.4
p0 queue free %			100		100	97
cM capacity (veh/h)			778		162	639
	ED 4	ED 0		WD 0		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	629	315	265	525	20	
Volume Left	0	0	3	0	0	
Volume Right	0	1	0	0	20	
cSH	1700	1700	778	1700	639	
Volume to Capacity	0.37	0.19	0.00	0.31	0.03	
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.7	
Control Delay (s)	0.0	0.0	0.2	0.0	10.8	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		10.8	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliza	ation		34.3%	IC	U Level o	f Service
Analysis Period (min)	-		15			
, maryone i onou (min)			10			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	† }		ሻ	† }		ሻ	ર્ન	7	ሻ	1	7
Traffic Volume (vph)	44	699	214	315	490	12	224	30	121	12	42	24
Future Volume (vph)	44	699	214	315	490	12	224	30	121	12	42	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.965			0.996				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.963		0.950		
Satd. Flow (prot)	1825	3151	0	1807	3455	0	1387	1474	1617	1825	1779	1633
FIt Permitted	0.451			0.175			0.728	0.746		0.658		
Satd. Flow (perm)	866	3151	0	333	3455	0	1063	1142	1617	1264	1779	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			4				130			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	5%	34%	1%	5%	14%	25%	0%	1%	0%	8%	0%
Adj. Flow (vph)	47	752	230	339	527	13	241	32	130	13	45	26
Shared Lane Traffic (%)							44%					
Lane Group Flow (vph)	47	982	0	339	540	0	135	138	130	13	45	26
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	38.4	38.4		60.3	57.3		17.6	17.6	17.6	17.6	17.6	17.6
Actuated g/C Ratio	0.44	0.44		0.69	0.65		0.20	0.20	0.20	0.20	0.20	0.20
v/c Ratio	0.12	0.70		0.71	0.24		0.64	0.61	0.30	0.05	0.13	0.07
Control Delay	20.5	25.2		19.0	7.4		45.8	43.1	7.2	27.2	28.5	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	25.2		19.0	7.4		45.8	43.1	7.2	27.2	28.5	0.3
LOS	С	С		В	Α		D	D	Α	С	С	Α
Approach Delay		24.9			11.9			32.4			19.6	
Approach LOS		С			В			С			В	
Queue Length 50th (m)	4.6	65.7		19.3	17.0		22.0	22.3	0.0	1.8	6.3	0.0
Queue Length 95th (m)	14.5	#124.4		57.7	32.7		40.8	40.9	12.9	6.2	14.5	0.0
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	378	1401		565	2251		352	378	622	418	589	600
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	0.12	0.70		0.60	0.24		0.38	0.37	0.21	0.03	0.08	0.04

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 87.9

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 21.2

Intersection Capacity Utilization 71.4%

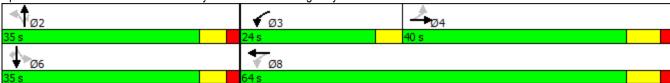
Intersection LOS: C ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ Ъ	LDIN	ኘ	†	ሻ	7
Traffic Volume (vph)	522	81	236	840	287	447
Future Volume (vph)	522	81	236	840	287	447
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.1	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	100.0		30.0	1
Taper Length (m)		U	80.0		80.0	i I
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.980	0.33	1.00	0.90	1.00	0.850
FIt Protected	0.900		0.950		0.950	0.000
	2205	0		3444		921
Satd. Flow (prot)	3205	0	1532	3444	1665	921
Flt Permitted	0005	^	0.367	0444	0.950	004
Satd. Flow (perm)	3205	0	592	3444	1665	921
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	30					378
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	12%	9%	10%	6%	6%	4%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	561	87	254	903	309	481
Shared Lane Traffic (%)						
Lane Group Flow (vph)	648	0	254	903	309	481
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0	, agrit	LOIL	3.0	3.4	, vigin
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
` ,	4.9			4.9	4.9	
Two way Left Turn Lane	0.00	0.00	1.00	0.00	1.02	1.00
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)	•	14	24	_	24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7		0.0	28.7	0.0	0.0
. ,						
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		

	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	39.2		55.5	50.0	15.0	15.0
Actuated g/C Ratio	0.49		0.70	0.63	0.19	0.19
v/c Ratio	0.41		0.49	0.42	0.99	1.00
Control Delay	13.3		7.8	8.2	83.1	52.7
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	13.3		7.8	8.2	83.1	52.7
LOS	В		A	Α	F	D
Approach Delay	13.3			8.1	64.6	
Approach LOS	В			A	E	
Queue Length 50th (m)	29.7		11.6	32.1	47.0	~17.1
Queue Length 95th (m)	42.9		19.8	43.2	#94.6	#81.4
Internal Link Dist (m)	976.2		10.0	176.3	613.9	// V 1.1
Turn Bay Length (m)	0.0.2		180.0		90.0	
Base Capacity (vph)	1594		530	2163	313	480
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	0.41		0.48	0.42	0.99	1.00
Internation Comment	¥			J		

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 79.6

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.00
Intersection Signal Delay: 26.6

Intersection Capacity Utilization 73.6%

Intersection LOS: C
ICU Level of Service D

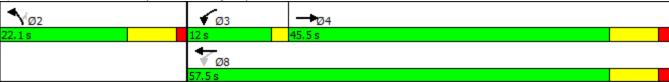
Analysis Period (min) 15

~ 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.

Splits and Phases: 1: County Road 50 & Highway 89



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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	↑ 1>		W	
Traffic Volume (veh/h)	59	907	1041	55	23	31
Future Volume (Veh/h)	59	907	1041	55	23	31
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	63	975	1119	59	25	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.90	
vC, conflicting volume	1178				1762	589
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1178				1629	589
tC, single (s)	4.1				7.0	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	90				64	93
cM capacity (veh/h)	600				70	457
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	388	650	746	432	58	
Volume Left	63	0	0	0	25	
Volume Right	0	0	0	59	33	
cSH	600	1700	1700	1700	136	
Volume to Capacity	0.10	0.38	0.44	0.25	0.43	
Queue Length 95th (m)	2.7	0.0	0.0	0.0	14.3	
Control Delay (s)	3.2	0.0	0.0	0.0	50.0	
Lane LOS	Α				F	
Approach Delay (s)	1.2		0.0		50.0	
Approach LOS					F	
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utiliza	ation		70.6%	IC	U Level o	of Service
Analysis Period (min)	*		15	,,		22.1.00
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ħβ		ሻ	∱ Ъ			4			4	
Traffic Volume (vph)	35	876	47	161	1012	75	70	17	138	57	10	44
Future Volume (vph)	35	876	47	161	1012	75	70	17	138	57	10	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.990			0.917			0.947	
Flt Protected	0.950			0.950				0.985			0.975	
Satd. Flow (prot)	1825	3277	0	1825	3393	0	0	1688	0	0	1774	0
FIt Permitted	0.217			0.273				0.874			0.634	
Satd. Flow (perm)	417	3277	0	524	3393	0	0	1498	0	0	1153	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			16			82			34	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		310.5			133.1			220.4			107.2	
Travel Time (s)		18.6			8.0			13.2			7.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	10%	20%	0%	7%	0%	9%	0%	0%	0%	0%	0%
Adj. Flow (vph)	37	922	49	169	1065	79	74	18	145	60	11	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	971	0	169	1144	0	0	237	0	0	117	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	62.0	62.0		62.0	62.0		28.0	28.0		28.0	28.0	
Total Split (%)	68.9%	68.9%		68.9%	68.9%		31.1%	31.1%		31.1%	31.1%	
Maximum Green (s)	55.0	55.0		55.0	55.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	55.5	55.5		55.5	55.5			14.0			14.0	
Actuated g/C Ratio	0.66	0.66		0.66	0.66			0.17			0.17	
v/c Ratio	0.13	0.45		0.49	0.51			0.74			0.53	
Control Delay	8.1	8.1		14.4	8.7			35.6			31.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.1	8.1		14.4	8.7			35.6			31.2	
LOS	Α	Α		В	Α			D			С	
Approach Delay		8.1			9.4			35.6			31.2	
Approach LOS		Α			Α			D			С	
Queue Length 50th (m)	1.9	33.6		11.8	42.0			23.3			11.9	
Queue Length 95th (m)	7.1	57.6		35.2	70.9			46.7			27.5	
Internal Link Dist (m)		286.5			109.1			196.4			83.2	
Turn Bay Length (m)	100.0			70.0								
Base Capacity (vph)	276	2180		348	2259			438			316	
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	0.45		0.49	0.51			0.54			0.37	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 83.	.6											
Natural Cycle: 60												
Control Type: Semi Act-Un	coord											
Maximum v/c Ratio: 0.74												
Intersection Signal Delay: 12.2 Intersection LOS: B												
Intersection Capacity Utiliza	ICU Level of Service C											

Analysis Period (min) 15

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥	•		ર્ન	f)	_
Traffic Volume (veh/h)	72	4	4	153	141	79
Future Volume (Veh/h)	72	4	4	153	141	79
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	80	4	4	170	157	88
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				110110	110110	
Upstream signal (m)					220	
pX, platoon unblocked					220	
vC, conflicting volume	379	201	245			
vC1, stage 1 conf vol	010	201	270			
vC2, stage 2 conf vol						
vCu, unblocked vol	379	201	245			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	0.4	0.2	7.1			
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	100	100			
cM capacity (veh/h)	621	840	1321			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	84	174	245			
Volume Left	80	4	0			
Volume Right	4	0	88			
cSH	629	1321	1700			
Volume to Capacity	0.13	0.00	0.14			
Queue Length 95th (m)	3.5	0.1	0.0			
Control Delay (s)	11.6	0.2	0.0			
Lane LOS	В	Α				
Approach Delay (s)	11.6	0.2	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			2.0			
Intersection Capacity Utilizati	ion		23.1%	IC	CU Level c	f Service
Analysis Period (min)			15		. 5 _5.0.0	
Analysis i Gliou (Illili)			10			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ }		ň	^	7		4			4	7
Traffic Volume (vph)	83	1018	10	22	1123	140	0	0	12	117	1	71
Future Volume (vph)	83	1018	10	22	1123	140	0	0	12	117	1	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850		0.865				0.850
Flt Protected	0.950			0.950							0.953	
Satd. Flow (prot)	1706	3376	0	1825	3444	1633	0	1662	0	0	1813	1633
FIt Permitted	0.211			0.241							0.719	
Satd. Flow (perm)	379	3376	0	463	3444	1633	0	1662	0	0	1368	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				134		121				133
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	8%	0%	0%	6%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	87	1072	11	23	1182	147	0	0	13	123	1	75
Shared Lane Traffic (%)	<u> </u>										•	. 0
Lane Group Flow (vph)	87	1083	0	23	1182	147	0	13	0	0	124	75
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	2010	3.7	rugiit	2010	3.7	rugiit	20.0	0.0	. ug.ic	2010	0.0	. ugiit
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		1.0			1.0			1.0			1.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex		Cl+Ex	Cl+Ex	Cl+Ex	CI+Ex	CI+Ex		Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel	OI · LX	OI · LX		OI · LX	OI · LX	OI LX	OI LX	OI · LX		OI · LX	OI · LX	OILEX
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	0.0	28.7		0.0	28.7	0.0	0.0	28.7		0.0	28.7	0.0
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			CI+Ex			Cl+Ex	
Detector 2 Channel		CITEX			CITEX			CITEX			OITEX	
		0.0			0.0			0.0			0.0	
Detector 2 Extend (s)	Dorm			Dorm		Eroo				Dorm		Eroo
Turn Type	Perm	NA		Perm	NA	Free		NA		Perm	NA	Free
Protected Phases		4			8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	65.0	65.0		65.0	65.0		25.0	25.0		25.0	25.0	
Total Split (%)	72.2%	72.2%		72.2%	72.2%		27.8%	27.8%		27.8%	27.8%	
Maximum Green (s)	58.0	58.0		58.0	58.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	63.8	63.8		63.8	63.8	91.0		13.2			13.2	91.0
Actuated g/C Ratio	0.70	0.70		0.70	0.70	1.00		0.15			0.15	1.00
v/c Ratio	0.33	0.46		0.07	0.49	0.09		0.04			0.63	0.05
Control Delay	10.6	7.2		6.1	7.6	0.1		0.2			49.2	0.1
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	10.6	7.2		6.1	7.6	0.1		0.2			49.2	0.1
LOS	В	Α		Α	Α	Α		Α			D	Α
Approach Delay		7.5			6.7			0.2			30.7	
Approach LOS		Α			Α			Α			С	
Queue Length 50th (m)	5.0	37.3		1.1	42.2	0.0		0.0			19.6	0.0
Queue Length 95th (m)	16.2	59.7		4.2	67.0	0.0		m0.0			35.8	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	265	2366		324	2412	1633		426			271	1633
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.33	0.46		0.07	0.49	0.09		0.03			0.46	0.05
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 91												
Natural Cycle: 60												
Control Type: Semi Act-Ur	ncoord											
Maximum v/c Ratio: 0.63	• •											
Intersection Signal Delay:					ntersection							
Intersection Capacity Utiliz	zation 66.3%			IC	CU Level of	of Service	e C					
Analysis Period (min) 15												

m Volume for 95th percentile queue is metered by upstream signal.



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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ Ъ			414	W	
Traffic Volume (veh/h)	1112	6	7	1344	0	17
Future Volume (Veh/h)	1112	6	7	1344	0	17
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	1146	6	7	1386	0	18
Pedestrians					3	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	249					
pX, platoon unblocked			0.87		0.87	0.87
vC, conflicting volume			1155		1859	579
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			884		1691	223
tC, single (s)			4.1		6.8	7.5
tC, 2 stage (s)					3.0	
tF (s)			2.2		3.5	3.6
p0 queue free %			99		100	97
cM capacity (veh/h)			673		74	609
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	764	388	469		18	
Volume Total Volume Left	764		469 7	924	0	
		0 6		0	18	
Volume Right	1700		673	1700	609	
Valuma ta Camasitu	1700	1700	673	1700		
Volume to Capacity	0.45	0.23	0.01	0.54	0.03	
Queue Length 95th (m)	0.0	0.0	0.2	0.0	0.7	
Control Delay (s)	0.0	0.0	0.3	0.0	11.1	
Lane LOS	0.0		A		В	
Approach Delay (s)	0.0		0.1		11.1	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliza	ation		52.0%	IC	U Level c	f Service
Analysis Period (min)			15			
,						

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ኻ	∱ ∱		ች	† }		ሻ	4	7	ች	1	7
Traffic Volume (vph)	63	765	365	321	795	35	496	52	235	31	63	94
Future Volume (vph)	63	765	365	321	795	35	496	52	235	31	63	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.952			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.961		0.950		
Satd. Flow (prot)	1825	3219	0	1825	3557	0	1534	1578	1617	1722	1921	1601
Flt Permitted	0.328			0.097			0.714	0.721		0.403		
Satd. Flow (perm)	630	3219	0	186	3557	0	1150	1182	1588	728	1921	1577
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		87			7				245			98
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	1		8	8		1	3		6	6		3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	17%	0%	2%	0%	13%	3%	1%	6%	0%	2%
Adj. Flow (vph)	66	797	380	334	828	36	517	54	245	32	66	98
Shared Lane Traffic (%)							45%					
Lane Group Flow (vph)	66	1177	0	334	864	0	284	287	245	32	66	98
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template	0.0	Thru		10.5	Thru		40.5	40.5	40.0	40.5	40.5	0.0
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			Cl+Ex							
Detector 2 Channel		0.0			0.0							
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	37.2	37.2		60.1	57.1		27.1	27.1	27.1	27.1	27.1	27.1
Actuated g/C Ratio	0.38	0.38		0.62	0.59		0.28	0.28	0.28	0.28	0.28	0.28
v/c Ratio	0.27	0.92		0.87	0.41		0.89	0.87	0.40	0.16	0.12	0.19
Control Delay	27.9	40.5		46.2	11.9		63.3	60.4	5.6	28.5	26.5	6.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	40.5		46.2	11.9		63.3	60.4	5.6	28.5	26.5	6.6
LOS	С	D		D	В		Е	E	Α	С	С	Α
Approach Delay		39.8			21.5			45.0			16.9	
Approach LOS		D			С			D			В	
Queue Length 50th (m)	9.0	108.8		44.8	45.2		53.5	53.8	0.0	4.5	9.2	0.0
Queue Length 95th (m)	21.1	#163.5		#81.6	58.4		#100.4	#100.1	16.8	12.0	19.2	11.1
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0	_	10.0
Base Capacity (vph)	241	1285		452	2091		343	353	646	217	573	540
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	0.27	0.92		0.74	0.41		0.83	0.81	0.38	0.15	0.12	0.18

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 97.2

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 33.4

Intersection Capacity Utilization 87.3%

Intersection LOS: C
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: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ Ъ		ኘ	^	ሻ	7
Traffic Volume (vph)	672	102	245	744	189	274
Future Volume (vph)	672	102	245	744	189	274
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	5.1	0.0	180.0	5.1	90.0	0.0
Storage Lanes		0.0	100.0		1	1
Taper Length (m)		U	80.0		80.0	ı
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.980	0.95	1.00	0.95	1.00	0.850
FIt Protected	0.900		0.950		0.950	0.000
	2400	٥		2544		040
Satd. Flow (prot)	3462	0	1668	3544	1713	949
Flt Permitted	0.100	•	0.299	0544	0.950	0.40
Satd. Flow (perm)	3462	0	525	3544	1713	949
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	29					282
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	12%	1%	3%	3%	1%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	693	105	253	767	195	282
Shared Lane Traffic (%)			_00	, , ,		
Lane Group Flow (vph)	798	0	253	767	195	282
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
	3.0	ragni	Leit	3.0	3.4	Night
Median Width(m)						
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel	OITEX		OI LX	OI'LX	OI LX	OI? LX
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)						
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead	1.0	7.1	7.1
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	39.7		55.5	50.0	13.2	13.2
Actuated g/C Ratio	0.51		0.71	0.64	0.17	0.17
v/c Ratio	0.51		0.71	0.04	0.17	0.17
Control Delay	13.2		7.8	7.0	42.6	15.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	13.2		7.8	7.0	42.6	15.5
LOS	13.2 B		7.8 A			15.5 B
	13.2		А	A 7.2	D 26.6	В
Approach Delay						
Approach LOS	B		40.0	Α	C	0.0
Queue Length 50th (m)	37.0		10.9	24.8	27.2	0.0
Queue Length 95th (m)	53.8		19.2	34.8	47.6	#31.0
Internal Link Dist (m)	976.2		1000	176.3	613.9	
Turn Bay Length (m)			180.0		90.0	
Base Capacity (vph)	1779		521	2279	330	410
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	0.45		0.49	0.34	0.59	0.69

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 77.8

Natural Cycle: 70

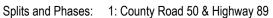
Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.72 Intersection Signal Delay: 13.3 Intersection Capacity Utilization 68.7%

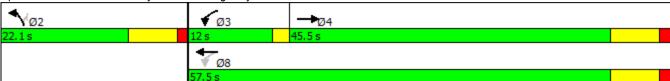
Intersection LOS: B
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.





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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	∱ }		¥	
Traffic Volume (veh/h)	15	820	765	40	34	14
Future Volume (Veh/h)	15	820	765	40	34	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	891	832	43	37	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.88	
vC, conflicting volume	875				1331	438
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	875				1109	438
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				79	97
cM capacity (veh/h)	780				179	573
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	313	594	555	320	52	
Volume Left	16	0	0	0	37	
Volume Right	0	0	0	43	15	
cSH	780	1700	1700	1700	223	
Volume to Capacity	0.02	0.35	0.33	0.19	0.23	
Queue Length 95th (m)	0.5	0.0	0.0	0.0	6.7	
Control Delay (s)	0.7	0.0	0.0	0.0	26.0	
Lane LOS	A	0.0	0.0	0.0	D	
Approach Delay (s)	0.3		0.0		26.0	
Approach LOS	0.0		0.0		20.0 D	
•					D	
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utiliza	ation		43.3%	IC	U Level c	of Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ ∱		7	∱ ∱			4			4	
Traffic Volume (vph)	51	831	79	228	886	195	92	16	224	154	39	53
Future Volume (vph)	51	831	79	228	886	195	92	16	224	154	39	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.973			0.909			0.971	
Flt Protected	0.950			0.950				0.986			0.970	
Satd. Flow (prot)	1825	3538	0	1789	3466	0	0	1722	0	0	1798	0
Flt Permitted /	0.187			0.162				0.833			0.550	
Satd. Flow (perm)	359	3538	0	305	3466	0	0	1455	0	0	1020	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			35			124			17	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		312.3			133.1			218.3			107.2	
Travel Time (s)		18.7			8.0			13.1			7.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	0%	2%	3%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	54	875	83	240	933	205	97	17	236	162	41	56
Shared Lane Traffic (%)	0.	010		210	000	200	O1	.,	200	102		00
Lane Group Flow (vph)	54	958	0	240	1138	0	0	350	0	0	259	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	Lon	3.7	rugiit	Loit	3.7	rugiit	Loit	0.0	rugiit	Loit	0.0	ragne
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		7.5			т.5			т.5			т.5	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.55	14	24	0.55	14	24	0.55	14	24	0.55	14
Number of Detectors	1	2	17	1	2	17	1	2	17	1	2	17
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	Cl+Ex		Cl+Ex	CI+Ex		CI+Ex	CI+Ex		Cl+Ex	CI+Ex	
Detector 1 Channel	CITEX	CITEX		CITEX	CITEX		CITEX	CITEX		CITEX	CITEX	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
` ,	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0						0.0	0.0		0.0		
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	28.7		0.0	0.0 28.7	
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel		0.0			0.0			0.0			0.0	
Detector 2 Extend (s)		0.0			0.0		-	0.0		_	0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	25.0		9.5	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	10.0	36.0		17.0	43.0		37.0	37.0		37.0	37.0	
Total Split (%)	11.1%	40.0%		18.9%	47.8%		41.1%	41.1%		41.1%	41.1%	
Maximum Green (s)	7.0	29.0		14.0	36.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	3.0	5.0		3.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	0.0	2.0		0.0	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)	3.0	7.0		3.0	7.0			7.0			7.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	Max		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	40.4	29.9		47.9	38.4			23.1			23.1	
Actuated g/C Ratio	0.50	0.37		0.59	0.47			0.28			0.28	
v/c Ratio	0.18	0.73		0.63	0.69			0.70			0.86	
Control Delay	10.7	27.7		18.5	21.3			24.3			52.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	10.7	27.7		18.5	21.3			24.3			52.4	
LOS	В	С		В	С			С			D	
Approach Delay		26.8			20.8			24.3			52.4	
Approach LOS		С			С			С			D	
Queue Length 50th (m)	3.4	68.0		17.1	77.5			31.6			36.5	
Queue Length 95th (m)	9.0	#103.8		37.8	113.2			60.9			#73.4	
Internal Link Dist (m)		288.3			109.1			194.3			83.2	
Turn Bay Length (m)	100.0			70.0								
Base Capacity (vph)	310	1312		440	1658			623			393	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.17	0.73		0.55	0.69			0.56			0.66	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 81	.1											
Natural Cycle: 65												
Control Type: Semi Act-Ur	ncoord											
Maximum v/a Datio: 0.96												

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 25.9

Intersection Capacity Utilization 81.3%

Intersection LOS: C
ICU Level of Service D

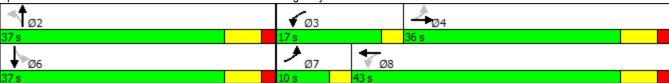
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

09/21/2017

Queue shown is maximum after two cycles.

Splits and Phases: 3: Concession Road 7/Dean Drive & Highway 89



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			ર્ન	1>	
Traffic Volume (veh/h)	161	8	13	169	158	187
Future Volume (Veh/h)	161	8	13	169	158	187
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	179	9	14	188	176	208
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				140110	140110	
Upstream signal (m)					218	
pX, platoon unblocked	0.94	0.94	0.94		210	
vC, conflicting volume	496	280	384			
vC1, stage 1 conf vol	730	200	JU T			
vC2, stage 2 conf vol						
vCu, unblocked vol	428	197	308			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	0.4	0.2	4.1			
tF (s)	3.5	3.3	2.2			
	67	99	99			
p0 queue free %	540	790	1173			
cM capacity (veh/h)						
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	188	202	384			
Volume Left	179	14	0			
Volume Right	9	0	208			
cSH	549	1173	1700			
Volume to Capacity	0.34	0.01	0.23			
Queue Length 95th (m)	11.5	0.3	0.0			
Control Delay (s)	14.9	0.7	0.0			
Lane LOS	В	Α				
Approach Delay (s)	14.9	0.7	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			3.8			
Intersection Capacity Utilizati	ion		35.8%	IC	CU Level o	f Service
Analysis Period (min)			15	10	20 2010	. 5517100
Alialysis i cliou (IIIIII)			10			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ }		ř	^	7		4			4	7
Traffic Volume (vph)	83	1194	7	31	1259	185	1	7	12	180	6	75
Future Volume (vph)	83	1194	7	31	1259	185	1	7	12	180	6	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt		0.999				0.850		0.916				0.850
Flt Protected	0.950			0.950				0.998			0.954	
Satd. Flow (prot)	1789	3575	0	1825	3579	1601	0	1756	0	0	1781	1555
Flt Permitted	0.163			0.178				0.984			0.717	
Satd. Flow (perm)	307	3575	0	342	3579	1601	0	1732	0	0	1339	1555
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				158		13				133
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	0%	0%	2%	2%	0%	0%	0%	3%	0%	5%
Adj. Flow (vph)	87	1257	7	33	1325	195	1	7	13	189	6	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	1264	0	33	1325	195	0	21	0	0	195	79
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Free	Perm	NA		Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	63.0	63.0		63.0	63.0		27.0	27.0		27.0	27.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	56.0	56.0		56.0	56.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	58.8	58.8		58.8	58.8	89.7		16.9			16.9	89.7
Actuated g/C Ratio	0.66	0.66		0.66	0.66	1.00		0.19			0.19	1.00
v/c Ratio	0.43	0.54		0.15	0.57	0.12		0.06			0.77	0.05
Control Delay	17.1	9.8		8.9	10.1	0.2		17.4			54.9	0.1
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	17.1	9.8		8.9	10.1	0.2		17.4			54.9	0.1
LOS	В	Α		Α	В	Α		В			D	Α
Approach Delay		10.2			8.8			17.4			39.1	
Approach LOS		В			Α			В			D	
Queue Length 50th (m)	6.7	56.4		2.0	60.8	0.0		1.1			30.9	0.0
Queue Length 95th (m)	21.4	77.8		6.6	83.5	0.0		m6.5			#57.1	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	201	2343		224	2345	1601		396			298	1555
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.43	0.54		0.15	0.57	0.12		0.05			0.65	0.05
Intersection Summary	Oll											
Area Type:	Other											
Cycle Length: 90	7											
Actuated Cycle Length: 89	.1											
Natural Cycle: 65												
Control Type: Semi Act-Un	coora											

Intersection LOS: B

ICU Level of Service D

Maximum v/c Ratio: 0.77 Intersection Signal Delay: 12.1

Intersection Capacity Utilization 73.9%

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: 4: Elizabeth Street/Concession Road 7 & Highway 89



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Movement EBT EBR WBL WBT NBL NBR
Lane Configurations †\$
Traffic Volume (veh/h) 1416 3 7 1470 0 10
Future Volume (Veh/h) 1416 3 7 1470 0 10
Sign Control Free Stop
Grade 0% 0% 0%
Peak Hour Factor 0.94 0.94 0.94 0.94 0.94
Hourly flow rate (vph) 1506 3 7 1564 0 11
Pedestrians
Lane Width (m)
Walking Speed (m/s)
Percent Blockage
Right turn flare (veh)
Median type None None
Median storage veh)
Upstream signal (m) 249
pX, platoon unblocked 0.80 0.80 0.80
vC, conflicting volume 1509 2304 754
vC1, stage 1 conf vol
vC2, stage 2 conf vol
vCu, unblocked vol 1133 2128 188
tC, single (s) 4.1 6.8 7.2
tC, 2 stage (s)
tF(s) 2.2 3.5 3.5
p0 queue free % 99 100 98
cM capacity (veh/h) 498 34 621
Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1
Volume Total 1004 505 528 1043 11
Volume Left 0 0 7 0 0
Volume Right 0 3 0 0 11
cSH 1700 1700 498 1700 621
Volume to Capacity 0.59 0.30 0.01 0.61 0.02
Queue Length 95th (m) 0.0 0.0 0.3 0.0 0.4
Control Delay (s) 0.0 0.0 0.4 0.0 10.9
Lane LOS A B Approach Delay (s) 0.0 0.1 10.9
Approach Delay (s) 0.0 0.1 10.9 Approach LOS B
Approacti LOS
Intersection Summary
Average Delay 0.1
Intersection Capacity Utilization 55.5% ICU Level of Service
Analysis Period (min) 15

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Ĭ	ħβ		ř	∱ }		Ť	ર્ન	7	*		7
Traffic Volume (vph)	168	1041	215	523	1041	41	298	65	301	59	143	116
Future Volume (vph)	168	1041	215	523	1041	41	298	65	301	59	143	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00			1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.974			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.968		0.950		
Satd. Flow (prot)	1807	3506	0	1825	3590	0	1683	1733	1617	1772	1921	1633
Flt Permitted	0.244			0.108			0.642	0.694		0.529		
Satd. Flow (perm)	464	3506	0	207	3590	0	1134	1240	1593	985	1921	1607
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			7				324			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	3		1	1		3	4		3	3		4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	0%	6%	0%	1%	0%	3%	0%	1%	3%	0%	0%
Adj. Flow (vph)	181	1119	231	562	1119	44	320	70	324	63	154	125
Shared Lane Traffic (%)							41%					
Lane Group Flow (vph)	181	1350	0	562	1163	0	189	201	324	63	154	125
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

	•	-	•	•	•	•	1	†		-	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	33.2	33.2		60.3	57.3		21.7	21.7	21.7	21.7	21.7	21.7
Actuated g/C Ratio	0.36	0.36		0.65	0.62		0.24	0.24	0.24	0.24	0.24	0.24
v/c Ratio	1.08	1.06		1.15	0.52		0.71	0.69	0.52	0.27	0.34	0.28
Control Delay	128.1	71.4		115.7	11.6		46.9	44.4	6.4	30.9	30.6	11.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	128.1	71.4		115.7	11.6		46.9	44.4	6.4	30.9	30.6	11.7
LOS	F	Е		F	В		D	D	Α	С	С	В
Approach Delay		78.1			45.5			27.8			23.8	
Approach LOS		Е			D			С			С	
Queue Length 50th (m)	~37.0	~140.7		~103.8	56.7		32.3	34.2	0.0	9.1	22.7	5.1
Queue Length 95th (m)	#82.5	#200.3		#181.7	86.2		56.2	58.3	19.0	19.9	38.7	18.2
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	167	1279		488	2236		359	392	725	311	607	568
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	1.08	1.06		1.15	0.52		0.53	0.51	0.45	0.20	0.25	0.22

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 92.1

Natural Cycle: 130

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 52.4

Intersection Capacity Utilization 105.4%

Intersection LOS: D

ICU Level of Service G

Analysis Period (min) 15

- ~ 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.

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



	→	•	•	•	4	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†	LDIX	YVDL	↑	ind.	TADIX
Traffic Volume (vph)	T № 438	158	267	TT 315	60	138
Future Volume (vph)	438	158	267	315	60	138
\ I /		1900	1900	1900		1900
Ideal Flow (vphpl)	1900 3.7	3.7	3.0	3.7	1900 3.4	3.5
Lane Width (m)	3.1			3.1		
Storage Length (m)		0.0	180.0		90.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)	0.05	0.05	80.0	0.05	80.0	4.00
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.960					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3002	0	1620	3093	1471	1426
Flt Permitted			0.374		0.950	
Satd. Flow (perm)	3002	0	638	3093	1471	1426
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	88					152
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	17%	16%	4%	18%	20%	12%
• • • • • •	481	174	293	346	66	152
Adj. Flow (vph)	401	174	293	340	00	152
Shared Lane Traffic (%)	٥٦٦	^	000	0.40	00	450
Lane Group Flow (vph)	655	0	293	346	66	152
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.01
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
	NA		nm±nt	NA	Prot	Perm
Turn Type	NA		pm+pt	INA	PIOL	reim

	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	39.4		55.5	50.0	10.5	10.5
Actuated g/C Ratio	0.52		0.74	0.67	0.14	0.14
v/c Ratio	0.41		0.50	0.17	0.32	0.46
Control Delay	10.4		6.4	5.1	33.7	10.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	10.4		6.4	5.1	33.7	10.5
LOS	В		A	A	C	В
Approach Delay	10.4		, .	5.7	17.5	
Approach LOS	В			A	В	
Queue Length 50th (m)	22.8		9.9	8.0	8.6	0.0
Queue Length 95th (m)	38.1		19.6	14.0	19.3	14.8
Internal Link Dist (m)	976.2		10.0	176.3	613.9	11.0
Turn Bay Length (m)	010.E		180.0		90.0	
Base Capacity (vph)	1617		602	2059	293	406
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	0.41		0.49	0.17	0.23	0.37
Intersection Cummers	V		J. 10	¥111		

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 75.1 Natural Cycle: 70

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.50

Intersection Signal Delay: 9.4 Intersection LOS: A Intersection Capacity Utilization 67.8% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: County Road 50 & Highway 89



	۶	→	←	•	\	✓
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		414	↑ ↑		¥	
Traffic Volume (veh/h)	12	546	539	16	36	55
Future Volume (Veh/h)	12	546	539	16	36	55
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	13	607	599	18	40	61
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.96	
vC, conflicting volume	617				938	308
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	617				857	308
tC, single (s)	4.3				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	99				86	91
cM capacity (veh/h)	900				285	693
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	215	405	399	218	101	
Volume Left	13	0	0	0	40	
Volume Right	0	0	0	18	61	
cSH	900	1700	1700	1700	442	
Volume to Capacity	0.01	0.24	0.23	0.13	0.23	
Queue Length 95th (m)	0.3	0.0	0.0	0.0	6.6	
Control Delay (s)	0.7	0.0	0.0	0.0	15.5	
Lane LOS	Α			4.4	С	
Approach Delay (s)	0.2		0.0		15.5	
Approach LOS	J. <u>E</u>		5.5		C	
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utiliza	ation		35.7%	IC	U Level c	f Service
Analysis Period (min)			15	.0		
raidiyolo i ollod (Illili)			10			

Movement		-	•	•	•	4	~
Lane Configurations	Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Volume (veh/h) 555 142 137 540 14 34 Future Volume (Veh/h) 555 142 137 540 14 34 Sign Control Free Free Stop Grade 0% 0<							
Future Volume (Veh/h) 555 142 137 540 14 34 Sign Control Free Stop Grade 0% 0% 0% 0% Peak Hour Factor 0.90 0.90 0.90 0.90 0.90 0.90 Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median storage veh) Upstream signal (m) pX, platoon unblocked vC, conflicting volume 775 1300 388 vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage (s) tC, single (s) tC, single (s) tC, 2 stage (s) tF (s) 2.2 3.5 3.3 p0 queue free % cM capacity (veh/h) 837 125 611 Direction, Lane # EB1 EB2 WB1 WB2 NB1 Volume Total 411 364 352 400 54 Volume Left 0 0 152 0 16 Volume Right 0 158 0 0 38 cSH 1700 1700 837 1700 284 Volume Right 0 0.50 0.0 5.0 0.0 5.2 Control Delay (s) 0.0 0.0 5.6 0.0 20.6 Lane LOS Approach LOS Intersection Summary Average Delay Average Delay			142	137			34
Sign Control Free Grade Free Own of the processing of the proce							
Grade 0% 0% 0% Peak Hour Factor 0.90							
Peak Hour Factor 0.90 0.80 38 Percent Blockage Right turn flare veh None Non							
Hourly flow rate (vph) 617 158 152 600 16 38 Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None None Median storage veh) Upstream signal (m) pX, platoon unblocked vC, conflicting volume 775 1300 388 vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol tC, 2 stage (s) tF (s) 2.2 3.5 3.3 p0 queue free % 82 87 94 cM capacity (veh/h) 837 125 611 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 411 364 352 400 54 Volume Left 0 0 152 0 16 Volume Right 0 158 0 0 38 cSH 1700 1700 837 1700 284 Volume to Capacity 0.24 0.21 0.18 0.24 0.19 Queue Length 95th (m) 0.0 0.0 5.0 0.0 5.2 Control Delay (s) 0.0 0.0 5.6 0.0 20.6 Lane LOS A C Approach LOS Intersection Summary Average Delay			0.90	0.90			0.90
Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type Median storage veh) Upstream signal (m) pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol tC, 2 stage (s) tF (s)							
Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None None Median storage veh) Upstream signal (m) pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC4, unblocked vol t, single (s) tF (s) p0 queue free % cM capacity (veh/h) Direction, Lane # Volume Total Volume Total Volume Right to 158 to 0 38 to 38 to 125 to 16 to 158 to 0 38 to 38 to 39							
Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None None Median storage veh) Upstream signal (m) pX, platoon unblocked vC, conflicting volume 775 1300 388 vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC4, unblocked vol 775 1300 388 tC, single (s) 4.1 6.8 6.9 6.1 6.1							
Percent Blockage Right turn flare (veh) Median type None Median storage veh) Upstream signal (m) pX, platoon unblocked vC, conflicting volume vC2, stage 1 conf vol vC2, stage 2 conf vol vC4, unblocked vol tC, 2 stage (s) tF (s)	. ,						
Right turn flare (veh) Median type None None Median storage veh) Upstream signal (m) 775 1300 388 vC1, stage 1 conf vol vC2, stage 2 conf vol 775 1300 388 vC1, stage 1 conf vol 775 1300 388 vC2, stage 2 conf vol 775 1300 388 tC, single (s) 4.1 6.8 6.9 tC, 2 stage (s) 2.2 3.5 3.3 p0 queue free % 82 87 94 cM capacity (veh/h) 837 125 611 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 411 364 352 400 54 Volume Left 0 0 152 0 16 Volume Right 0 158 0 0 38 cSH 1700 1700 837 1700 284 Volume to Capacity 0.24 0.21 0.18 0.24 0.19 Queue Length 95th (m) 0.0 0.0 5.0							
Median type None None Median storage veh) Upstream signal (m) pX, platoon unblocked 775 1300 388 vC1, stage 1 conf vol 775 1300 388 tC, stage 2 conf vol 775 1300 388 tC, single (s) 4.1 6.8 6.9 tC, 2 stage (s) 82 87 94 cM capacity (veh/h) 837 125 611 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 411 364 352 400 54 Volume Left 0 0 152 0 16 Volume Right 0 158 0 0 38 cSH 1700 1700 837 1700 284 Volume to Capacity 0.24 0.21 0.18 0.24 0.19 Queue Length 95th (m) 0.0 0.0 5.6 0.0 20.6 Lane LOS A							
Median storage veh) Upstream signal (m) pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol 775 vC2, stage 2 conf vol 1300 vCu, unblocked vol 775 tC, single (s) 4.1 tC, 2 stage (s) 82 tF (s) 2.2 p0 queue free % 82 cM capacity (veh/h) 837 125 611 10 pirection, Lane # EB 1 EB 2 WB 1 WB 2 Volume Total 411 364 352 400 54 Volume Left 0 0 152 0 16 Volume Right 0 158 0 0 38 cSH 1700 1700 837 1700 284 Volume to Capacity 0.24 0.21 0.18 0.24 0.19 Queue Length 95th (m) 0.0 0.0 5.6 0.0 2.6 Control Delay (s) 0.0 0.0 5.6 0.0 2.6 Approach LOS C C 1<		None			None		
Upstream signal (m) pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol vCu, unblocked vol tC, single (s) tC, 2 stage (s) tF (s) p0 queue free % cM capacity (veh/h) Direction, Lane # EB 1 EB 2 WB 1 Volume Total Volume Left Volume Right O 158 O							
pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol tC, single (s) tC, single (s) tC, 2 stage (s) tF (s) 2.2 3.5 3.3 p0 queue free % 82 87 94 cM capacity (veh/h) 837 125 611 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total							
vC, conflicting volume 775 1300 388 vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 775 1300 388 tC, single (s) 4.1 6.8 6.9 tC, 2 stage (s) 5 5 3.5 3.3 p0 queue free % 82 87 94 cM capacity (veh/h) 837 125 611 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 411 364 352 400 54 Volume Left 0 0 152 0 16 Volume Right 0 158 0 0 38 cSH 1700 1700 837 1700 284 Volume to Capacity 0.24 0.21 0.18 0.24 0.19 Queue Length 95th (m) 0.0 0.0 5.0 0.0 5.2 Control Delay (s) 0.0 0.0 5.6 0.0 20.6 Lane LOS A C Ap	,						
vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol				775		1300	388
vC2, stage 2 conf vol vCu, unblocked vol 775 1300 388 tC, single (s) 4.1 6.8 6.9 tC, 2 stage (s) 2.2 3.5 3.3 p0 queue free % 82 87 94 cM capacity (veh/h) 837 125 611 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 411 364 352 400 54 Volume Left 0 0 152 0 16 Volume Right 0 158 0 0 38 cSH 1700 1700 837 1700 284 Volume to Capacity 0.24 0.21 0.18 0.24 0.19 Queue Length 95th (m) 0.0 0.0 5.0 0.0 5.2 Control Delay (s) 0.0 0.0 5.6 0.0 20.6 Lane LOS A C Approach LOS C C Intersection Summary 2.0							
vCu, unblocked vol 775 1300 388 tC, single (s) 4.1 6.8 6.9 tC, 2 stage (s) 82 3.5 3.3 p0 queue free % 82 87 94 cM capacity (veh/h) 837 125 611 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 411 364 352 400 54 Volume Left 0 0 152 0 16 Volume Right 0 158 0 0 38 cSH 1700 1700 837 1700 284 Volume to Capacity 0.24 0.21 0.18 0.24 0.19 Queue Length 95th (m) 0.0 0.0 5.0 0.0 5.2 Control Delay (s) 0.0 0.0 5.6 0.0 20.6 Lane LOS A C Approach Delay (s) 0.0 2.6 20.6 Approach LOS C C <							
tC, 2 stage (s) tF (s) 2.2 3.5 3.3 p0 queue free % 82 87 94 cM capacity (veh/h) 837 125 611 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 411 364 352 400 54 Volume Left 0 0 152 0 16 Volume Right 0 158 0 0 38 cSH 1700 1700 837 1700 284 Volume to Capacity 0.24 0.21 0.18 0.24 0.19 Queue Length 95th (m) 0.0 0.0 5.0 Control Delay (s) A C Approach Delay (s) Approach LOS C Intersection Summary Average Delay 2.0				775		1300	388
tC, 2 stage (s) tF (s)	tC, single (s)			4.1		6.8	6.9
tF (s) 2.2 3.5 3.3 p0 queue free % 82 87 94 cM capacity (veh/h) 837 125 611 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 411 364 352 400 54 Volume Left 0 0 152 0 16 Volume Right 0 158 0 0 38 cSH 1700 1700 837 1700 284 Volume to Capacity 0.24 0.21 0.18 0.24 0.19 Queue Length 95th (m) 0.0 0.0 5.0 0.0 5.2 Control Delay (s) 0.0 0.0 5.6 0.0 20.6 Lane LOS A C Approach Delay (s) 0.0 2.6 2.6 Approach LOS C Intersection Summary Average Delay 2.0							
p0 queue free % 82 87 94 CM capacity (veh/h) 837 125 611 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 411 364 352 400 54 Volume Left 0 0 152 0 16 Volume Right 0 158 0 0 38 CSH 1700 1700 837 1700 284 Volume to Capacity 0.24 0.21 0.18 0.24 0.19 Queue Length 95th (m) 0.0 0.0 5.0 0.0 5.2 Control Delay (s) 0.0 0.0 5.6 0.0 20.6 Lane LOS A C Approach Delay (s) 0.0 2.6 20.6 Approach LOS Intersection Summary Average Delay				2.2		3.5	3.3
CM capacity (veh/h) 837 125 611 Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 411 364 352 400 54 Volume Left 0 0 152 0 16 Volume Right 0 158 0 0 38 cSH 1700 1700 837 1700 284 Volume to Capacity 0.24 0.21 0.18 0.24 0.19 Queue Length 95th (m) 0.0 0.0 5.0 0.0 5.2 Control Delay (s) 0.0 0.0 5.6 0.0 20.6 Lane LOS A C Approach Delay (s) 0.0 2.6 20.6 Approach LOS C C Intersection Summary Average Delay							
Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1 Volume Total 411 364 352 400 54 Volume Left 0 0 152 0 16 Volume Right 0 158 0 0 38 cSH 1700 1700 837 1700 284 Volume to Capacity 0.24 0.21 0.18 0.24 0.19 Queue Length 95th (m) 0.0 0.0 5.0 0.0 5.2 Control Delay (s) 0.0 0.0 5.6 0.0 20.6 Lane LOS A C Approach Delay (s) 0.0 2.6 20.6 Approach LOS C C Intersection Summary Average Delay							
Volume Total 411 364 352 400 54 Volume Left 0 0 152 0 16 Volume Right 0 158 0 0 38 cSH 1700 1700 837 1700 284 Volume to Capacity 0.24 0.21 0.18 0.24 0.19 Queue Length 95th (m) 0.0 0.0 5.0 0.0 5.2 Control Delay (s) 0.0 0.0 5.6 0.0 20.6 Lane LOS A C Approach Delay (s) 0.0 2.6 20.6 Approach LOS C Intersection Summary 2.0		EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Left 0 0 152 0 16 Volume Right 0 158 0 0 38 cSH 1700 1700 837 1700 284 Volume to Capacity 0.24 0.21 0.18 0.24 0.19 Queue Length 95th (m) 0.0 0.0 5.0 0.0 5.2 Control Delay (s) 0.0 0.0 5.6 0.0 20.6 Lane LOS A C Approach Delay (s) 0.0 2.6 20.6 Approach LOS C Intersection Summary Average Delay 2.0							
Volume Right 0 158 0 0 38 cSH 1700 1700 837 1700 284 Volume to Capacity 0.24 0.21 0.18 0.24 0.19 Queue Length 95th (m) 0.0 0.0 5.0 0.0 5.2 Control Delay (s) 0.0 0.0 5.6 0.0 20.6 Lane LOS A C Approach Delay (s) 0.0 2.6 20.6 Approach LOS C Intersection Summary Average Delay 2.0							
cSH 1700 1700 837 1700 284 Volume to Capacity 0.24 0.21 0.18 0.24 0.19 Queue Length 95th (m) 0.0 0.0 5.0 0.0 5.2 Control Delay (s) 0.0 0.0 5.6 0.0 20.6 Lane LOS A C Approach Delay (s) 0.0 2.6 20.6 Approach LOS C Intersection Summary 2.0							
Volume to Capacity 0.24 0.21 0.18 0.24 0.19 Queue Length 95th (m) 0.0 0.0 5.0 0.0 5.2 Control Delay (s) 0.0 0.0 5.6 0.0 20.6 Lane LOS A C Approach Delay (s) 0.0 2.6 20.6 Approach LOS C Intersection Summary Average Delay 2.0							
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Control Delay (s) 0.0 0.0 5.6 0.0 20.6 Lane LOS A C Approach Delay (s) 0.0 2.6 20.6 Approach LOS C Intersection Summary Average Delay 2.0							
Lane LOS A C Approach Delay (s) 0.0 2.6 20.6 Approach LOS C Intersection Summary 2.0							
Approach Delay (s) 0.0 2.6 20.6 Approach LOS C Intersection Summary 2.0		0.0	0.0		0.0		
Approach LOS C Intersection Summary Average Delay 2.0		0.0					
Intersection Summary Average Delay 2.0		0.0					
Average Delay 2.0							
				2.0			
INTERSECTION CADACITY UNITATION SERVICE	Intersection Capacity Utiliz	zation		52.1%	IC	Ulevelo	f Service
Analysis Period (min) 15		244011			10	201010	71 001 1100

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ ⊅		ሻ	∱ ∱			4			4	
Traffic Volume (veh/h)	27	499	35	51	401	69	12	9	53	64	8	27
Future Volume (Veh/h)	27	499	35	51	401	69	12	9	53	64	8	27
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	542	38	55	436	75	13	10	58	70	9	29
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	511			580			980	1240	290	976	1222	256
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	511			580			980	1240	290	976	1222	256
tC, single (s)	4.1			4.2			7.5	6.5	6.9	7.5	6.5	7.1
tC, 2 stage (s)												
tF(s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	97			94			93	94	92	59	95	96
cM capacity (veh/h)	1065			983			179	162	713	171	166	720
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	29	361	219	55	291	220	81	108				
Volume Left	29	0	0	55	0	0	13	70				
Volume Right	0	0	38	0	0	75	58	29				
cSH	1065	1700	1700	983	1700	1700	375	215				
Volume to Capacity	0.03	0.21	0.13	0.06	0.17	0.13	0.22	0.50				
Queue Length 95th (m)	0.6	0.0	0.0	1.3	0.0	0.0	6.1	19.4				
Control Delay (s)	8.5	0.0	0.0	8.9	0.0	0.0	17.2	37.6				
Lane LOS	A	0.0	0.0	Α	0.0	0.0	C	E				
Approach Delay (s)	0.4			0.9			17.2	37.6				
Approach LOS	0.4			0.5			C	57.0 E				
Intersection Summary												
Average Delay			4.5									
Intersection Capacity Utilization	on		40.5%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			ર્ન	1>	
Traffic Volume (veh/h)	51	6	22	59	76	143
Future Volume (Veh/h)	51	6	22	59	76	143
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	57	7	24	66	84	159
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	278	164	243			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	278	164	243			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	<u> </u>	<u> </u>				
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	99	98			
cM capacity (veh/h)	699	881	1323			
			SB 1			
Direction, Lane #	EB 1	NB 1				
Volume Total	64	90	243			
Volume Left	57	24	0			
Volume Right	7	0	159			
cSH	715	1323	1700			
Volume to Capacity	0.09	0.02	0.14			
Queue Length 95th (m)	2.2	0.4	0.0			
Control Delay (s)	10.5	2.2	0.0			
Lane LOS	В	Α				
Approach Delay (s)	10.5	2.2	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilizat	tion		30.4%	IC	CU Level of	f Service
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	¥	∱ }		Ţ	† †	7		4			4	7
Traffic Volume (veh/h)	36	648	1	8	718	64	0	1	1	48	3	47
Future Volume (Veh/h)	36	648	1	8	718	64	0	1	1	48	3	47
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	38	682	1	8	756	67	0	1	1	51	3	49
Pedestrians								4				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	756			687			1158	1534	346	1190	1535	378
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	756			687			1158	1534	346	1190	1535	378
tC, single (s)	4.3			4.8			7.5	6.5	6.9	7.6	6.5	7.2
tC, 2 stage (s)												
tF (s)	2.3			2.5			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	95			99			100	99	100	61	97	92
cM capacity (veh/h)	794			721			131	110	654	132	110	579
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	38	455	228	8	378	378	67	2	103			
Volume Left	38	0	0	8	0	0	0	0	51			
Volume Right	0	0	1	0	0	0	67	1	49			
cSH	794	1700	1700	721	1700	1700	1700	189	249			
Volume to Capacity	0.05	0.27	0.13	0.01	0.22	0.22	0.04	0.01	0.41			
Queue Length 95th (m)	1.1	0.0	0.0	0.3	0.0	0.0	0.0	0.2	14.5			
Control Delay (s)	9.8	0.0	0.0	10.1	0.0	0.0	0.0	24.3	32.2			
Lane LOS	Α			В				С	D			
Approach Delay (s)	0.5			0.1				24.3	32.2			
Approach LOS								С	D			
Intersection Summary												
Average Delay			2.3									
Intersection Capacity Utilization	1		42.7%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ∱		ሻ	∱ }		ሻ	4	7	ሻ	†	7
Traffic Volume (vph)	33	579	161	235	622	9	171	22	90	9	31	18
Future Volume (vph)	33	579	161	235	622	9	171	22	90	9	31	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.967			0.998				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.963		0.950		
Satd. Flow (prot)	1825	3171	0	1807	3465	0	1387	1473	1617	1825	1779	1633
Flt Permitted	0.393	•	•	0.281	0.00		0.736	0.753		0.686		
Satd. Flow (perm)	755	3171	0	534	3465	0	1075	1152	1617	1318	1779	1633
Right Turn on Red		•	Yes		0.00	Yes			Yes			Yes
Satd. Flow (RTOR)		38			2				97			88
Link Speed (k/h)		60			50			50	<u> </u>		50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	5%	34%	1%	5%	14%	25%	0%	1%	0%	8%	0%
Adj. Flow (vph)	35	623	173	253	669	10	184	24	97	10	33	19
Shared Lane Traffic (%)	00	020	170	200	000	10	44%	<u> 1</u>	O1	10	00	10
Lane Group Flow (vph)	35	796	0	253	679	0	103	105	97	10	33	19
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	Lon	3.7	rugiit	Loit	3.7	rugiit	Loit	3.7	rugiit	Loit	3.7	ragin
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		1.0			1.0			1.0			1.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	0	2		1	2	• •	1	1	1	1	1	0
Detector Template	· ·	Thru		•	Thru		•		•	•	•	•
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel	OI - EX	OI - EX		OI - EX	OI - EX		OI ZX	OI - EX	OI - EX	OI - EX	OI LX	OI LX
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			CI+Ex							
Detector 2 Channel		O1 · L∧			OI - LX							
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	i Gilli	4		3	8		i Gilli	2	i Gilli	i Gilli	6	i Gilli
TOUGUEU FIIASES		4		J	U						U	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	43.6	43.6		60.1	57.1		14.8	14.8	14.8	14.8	14.8	14.8
Actuated g/C Ratio	0.51	0.51		0.71	0.67		0.17	0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.09	0.48		0.49	0.29		0.55	0.52	0.27	0.04	0.11	0.05
Control Delay	13.9	15.1		8.2	6.6		43.2	41.3	8.4	28.3	29.4	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.9	15.1		8.2	6.6		43.2	41.3	8.4	28.3	29.4	0.3
LOS	В	В		Α	Α		D	D	Α	С	С	Α
Approach Delay		15.0			7.0			31.5			20.3	
Approach LOS		В			Α			С			С	
Queue Length 50th (m)	2.6	37.5		11.3	19.8		16.2	16.4	0.0	1.4	4.6	0.0
Queue Length 95th (m)	9.6	70.2		26.2	36.6		32.0	32.1	11.5	5.4	11.8	0.0
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	387	1644		677	2329		367	393	616	450	608	616
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	0.09	0.48		0.37	0.29		0.28	0.27	0.16	0.02	0.05	0.03

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 85

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 14.0 Intersection Capacity Utilization 61.1%

Intersection LOS: B ICU Level of Service B

Analysis Period (min) 15

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ Ъ		ሻ	^	ሻ	7
Traffic Volume (vph)	410	60	176	766	214	333
Future Volume (vph)	410	60	176	766	214	333
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.7	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	100.0		1	1
Taper Length (m)			80.0		80.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.981	0.50	1.00	0.55	1.00	0.850
Flt Protected	0.001		0.950		0.950	0.000
Satd. Flow (prot)	3208	0	1532	3444	1665	921
Flt Permitted	3200	U	0.444	J 111 1	0.950	321
Satd. Flow (perm)	3208	0	716	3444	1665	921
Right Turn on Red	3200	Yes	110	3444	1005	Yes
•	20	1 68				
Satd. Flow (RTOR)	28			00	00	358
Link Speed (k/h)	80			200.2	637.0	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0	0.00	0.00	9.0	28.7	0.00
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	12%	9%	10%	6%	6%	4%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	441	65	189	824	230	358
Shared Lane Traffic (%)	-00		400	004	000	0=0
Lane Group Flow (vph)	506	0	189	824	230	358
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7		0.0	28.7	0.0	0.0
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			Cl+Ex		
Detector 2 Type Detector 2 Channel	OI · LA			OI. LX		
Detector 2 Extend (s)	0.0			0.0		
Detector 2 Exterio (S)	0.0			0.0		

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	40.1		55.5	50.0	13.9	13.9
Actuated g/C Ratio	0.51		0.71	0.64	0.18	0.18
v/c Ratio	0.31		0.32	0.38	0.78	0.78
Control Delay	11.6		5.6	7.6	50.9	17.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	11.6		5.6	7.6	50.9	17.5
LOS	В		Α	Α	D	В
Approach Delay	11.6			7.2	30.6	
Approach LOS	В			Α	С	
Queue Length 50th (m)	20.8		8.2	28.4	33.1	0.0
Queue Length 95th (m)	32.5		14.7	38.4	#64.3	#40.3
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)			180.0		90.0	
Base Capacity (vph)	1651		610	2195	318	465
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	0.31		0.31	0.38	0.72	0.77
			-			

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 78.5

Natural Cycle: 75

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.78 Intersection Signal Delay: 14.8

Intersection Capacity Utilization 66.3%

Intersection LOS: B

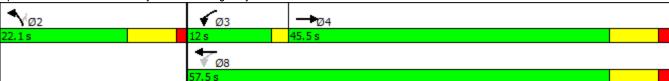
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 50 & Highway 89



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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4₽	↑ ↑		W	
Traffic Volume (veh/h)	44	697	916	66	19	23
Future Volume (Veh/h)	44	697	916	66	19	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	47	749	985	71	20	25
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.94	
vC, conflicting volume	1056				1489	528
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1056				1397	528
tC, single (s)	4.1				7.0	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	93				82	95
cM capacity (veh/h)	667				110	500
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	297	499	657	399	45	
Volume Left	47	0	007	0	20	
Volume Right	0	0	0	71	25	
cSH	667	1700	1700	1700	193	
Volume to Capacity	0.07	0.29	0.39	0.23	0.23	
Queue Length 95th (m)	1.7	0.23	0.03	0.23	6.6	
Control Delay (s)	2.5	0.0	0.0	0.0	29.2	
Lane LOS	2.5 A	0.0	0.0	0.0	29.2 D	
Approach Delay (s)	0.9		0.0		29.2	
Approach LOS	0.9		0.0		29.2 D	
					U	
Intersection Summary			1.			
Average Delay			1.1			
Intersection Capacity Utiliz	ation		61.3%	IC	U Level c	t Service
Analysis Period (min)			15			

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ች	^	W	
Traffic Volume (veh/h)	694	42	68	886	95	132
Future Volume (Veh/h)	694	42	68	886	95	132
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	771	47	76	984	106	147
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			818		1438	409
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			818		1438	409
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		6	75
cM capacity (veh/h)			806		112	592
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	514	304	76	492	492	253
Volume Left	0	0	76	0	0	106
Volume Right	0	47	0	0	0	147
cSH	1700	1700	806	1700	1700	212
Volume to Capacity	0.30	0.18	0.09	0.29	0.29	1.19
Queue Length 95th (m)	0.0	0.0	2.4	0.0	0.0	96.0
Control Delay (s)	0.0	0.0	9.9	0.0	0.0	170.4
Lane LOS	0.0	0.0	Α.	0.0	0.0	F
Approach Delay (s)	0.0		0.7			170.4
Approach LOS	0.0		0.1			F
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Intersection Summary						
Average Delay			20.6			
Intersection Capacity Utiliza	ation		47.7%	IC	CU Level of	of Service
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ŧβ		ሻ	∱ ∱			4			4	
Traffic Volume (veh/h)	26	782	20	148	819	56	125	13	201	42	8	33
Future Volume (Veh/h)	26	782	20	148	819	56	125	13	201	42	8	33
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	27	823	21	156	862	59	132	14	212	44	8	35
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	921			844			1670	2120	422	1888	2102	460
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	921			844			1670	2120	422	1888	2102	460
tC, single (s)	4.1			4.1			7.7	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			81			0	65	64	0	80	94
cM capacity (veh/h)	750			801			39	40	586	17	41	553
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	27	549	295	156	575	346	358	87				
Volume Left	27	0	0	156	0	0	132	44				
Volume Right	0	0	21	0	0	59	212	35				
cSH	750	1700	1700	801	1700	1700	87	31				
Volume to Capacity	0.04	0.32	0.17	0.19	0.34	0.20	4.13	2.84				
Queue Length 95th (m)	0.9	0.02	0.0	5.5	0.0	0.0	Err	77.8				
Control Delay (s)	10.0	0.0	0.0	10.6	0.0	0.0	Err	1104.0				
Lane LOS	Α	0.0	0.0	В	0.0	0.0	F	F				
Approach Delay (s)	0.3			1.5			Err	1104.0				
Approach LOS	0.5			1.0			F	F				
Intersection Summary												
Average Delay			1536.8									
Intersection Capacity Utilization			63.1%	IC	CU Level o	of Service			В			
Analysis Period (min)			15									

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			ર્ન	f)	
Traffic Volume (veh/h)	226	24	9	114	104	72
Future Volume (Veh/h)	226	24	9	114	104	72
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	251	27	10	127	116	80
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	303	156	196			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	303	156	196			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	63	97	99			
cM capacity (veh/h)	684	890	1377			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	278	137	196			
Volume Left	251	10	0			
Volume Right	27	0	80			
cSH	699	1377	1700			
Volume to Capacity	0.40	0.01	0.12			
Queue Length 95th (m)	14.5	0.2	0.0			
Control Delay (s)	13.5	0.6	0.0			
Lane LOS	В	Α	0.0			
Approach Delay (s)	13.5	0.6	0.0			
Approach LOS	13.3 B	0.0	0.0			
•						
Intersection Summary			0.0			
Average Delay	. C		6.3	10	NIII I .	
Intersection Capacity Utiliza	ation		34.1%	IC	CU Level c	of Service
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ ⊅		7	^	7		4			ર્ન	7
Traffic Volume (veh/h)	74	974	8	16	926	104	0	0	9	87	1	55
Future Volume (Veh/h)	74	974	8	16	926	104	0	0	9	87	1	55
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	78	1025	8	17	975	109	0	0	9	92	1	58
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	975			1033			1707	2194	516	1686	2198	488
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	975			1033			1707	2194	516	1686	2198	488
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	88			98			100	100	98	0	97	89
cM capacity (veh/h)	673			681			47	39	509	54	39	531
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	78	683	350	17	488	488	109	9	151			
Volume Left	78	0	0	17	0	0	0	0	92			
Volume Right	0	0	8	0	0	0	109	9	58			
cSH	673	1700	1700	681	1700	1700	1700	509	86			
Volume to Capacity	0.12	0.40	0.21	0.02	0.29	0.29	0.06	0.02	1.76			
Queue Length 95th (m)	3.0	0.0	0.0	0.6	0.0	0.0	0.0	0.4	96.0			
Control Delay (s)	11.0	0.0	0.0	10.4	0.0	0.0	0.0	12.2	467.6			
Lane LOS	В			В				В	F			
Approach Delay (s)	0.8			0.2				12.2	467.6			
Approach LOS								В	F			
Intersection Summary												
Average Delay			30.3									
Intersection Capacity Utilization	n		52.1%	IC	U Level	of Service			Α			
Analysis Period (min)			15									

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† ‡			414	*y#	
Traffic Volume (veh/h)	1044	4	5	1091	0	13
Future Volume (Veh/h)	1044	4	5	1091	0	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	1076	4	5	1125	0	13
Pedestrians					3	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1083		1654	543
vC1, stage 1 conf vol			1000		1001	0.0
vC2, stage 2 conf vol						
vCu, unblocked vol			1083		1654	543
tC, single (s)			4.1		6.8	7.5
tC, 2 stage (s)					0.0	
tF (s)			2.2		3.5	3.6
p0 queue free %			99		100	97
cM capacity (veh/h)			650		90	417
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	717	363	380	750	13	
Volume Left	0	0	5	0	0	
Volume Right	0	4	0	0	13	
cSH	1700	1700	650	1700	417	
Volume to Capacity	0.42	0.21	0.01	0.44	0.03	
		0.21	0.01	0.44	0.03	
Queue Length 95th (m)	0.0					
Control Delay (s)	0.0	0.0	0.2	0.0	13.9	
Lane LOS	0.0		Α		B	
Approach Delay (s)	0.0		0.1		13.9	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliza	ation		43.6%	IC	U Level o	of Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ }		ሻ	† }		ሻ	ર્ન	7	ሻ	1	7
Traffic Volume (vph)	47	782	276	239	681	26	370	39	175	23	47	70
Future Volume (vph)	47	782	276	239	681	26	370	39	175	23	47	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.961			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.961		0.950		
Satd. Flow (prot)	1825	3284	0	1825	3557	0	1534	1579	1617	1722	1921	1601
Flt Permitted	0.372			0.135			0.725	0.734		0.506		
Satd. Flow (perm)	714	3284	0	259	3557	0	1168	1203	1588	913	1921	1577
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		54			6				182			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	1		8	8		1	3		6	6		3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	17%	0%	2%	0%	13%	3%	1%	6%	0%	2%
Adj. Flow (vph)	49	815	288	249	709	27	385	41	182	24	49	73
Shared Lane Traffic (%)							45%					
Lane Group Flow (vph)	49	1103	0	249	736	0	212	214	182	24	49	73
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	Cl+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	41.1	41.1		60.3	57.3		22.4	22.4	22.4	22.4	22.4	22.4
Actuated g/C Ratio	0.44	0.44		0.65	0.62		0.24	0.24	0.24	0.24	0.24	0.24
v/c Ratio	0.16	0.74		0.67	0.33		0.75	0.74	0.35	0.11	0.11	0.16
Control Delay	21.6	26.7		20.5	9.8		49.5	47.9	6.2	27.5	26.8	5.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	26.7		20.5	9.8		49.5	47.9	6.2	27.5	26.8	5.3
LOS	С	С		С	Α		D	D	Α	С	С	Α
Approach Delay		26.4			12.5			35.9			16.1	
Approach LOS		С			В			D			В	
Queue Length 50th (m)	5.1	79.9		16.9	31.2		36.8	37.0	0.0	3.3	6.8	0.0
Queue Length 95th (m)	15.6	#147.4		43.1	48.2		62.7	62.7	14.7	9.6	15.2	7.6
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	316	1485		507	2199		367	377	623	286	603	556
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	0.16	0.74		0.49	0.33		0.58	0.57	0.29	0.08	0.08	0.13

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 92.7

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 23.2

Intersection Capacity Utilization 78.2%

Intersection LOS: C

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: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ኘ	^	ሻ	7
Traffic Volume (vph)	527	76	189	645	141	204
Future Volume (vph)	527	76	189	645	141	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.1	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	100.0		1	1
Taper Length (m)		U	80.0		80.0	ı
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.93	0.30	1.00	0.90	1.00	0.850
FIt Protected	0.301		0.950		0.950	0.000
	3468	0	1668	3544	1713	949
Satd. Flow (prot)	3400	0	0.391	JJ44	0.950	949
Flt Permitted	2460	0		2544		040
Satd. Flow (perm)	3468	0	687	3544	1713	949
Right Turn on Red	07	Yes				Yes
Satd. Flow (RTOR)	27			22	22	210
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	12%	1%	3%	3%	1%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	543	78	195	665	145	210
Shared Lane Traffic (%)						
Lane Group Flow (vph)	621	0	195	665	145	210
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0	3 -		3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane	7.0			1.0	1.0	
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)	0.00	14	24	0.00	24	1.03
Number of Detectors	2	14	1	2	1	14
			I		I	
Detector Template	Thru		10.0	Thru	10.0	Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	J1 · L∧			O1 · LX		
	0.0			0.0		
Detector 2 Extend (s)	0.0			0.0		

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	р	m+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%	1	5.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	40.4		55.5	50.0	12.1	12.1
Actuated g/C Ratio	0.53		0.72	0.65	0.16	0.16
v/c Ratio	0.34		0.33	0.29	0.54	0.64
Control Delay	11.1		5.2	6.3	37.6	14.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	11.1		5.2	6.3	37.6	14.6
LOS	В		Α	Α	D	В
Approach Delay	11.1			6.1	24.0	
Approach LOS	В			Α	С	
Queue Length 50th (m)	23.6		6.9	18.5	19.6	0.0
Queue Length 95th (m)	39.9		14.8	29.5	36.2	19.4
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)		•	180.0		90.0	
Base Capacity (vph)	1840		625	2311	335	354
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	0.34		0.31	0.29	0.43	0.59

Area Type: Other

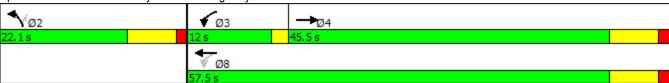
Cycle Length: 79.6
Actuated Cycle Length: 76.7
Natural Cycle: 70

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.64 Intersection Signal Delay: 11.2

Intersection Signal Delay: 11.2 Intersection LOS: B
Intersection Capacity Utilization 63.5% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: County Road 50 & Highway 89



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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4₽	∱ ∱		W	
Traffic Volume (veh/h)	13	697	715	48	30	12
Future Volume (Veh/h)	13	697	715	48	30	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	758	777	52	33	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.92	
vC, conflicting volume	829				1210	414
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	829				1053	414
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				84	98
cM capacity (veh/h)	811				203	592
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	267	505	518	311	46	
Volume Left	14	0	0	0	33	
Volume Right	0	0	0	52	13	
cSH	811	1700	1700	1700	250	
Volume to Capacity	0.02	0.30	0.30	0.18	0.18	
Queue Length 95th (m)	0.02	0.0	0.0	0.10	5.0	
Control Delay (s)	0.7	0.0	0.0	0.0	22.7	
Lane LOS	Α	0.0	0.0	0.0	C	
Approach Delay (s)	0.2		0.0		22.7	
Approach LOS	0.2		0.0		ZZ.1	
					U	
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilizat	tion		38.5%	IC	U Level c	f Service
Analysis Period (min)			15			

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑			414	¥	
Traffic Volume (veh/h)	672	73	107	736	81	109
Future Volume (Veh/h)	672	73	107	736	81	109
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	747	81	119	818	90	121
Pedestrians		<u> </u>		0.0		
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)	140110			140110		
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			828		1434	414
vC1, stage 1 conf vol			020		1404	717
vC2, stage 2 conf vol						
vCu, unblocked vol			828		1434	414
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)			т. 1		3.0	5.5
tF (s)			2.2		3.5	3.3
p0 queue free %			85		15	79
cM capacity (veh/h)			799		106	587
,	ED 4	ED 0		VA/ID O		557
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	498	330	392	545	211	
Volume Left	0	0	119	0	90	
Volume Right	0	81	0	0	121	
cSH	1700	1700	799	1700	200	
Volume to Capacity	0.29	0.19	0.15	0.32	1.05	
Queue Length 95th (m)	0.0	0.0	4.0	0.0	73.0	
Control Delay (s)	0.0	0.0	4.4	0.0	128.5	
Lane LOS			Α		F	
Approach Delay (s)	0.0		1.8		128.5	
Approach LOS					F	
Intersection Summary						
Average Delay			14.6			
Intersection Capacity Utiliza	tion		65.5%	IC	CU Level c	f Service
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ∱		ሻ	∱ ∱			4			4	
Traffic Volume (veh/h)	38	725	21	180	760	145	98	12	208	115	29	40
Future Volume (Veh/h)	38	725	21	180	760	145	98	12	208	115	29	40
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	40	763	22	189	800	153	103	13	219	121	31	42
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	953			785			1690	2185	392	1942	2120	476
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	953			785			1690	2185	392	1942	2120	476
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			77			0	62	64	0	17	92
cM capacity (veh/h)	729			829			14	34	612	14	37	540
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	40	509	276	189	533	420	335	194				
Volume Left	40	0	0	189	0	0	103	121				
Volume Right	0	0	22	0	0	153	219	42				
cSH	729	1700	1700	829	1700	1700	42	21				
Volume to Capacity	0.05	0.30	0.16	0.23	0.31	0.25	7.95	9.34				
Queue Length 95th (m)	1.3	0.0	0.0	6.7	0.0	0.0	Err	Err				
Control Delay (s)	10.2	0.0	0.0	10.6	0.0	0.0	Err	Err				
Lane LOS	В			В			F	F				
Approach Delay (s)	0.5			1.8			Err	Err				
Approach LOS							F	F				
Intersection Summary												
Average Delay			2120.1									
Intersection Capacity Utilization	n		60.3%	IC	U Level	of Service			В			
Analysis Period (min)			15									

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			4	f)	
Traffic Volume (veh/h)	192	21	18	124	117	112
Future Volume (Veh/h)	192	21	18	124	117	112
Sign Control	Stop			Free	Free	· · -
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	213	23	20	138	130	124
Pedestrians	210	20		100	.00	
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				INOHE	INOHE	
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	370	192	254			
vC1, stage 1 conf vol	370	192	234			
vC1, stage 1 conf vol						
vCu, unblocked vol	370	192	254			
,	6.4	6.2	4.1			
tC, single (s)	0.4	0.2	4.1			
tC, 2 stage (s)	2.5	2.2	2.2			
tF (s)	3.5	3.3				
p0 queue free %	66	97	98			
cM capacity (veh/h)	621	850	1311			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	236	158	254			
Volume Left	213	20	0			
Volume Right	23	0	124			
cSH	637	1311	1700			
Volume to Capacity	0.37	0.02	0.15			
Queue Length 95th (m)	13.0	0.4	0.0			
Control Delay (s)	13.9	1.1	0.0			
Lane LOS	В	Α				
Approach Delay (s)	13.9	1.1	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			5.3			
Intersection Capacity Utiliza	ation		40.3%	IC	CU Level o	f Service
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Ť	∱ ∱		Ţ	^	7		4			र्स	7
Traffic Volume (veh/h)	69	1027	5	23	1046	138	1	5	9	134	4	58
Future Volume (Veh/h)	69	1027	5	23	1046	138	1	5	9	134	4	58
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	73	1081	5	24	1101	145	1	5	9	141	4	61
Pedestrians								1				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1101			1087			1831	2380	544	1847	2382	550
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1101			1087			1831	2380	544	1847	2382	550
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	88			96			97	83	98	0	86	87
cM capacity (veh/h)	630			649			34	30	488	35	30	471
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	73	721	365	24	550	550	145	15	206			
Volume Left	73	0	0	24	0	0	0	1	141			
Volume Right	0	0	5	0	0	0	145	9	61			
cSH	630	1700	1700	649	1700	1700	1700	69	48			
Volume to Capacity	0.12	0.42	0.21	0.04	0.32	0.32	0.09	0.22	4.31			
Queue Length 95th (m)	3.0	0.0	0.0	0.9	0.0	0.0	0.0	5.7	Err			
Control Delay (s)	11.5	0.0	0.0	10.8	0.0	0.0	0.0	70.9	Err			
Lane LOS	В			В				F	F			
Approach Delay (s)	0.7			0.2				70.9	Err			
Approach LOS								F	F			
Intersection Summary												
Average Delay			778.1									
Intersection Capacity Utilizatio	n		57.0%	IC	U Level	of Service			В			
Analysis Period (min)			15									

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	∱ 1>			414	¥#	
Traffic Volume (veh/h)	1192	3	5	1203	0	8
Future Volume (Veh/h)	1192	3	5	1203	0	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1268	3	5	1280	0	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1271		1920	636
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1271		1920	636
tC, single (s)			4.1		6.8	7.2
tC, 2 stage (s)						· . <u>-</u>
tF(s)			2.2		3.5	3.5
p0 queue free %			99		100	98
cM capacity (veh/h)			553		60	387
	ED 4	ED 0		MD 0		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	845	426	432	853	9	
Volume Left	0	0	5	0	0	
Volume Right	0	3	0	0	9	
cSH	1700	1700	553	1700	387	
Volume to Capacity	0.50	0.25	0.01	0.50	0.02	
Queue Length 95th (m)	0.0	0.0	0.2	0.0	0.5	
Control Delay (s)	0.0	0.0	0.3	0.0	14.5	
Lane LOS	0.0		A		B	
Approach Delay (s)	0.0		0.1		14.5	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliza	tion		46.7%	IC	U Level o	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ 1≽		ሻ	† }		ሻ	ર્ન	7	ሻ	1	7
Traffic Volume (vph)	125	911	163	389	882	30	223	48	224	44	106	86
Future Volume (vph)	125	911	163	389	882	30	223	48	224	44	106	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.977			0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.968		0.950		
Satd. Flow (prot)	1807	3523	0	1825	3594	0	1683	1733	1617	1772	1921	1633
FIt Permitted	0.292			0.103			0.684	0.735		0.628		
Satd. Flow (perm)	555	3523	0	198	3594	0	1208	1313	1593	1168	1921	1607
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			6				241			92
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	3		1	1		3	4		3	3		4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	0%	6%	0%	1%	0%	3%	0%	1%	3%	0%	0%
Adj. Flow (vph)	134	980	175	418	948	32	240	52	241	47	114	92
Shared Lane Traffic (%)							41%					
Lane Group Flow (vph)	134	1155	0	418	980	0	142	150	241	47	114	92
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	Cl+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR W	BL WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	pm+	pt NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4	·	3 8	1		2			6	
Permitted Phases	4			8		2		2	6		6
Detector Phase	4	4		3 8		2	2	2	6	6	6
Switch Phase											
Minimum Initial (s)	18.0	18.0	3	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0	12	2.0 40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0	24	.0 64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%	24.2	% 64.6%)	35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0	20	.0 57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0	2	.0 5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	(.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)	7.0	7.0	2	.0 7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Le	ad							
Lead-Lag Optimize?	Yes	Yes	Y	es							
Vehicle Extension (s)	3.0	3.0	2	2.0 3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max	No	ne Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0		20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0		13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0		0	0	0	0	0	0
Act Effct Green (s)	35.0	35.0	60			17.3	17.3	17.3	17.3	17.3	17.3
Actuated g/C Ratio	0.40	0.40	0.	69 0.65		0.20	0.20	0.20	0.20	0.20	0.20
v/c Ratio	0.61	0.81	0.	38 0.42		0.60	0.58	0.48	0.20	0.30	0.24
Control Delay	38.5	30.5	42	2.5 8.6		42.3	40.8	7.2	30.5	31.3	7.8
Queue Delay	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	30.5	42	2.5 8.6		42.3	40.8	7.2	30.5	31.3	7.8
LOS	D	С		D A		D	D	Α	С	С	Α
Approach Delay		31.4		18.7			26.0			22.6	
Approach LOS		С		В			С			С	
Queue Length 50th (m)	18.0	90.1	48	36.0		22.9	24.1	0.0	6.6	16.4	0.0
Queue Length 95th (m)	#51.3	#151.9	#114	.6 64.7		41.5	43.0	16.9	15.4	30.0	10.9
Internal Link Dist (m)		493.5		593.4			364.4			46.8	
Turn Bay Length (m)	80.0		95	5.0		25.0			15.0		10.0
Base Capacity (vph)	221	1419	5	09 2352		401	436	690	388	638	595
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	0.61	0.81	0.	32 0.42		0.35	0.34	0.35	0.12	0.18	0.15

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 87.6

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 24.8

Intersection Capacity Utilization 81.2%

Intersection LOS: C
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: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ሻ	^	ሻ	7
Traffic Volume (vph)	488	183	310	361	70	160
Future Volume (vph)	488	183	310	361	70	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	J.1	0.0	180.0	3.1	90.0	0.0
		0.0				1
Storage Lanes		U	1		1	ı
Taper Length (m)	0.05	0.05	80.0	0.05	80.0	4.00
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.959					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	2999	0	1620	3093	1471	1426
FIt Permitted			0.331		0.950	
Satd. Flow (perm)	2999	0	564	3093	1471	1426
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	93					176
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	17%	16%	4%	18%	20%	12%
	536	201	341	397	77	176
Adj. Flow (vph)	550	201	J 4 I	391	11	170
Shared Lane Traffic (%)	727	٥	244	207	77	176
Lane Group Flow (vph)	737	0	341	397	77	176
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.01
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
rum rype	INA		μπτμι	INA	riot	r CIIII

Protected Phases		-	•	•	•	1	
Protected Phases	Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase 4 3 8 2 2		4		3	8	2	
Switch Phase Minimum Initial (s) 35.0 6.0 35.0 10.0 10.0 Minimum Split (s) 42.5 8.0 42.5 17.1 17.1 Total Split (s) 45.5 12.0 57.5 22.1 22.1 Total Split (%) 57.2% 15.1% 72.2% 27.8% 27.8% Maximum Green (s) 38.0 10.0 50.0 15.0 15.0 Yellow Time (s) 5.9 2.0 5.9 </td <td>Permitted Phases</td> <td></td> <td></td> <td>8</td> <td></td> <td></td> <td>2</td>	Permitted Phases			8			2
Minimum Initial (s) 35.0 6.0 35.0 10.0 10.0 Minimum Split (s) 42.5 8.0 42.5 17.1 17.1 Total Split (s) 45.5 12.0 57.5 22.1 22.1 Total Split (%) 57.2% 15.1% 72.2% 27.8% 27.8% Maximum Green (s) 38.0 10.0 50.0 15.0 15.0 Yellow Time (s) 5.9 2.0 5.9 5.9 5.9 All-Red Time (s) 1.6 0.0 1.6 1.2 1.2 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 7.5 2.0 7.5 7.1 7.1 Lead/Lag Lag Lead Lead Lead-Lag Optimize? Yes Yes Vehicle Extension (s) 4.5 2.0 4.5 3.0 3.0 Recall Mode Max None Max None None Act Effect Green (s) 39.0 <	Detector Phase	4		3	8	2	2
Minimum Split (s) 42.5 8.0 42.5 17.1 17.1 Total Split (s) 45.5 12.0 57.5 22.1 22.1 Total Split (%) 57.2% 15.1% 72.2% 27.8% 27.8% Maximum Green (s) 38.0 10.0 50.0 15.0 15.0 Yellow Time (s) 5.9 2.0 5.9 5.9 5.9 All-Red Time (s) 1.6 0.0 1.6 1.2 1.2 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 7.5 2.0 7.5 7.1 7.1 Lead/Lag Lag Lead							
Minimum Split (s) 42.5 8.0 42.5 17.1 17.1 Total Split (s) 45.5 12.0 57.5 22.1 22.1 Total Split (%) 57.2% 15.1% 72.2% 27.8% 27.8% Maximum Green (s) 38.0 10.0 50.0 15.0 15.0 Yellow Time (s) 5.9 2.0 5.9 5.9 5.9 All-Red Time (s) 1.6 0.0 1.6 1.2 1.2 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 7.5 2.0 7.5 7.1 7.1 Lead/Lag Lag Lead	Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Total Split (s) 45.5 12.0 57.5 22.1 22.1 Total Split (%) 57.2% 15.1% 72.2% 27.8% 27.8% Maximum Green (s) 38.0 10.0 50.0 15.0 15.0 Yellow Time (s) 5.9 2.0 5.9 5.9 5.9 All-Red Time (s) 1.6 0.0 1.6 1.2 1.2 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 7.5 2.0 7.5 7.1 7.1 Lead/Lag Lag Lead	` ,						
Total Split (%) 57.2% 15.1% 72.2% 27.8% Maximum Green (s) 38.0 10.0 50.0 15.0 15.0 Yellow Time (s) 5.9 2.0 5.9 5.9 5.9 All-Red Time (s) 1.6 0.0 1.6 1.2 1.2 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 7.5 2.0 7.5 7.1 7.1 Lead/Lag Lead Lead Lead Lead Lead-Lag Optimize? Yes Yes Yes Vehicle Extension (s) 4.5 2.0 4.5 3.0 3.0 Recall Mode Max None Max None None None Act Effect Green (s) 39.0 55.5 50.0 10.8 10.8 Actuated g/C Ratio 0.52 0.74 0.66 0.14 0.14 v/c Ratio 0.46 0.63 0.19 0.36 0.50 <						22.1	22.1
Maximum Green (s) 38.0 10.0 50.0 15.0 15.0 Yellow Time (s) 5.9 2.0 5.9 5.9 5.9 All-Red Time (s) 1.6 0.0 1.6 1.2 1.2 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 7.5 2.0 7.5 7.1 7.1 Lead/Lag Lag Lead Lead Lead Lead-Lag Optimize? Yes Yes Yes Vehicle Extension (s) 4.5 2.0 4.5 3.0 3.0 Recall Mode Max None Max None None None Act Effect Green (s) 39.0 55.5 50.0 10.8 10.8 Actuated g/C Ratio 0.52 0.74 0.66 0.14 0.14 v/c Ratio 0.46 0.63 0.19 0.36 0.50 Control Delay 11.4 9.1 5.3 34.5 10.4 <							
Yellow Time (s) 5.9 2.0 5.9 5.9 5.9 All-Red Time (s) 1.6 0.0 1.6 1.2 1.2 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 7.5 2.0 7.5 7.1 7.1 Lead/Lag Lag Lead							
All-Red Time (s) 1.6 0.0 1.6 1.2 1.2 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 7.5 2.0 7.5 7.1 7.1 Lead/Lag Lag Lead Lead Lead Lead-Lag Optimize? Yes Yes Yes Vehicle Extension (s) 4.5 2.0 4.5 3.0 3.0 Recall Mode Max None Max None No	()						
Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 7.5 2.0 7.5 7.1 7.1 Lead/Lag Lag Lead Lead-Lag Optimize? Yes Yes Vehicle Extension (s) 4.5 2.0 4.5 3.0 3.0 Recall Mode Max None Max None 10.8 None None<							
Total Lost Time (s) 7.5 2.0 7.5 7.1 7.1 Lead/Lag Lag Lead Lead Lead Lead-Lag Optimize? Yes	` ,						
Lead/Lag Lag Lead Lead-Lag Optimize? Yes Yes Vehicle Extension (s) 4.5 2.0 4.5 3.0 3.0 Recall Mode Max None Max None None None Act Effct Green (s) 39.0 55.5 50.0 10.8 10.8 Actuated g/C Ratio 0.52 0.74 0.66 0.14 0.14 v/c Ratio 0.46 0.63 0.19 0.36 0.50 Control Delay 11.4 9.1 5.3 34.5 10.4 Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total Delay 11.4 9.1 5.3 34.5 10.4 10.4 LOS B A A C B Approach Delay 11.4 7.1 17.7 Approach LOS B A B Queue Length 50th (m) 27.8 11.9 9.4 10.1 0.0 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
Lead-Lag Optimize? Yes Yes Vehicle Extension (s) 4.5 2.0 4.5 3.0 3.0 Recall Mode Max None Max None None None Act Effct Green (s) 39.0 55.5 50.0 10.8 10.8 Actuated g/C Ratio 0.52 0.74 0.66 0.14 0.14 v/c Ratio 0.46 0.63 0.19 0.36 0.50 Control Delay 11.4 9.1 5.3 34.5 10.4 Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 Total Delay 11.4 9.1 5.3 34.5 10.4 LOS B A A C B Approach Delay 11.4 9.1 5.3 34.5 10.4 LOS B A A C B Approach LOS B A B B A B Queue Length 95th							
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Act Effct Green (s) 39.0 55.5 50.0 10.8 10.8 Actuated g/C Ratio 0.52 0.74 0.66 0.14 0.14 v/c Ratio 0.46 0.63 0.19 0.36 0.50 Control Delay 11.4 9.1 5.3 34.5 10.4 Queue Delay 0.0 0.0 0.0 0.0 0.0 Total Delay 11.4 9.1 5.3 34.5 10.4 LOS B A A C B Approach Delay 11.4 7.1 17.7 Approach LOS B A B Queue Length 50th (m) 27.8 11.9 9.4 10.1 0.0 Queue Length 95th (m) 45.3 24.5 16.5 21.9 15.6 Internal Link Dist (m) 976.2 176.3 613.9 Turn Bay Length (m) 180.0 90.0 Base Capacity (vph) 1595 555 2050 292 424 Starvation Cap Reductn 0 0 0 0 0 <							
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Queue Delay 0.0 0.0 0.0 0.0 0.0 Total Delay 11.4 9.1 5.3 34.5 10.4 LOS B A A C B Approach Delay 11.4 7.1 17.7 Approach LOS B A B Queue Length 50th (m) 27.8 11.9 9.4 10.1 0.0 Queue Length 95th (m) 45.3 24.5 16.5 21.9 15.6 Internal Link Dist (m) 976.2 176.3 613.9 Turn Bay Length (m) 180.0 90.0 Base Capacity (vph) 1595 555 2050 292 424 Starvation Cap Reductn 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0							
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Queue Length 50th (m) 27.8 11.9 9.4 10.1 0.0 Queue Length 95th (m) 45.3 24.5 16.5 21.9 15.6 Internal Link Dist (m) 976.2 176.3 613.9 Turn Bay Length (m) 180.0 90.0 Base Capacity (vph) 1595 555 2050 292 424 Starvation Cap Reductn 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0							
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Turn Bay Length (m) 180.0 90.0 Base Capacity (vph) 1595 555 2050 292 424 Starvation Cap Reductn 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0				24.0			10.0
Base Capacity (vph) 1595 555 2050 292 424 Starvation Cap Reductn 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0	` ,	310.2		180 0	170.5		
Starvation Cap Reductn 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0	, ,	1505			2050		121
Spillback Cap Reductn 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0	. , ,					-	
Storage Cap Reductn 0 0 0 0							
7.10 0.10 0.10 0.10 0.10	Neudocu V/C Natio	0.40		0.01	0.19	0.20	0.42

Area Type: Other

Cycle Length: 79.6
Actuated Cycle Length: 75.4

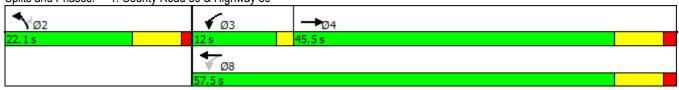
Natural Cycle: 70

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.63

Intersection Signal Delay: 10.5 Intersection LOS: B
Intersection Capacity Utilization 70.2% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: County Road 50 & Highway 89



	•	→	←	•	>	4		
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		4₽	∱ ∱		W			
Traffic Volume (veh/h)	14	613	621	18	40	64		
Future Volume (Veh/h)	14	613	621	18	40	64		
Sign Control (Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly flow rate (vph)	16	681	690	20	44	71		
Pedestrians								
Lane Width (m)								
Walking Speed (m/s)								
Percent Blockage								
Right turn flare (veh)								
Median type		None	None					
Median storage veh)								
Upstream signal (m)		200						
pX, platoon unblocked					0.94			
vC, conflicting volume	710				1072	355		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	710				956	355		
tC, single (s)	4.3				6.8	6.9		
tC, 2 stage (s)								
:F (s)	2.3				3.5	3.3		
o0 queue free %	98				82	89		
cM capacity (veh/h)	828				240	647		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1			
Volume Total	243	454	460	250	115			
Volume Left	16	0	0	0	44			
Volume Right	0	0	0	20	71			
cSH	828	1700	1700	1700	393			
	0.02	0.27	0.27	0.15	0.29			
Volume to Capacity Queue Length 95th (m)	0.02	0.27	0.27	0.15	9.1			
• • • • • • • • • • • • • • • • • • • •	0.4	0.0	0.0	0.0	17.9			
Control Delay (s)		0.0	0.0	0.0				
Lane LOS	0.3		0.0		17 O			
Approach Delay (s)	0.3		0.0		17.9 C			
Approach LOS					U			
ntersection Summary			4 =					
Average Delay	C.		1.5	,,				
Intersection Capacity Utiliza	ition		39.8%	IC	U Level c	of Service	Α	
Analysis Period (min)			15					

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Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑ ↑			414	¥		
Traffic Volume (veh/h)	644	142	137	540	14	34	
Future Volume (Veh/h)	644	142	137	540	14	34	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Hourly flow rate (vph)	716	158	152	600	16	38	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage veh)	110110			110110			
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume			874		1399	437	
vC1, stage 1 conf vol			014		1000	401	
vC2, stage 2 conf vol							
vCu, unblocked vol			874		1399	437	
tC, single (s)			4.1		6.8	6.9	
tC, 2 stage (s)			7.1		0.0	0.0	
tF (s)			2.2		3.5	3.3	
p0 queue free %			80		85	93	
cM capacity (veh/h)			768		105	567	
						J01	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1		
Volume Total	477	397	352	400	54		
Volume Left	0	0	152	0	16		
Volume Right	0	158	0	0	38		
cSH	1700	1700	768	1700	247		
Volume to Capacity	0.28	0.23	0.20	0.24	0.22		
Queue Length 95th (m)	0.0	0.0	5.6	0.0	6.2		
Control Delay (s)	0.0	0.0	6.1	0.0	23.6		
Lane LOS			Α		С		
Approach Delay (s)	0.0		2.8		23.6		
Approach LOS					С		
Intersection Summary							
Average Delay			2.0				
Intersection Capacity Utiliza	tion		54.6%	IC	U Level o	f Service	
Analysis Period (min)			15	,,			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ŧβ		ሻ	∱ î≽			4			4	
Traffic Volume (veh/h)	30	887	23	160	940	65	130	15	213	49	9	38
Future Volume (Veh/h)	30	887	23	160	940	65	130	15	213	49	9	38
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	32	934	24	168	989	68	137	16	224	52	9	40
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1057			958			1885	2403	479	2122	2381	528
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1057			958			1885	2403	479	2122	2381	528
tC, single (s)	4.1			4.1			7.7	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			77			0	35	58	0	65	92
cM capacity (veh/h)	667			726			21	25	538	7	25	500
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	32	623	335	168	659	398	377	101				
Volume Left	32	0	0	168	0	0	137	52				
Volume Right	0	0	24	0	0	68	224	40				
cSH	667	1700	1700	726	1700	1700	51	12				
Volume to Capacity	0.05	0.37	0.20	0.23	0.39	0.23	7.46	8.20				
Queue Length 95th (m)	1.1	0.0	0.0	6.8	0.0	0.0	Err	Err				
Control Delay (s)	10.7	0.0	0.0	11.4	0.0	0.0	Err	Err				
Lane LOS	В			В			F	F				
Approach Delay (s)	0.3			1.6			Err	Err				
Approach LOS	V.0						F	F				
Intersection Summary												
Average Delay			1775.6									
Intersection Capacity Utilizati	on		67.9%	IC	CU Level	of Service			С			
Analysis Period (min)			15									

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			ર્ન	1>	
Traffic Volume (veh/h)	51	6	22	68	88	143
Future Volume (Veh/h)	51	6	22	68	88	143
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	57	7	24	76	98	159
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	302	178	257			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	302	178	257			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	99	98			
cM capacity (veh/h)	677	866	1308			
			SB 1			
Direction, Lane #	EB 1	NB 1				
Volume Total	64	100	257			
Volume Left	57	24	0			
Volume Right	7	0	159			
cSH	694	1308	1700			
Volume to Capacity	0.09	0.02	0.15			
Queue Length 95th (m)	2.3	0.4	0.0			
Control Delay (s)	10.7	2.0	0.0			
Lane LOS	В	Α				
Approach Delay (s)	10.7	2.0	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			2.1			
Intersection Capacity Utilizat	tion		31.5%	IC	CU Level of	f Service
Analysis Period (min)			15			
			10			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	ŧβ		ሻ	^	7		4			4	7
Traffic Volume (veh/h)	42	741	1	9	790	74	0	1	1	56	3	53
Future Volume (Veh/h)	42	741	1	9	790	74	0	1	1	56	3	53
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	44	780	1	9	832	78	0	1	1	59	3	56
Pedestrians								4				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	832			785			1308	1722	394	1330	1723	416
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	832			785			1308	1722	394	1330	1723	416
tC, single (s)	4.3			4.8			7.5	6.5	6.9	7.6	6.5	7.2
tC, 2 stage (s)												
tF (s)	2.3			2.5			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	94			99			100	99	100	42	96	90
cM capacity (veh/h)	741			653			98	83	608	102	83	546
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	44	520	261	9	416	416	78	2	118			
Volume Left	44	0	0	9	0	0	0	0	59			
Volume Right	0	0	1	0	0	0	78	1	56			
cSH	741	1700	1700	653	1700	1700	1700	146	193			
Volume to Capacity	0.06	0.31	0.15	0.01	0.24	0.24	0.05	0.01	0.61			
Queue Length 95th (m)	1.4	0.0	0.0	0.3	0.0	0.0	0.0	0.3	26.2			
Control Delay (s)	10.2	0.0	0.0	10.6	0.0	0.0	0.0	29.9	50.4			
Lane LOS	B	0.0	0.0	В	0.0	0.0	0.0	25.5 D	50.4 F			
Approach Delay (s)	0.5			0.1				29.9	50.4			
Approach LOS	0.5			0.1				29.9 D	50.4 F			
Intersection Summary												
Average Delay			3.5									
Intersection Capacity Utilization			45.1%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									

Movement EBT EBR WBL WBT NBL NBR Lane Configurations 1 3 892 0 16 Traffic Volume (veh/h) 816 1 3 892 0 16 Future Volume (Veh/h) 816 1 3 892 0 16 Sign Control Free Free Stop 0 0% 0% Grade 0% 0% 0% 0% 0% 0% Peak Hour Factor 0.93<
Lane Configurations 1 Y Traffic Volume (veh/h) 816 1 3 892 0 16 Future Volume (Veh/h) 816 1 3 892 0 16 Sign Control Free Free Stop Stop Grade 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 093 0.93
Traffic Volume (veh/h) 816 1 3 892 0 16 Future Volume (Veh/h) 816 1 3 892 0 16 Sign Control Free Free Stop Grade 0% 0% 0% Peak Hour Factor 0.93 0.93 0.93 0.93 Hourly flow rate (vph) 877 1 3 959 0 17 Pedestrians Lane Width (m) Walking Speed (m/s) Valking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None None None Median storage veh)
Future Volume (Veh/h) 816 1 3 892 0 16 Sign Control Free Free Stop Grade 0% 0% 0% Peak Hour Factor 0.93 0.93 0.93 0.93 Hourly flow rate (vph) 877 1 3 959 0 17 Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) None None Median type None None Median storage veh)
Sign Control Free Free Stop Grade 0% 0% 0% Peak Hour Factor 0.93 0.93 0.93 0.93 Hourly flow rate (vph) 877 1 3 959 0 17 Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None None Median storage veh)
Grade 0% 0% 0% Peak Hour Factor 0.93 0.93 0.93 0.93 0.93 Hourly flow rate (vph) 877 1 3 959 0 17 Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None None Median storage veh)
Hourly flow rate (vph) 877 1 3 959 0 17 Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None None Median storage veh)
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Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None None Median storage veh)
Percent Blockage Right turn flare (veh) Median type None None Median storage veh)
Right turn flare (veh) Median type None None Median storage veh)
Median type None None Median storage veh)
Median storage veh)
Upstream signal (m)
pX, platoon unblocked
vC, conflicting volume 878 1363 439
vC1, stage 1 conf vol
vC2, stage 2 conf vol
vCu, unblocked vol 878 1363 439
tC, single (s) 4.1 6.8 7.1
tC, 2 stage (s)
tF (s) 2.2 3.5 3.4
p0 queue free % 100 100 97
cM capacity (veh/h) 778 141 547
Direction, Lane # EB 1 EB 2 WB 1 WB 2 NB 1
Volume Total 585 293 323 639 17
Volume Left 0 0 3 0 0
Volume Right 0 1 0 0 17
cSH 1700 1700 778 1700 547
Volume to Capacity 0.34 0.17 0.00 0.38 0.03
Queue Length 95th (m) 0.0 0.0 0.1 0.0 0.7
Control Delay (s) 0.0 0.0 0.1 0.0 11.8
Lane LOS A B
Approach Delay (s) 0.0 11.8
Approach LOS B
Intersection Summary
Average Delay 0.1
Intersection Capacity Utilization 36.7% ICU Level of Service
Analysis Period (min) 15

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	ħβ		ች	ħβ		ሻ	4	7	*	^	7
Traffic Volume (vph)	38	661	186	272	679	10	197	26	104	10	36	21
Future Volume (vph)	38	661	186	272	679	10	197	26	104	10	36	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		-
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt	,,,,,	0.967	0.00		0.998				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.963		0.950		
Satd. Flow (prot)	1825	3169	0	1807	3465	0	1387	1474	1617	1825	1779	1633
FIt Permitted	0.370			0.221			0.732	0.750		0.675		
Satd. Flow (perm)	711	3169	0	420	3465	0	1069	1148	1617	1297	1779	1633
Right Turn on Red		0.00	Yes	0	0.00	Yes			Yes			Yes
Satd. Flow (RTOR)		39	100		2	. 00			112			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	5%	34%	1%	5%	14%	25%	0%	1%	0%	8%	0%
Adj. Flow (vph)	41	711	200	292	730	11	212	28	112	11	39	23
Shared Lane Traffic (%)	• • • • • • • • • • • • • • • • • • • •	, , ,	200	202	7 00	''	44%		1,12		00	20
Lane Group Flow (vph)	41	911	0	292	741	0	119	121	112	11	39	23
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	Loit	3.7	rugiit	Loit	3.7	rugiit	Loit	3.7	rugiit	Loit	3.7	rugiit
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		7.0			7.0			4.0			4.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.55	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	0	2	17	1	2	17	1	1	1	1	1	0
Detector Template	U	Thru			Thru					ı	·	U
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		Cl+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	Cl+Ex	Cl+Ex	CI+Ex
Detector 1 Channel	OIILX	OIILX		OIILX	OIILX		OITEX	OITEX	OIILX	OITEX	OITEX	OIILX
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Type Detector 2 Channel		OITEX			OITEX							
		0.0			0.0							
Detector 2 Extend (s)	Dorm			nm · nt			Dorm	NΙΛ	Dorm	Dorm	NΙΛ	Dorm
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%	2	24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	41.2	41.2		60.2	57.2		16.1	16.1	16.1	16.1	16.1	16.1
Actuated g/C Ratio	0.48	0.48		0.70	0.66		0.19	0.19	0.19	0.19	0.19	0.19
v/c Ratio	0.12	0.59		0.60	0.32		0.60	0.57	0.29	0.05	0.12	0.06
Control Delay	18.1	19.9		11.2	7.3		44.7	42.3	7.8	27.8	28.9	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	19.9		11.2	7.3		44.7	42.3	7.8	27.8	28.9	0.3
LOS	В	В		В	Α		D	D	Α	С	С	Α
Approach Delay		19.8			8.4			32.1			19.8	
Approach LOS		В			Α			С			В	
Queue Length 50th (m)	3.4	50.2		14.5	23.6		19.0	19.2	0.0	1.5	5.4	0.0
Queue Length 95th (m)	12.8	99.1		32.9	43.4		36.5	36.5	12.1	5.7	13.1	0.0
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	339	1534		615	2296		360	386	619	437	599	608
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	0.12	0.59		0.47	0.32		0.33	0.31	0.18	0.03	0.07	0.04

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 86.3

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 16.7

Intersection Capacity Utilization 66.3%

Intersection LOS: B ICU Level of Service C

Analysis Period (min) 15

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† 1>		ች	^	ሻ	7
Traffic Volume (vph)	471	70	204	863	248	386
Future Volume (vph)	471	70	204	863	248	386
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.7	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	1		1	1
Taper Length (m)			80.0		80.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.981	0.50	1.00	0.00	1.00	0.850
FIt Protected	0.301		0.950		0.950	0.000
Satd. Flow (prot)	3208	0	1532	3444	1665	921
Flt Permitted	3200	U	0.406	J444	0.950	3Z I
	2200	0		2///		004
Satd. Flow (perm)	3208	0	655	3444	1665	921
Right Turn on Red	- 00	Yes				Yes
Satd. Flow (RTOR)	28					409
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	12%	9%	10%	6%	6%	4%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	506	75	219	928	267	415
Shared Lane Traffic (%)						
Lane Group Flow (vph)	581	0	219	928	267	415
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0		2010	3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
\ /	4.9			4.9	4.9	
Two way Left Turn Lane	0.00	0.00	1.00	0.00	1.00	1.00
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)	•	14	24	_	24	14
Number of Detectors	_ 2		1	_ 2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
• ()			0.0	28.7	0.0	0.0
Detector 2 Position(m)	28.7					
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		

	-	*	•	•	7	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	ı	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	39.7		55.5	50.0	14.6	14.6
Actuated g/C Ratio	0.50		0.70	0.63	0.18	0.18
v/c Ratio	0.36		0.40	0.43	0.87	0.83
Control Delay	12.5		6.5	8.2	61.0	19.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	12.5		6.5	8.2	61.0	19.5
LOS	В		Α	Α	Е	В
Approach Delay	12.5			7.8	35.8	
Approach LOS	В			Α	D	
Queue Length 50th (m)	25.4		9.8	33.3	39.4	0.8
Queue Length 95th (m)	37.9		17.1	44.7	#78.6	#48.1
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)			180.0		90.0	
Base Capacity (vph)	1620		569	2175	315	506
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		0.38	0.43	0.85	0.82

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 79.2 Natural Cycle: 75

ivaluiai Cycle. 75

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.87 Intersection Signal Delay: 16.9 Intersection Capacity Utilization 69.7%

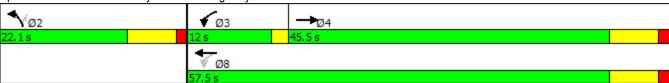
Intersection LOS: B
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 50 & Highway 89



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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		414	↑ ↑		W	
Traffic Volume (veh/h)	51	803	1037	72	22	27
Future Volume (Veh/h)	51	803	1037	72	22	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	55	863	1115	77	24	29
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.92	
vC, conflicting volume	1192				1695	596
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1192				1584	596
tC, single (s)	4.1				7.0	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	91				69	94
cM capacity (veh/h)	593				78	452
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	343	575	743	449	53	
Volume Left	55	0	0	0	24	
Volume Right	0	0	0	77	29	
cSH	593	1700	1700	1700	143	
Volume to Capacity	0.09	0.34	0.44	0.26	0.37	
Queue Length 95th (m)	2.3	0.0	0.0	0.0	11.8	
Control Delay (s)	3.0	0.0	0.0	0.0	44.4	
Lane LOS	3.0 A	0.0	0.0	0.0	E	
Approach Delay (s)	1.1		0.0		44.4	
Approach LOS	1.1		0.0		Ε	
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utiliza	ation		68.0%	IC	ا ا معما د	of Service
Analysis Period (min)	uuUII		15	10	O LEVEL C	1 OCIVICE
Alialysis Feliou (IIIIII)			10			

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ሻ	^	¥	
Traffic Volume (veh/h)	806	42	68	1013	95	132
Future Volume (Veh/h)	806	42	68	1013	95	132
Sign Control	Free	·-		Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	896	47	76	1126	106	147
Pedestrians			. •			
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)	140110			110110		
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			943		1634	472
vC1, stage 1 conf vol			540		1004	712
vC2, stage 2 conf vol						
vCu, unblocked vol			943		1634	472
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)			7.1		0.0	0.5
tF (s)			2.2		3.5	3.3
p0 queue free %			89		0.0	73
cM capacity (veh/h)			723		82	539
	55 4	ED 0		11/2 0		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	597	346	76	563	563	253
Volume Left	0	0	76	0	0	106
Volume Right	0	47	0	0	0	147
cSH	1700	1700	723	1700	1700	162
Volume to Capacity	0.35	0.20	0.11	0.33	0.33	1.56
Queue Length 95th (m)	0.0	0.0	2.7	0.0	0.0	129.1
Control Delay (s)	0.0	0.0	10.6	0.0	0.0	332.1
Lane LOS			В			F
Approach Delay (s)	0.0		0.7			332.1
Approach LOS						F
Intersection Summary						
Average Delay			35.4			
Intersection Capacity Utiliza	ation		50.8%	IC	U Level	of Service
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ⊅		ሻ	∱ β			4			4	
Traffic Volume (veh/h)	30	775	23	119	900	65	50	15	104	49	9	38
Future Volume (Veh/h)	30	775	23	119	900	65	50	15	104	49	9	38
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	32	816	24	125	947	68	53	16	109	52	9	40
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1015			840			1660	2157	420	1820	2135	508
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1015			840			1660	2157	420	1820	2135	508
tC, single (s)	4.1			4.1			7.7	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			84			0	59	81	0	78	92
cM capacity (veh/h)	691			804			39	39	588	24	40	516
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	32	544	296	125	631	384	178	101				
Volume Left	32	0	0	125	0	0	53	52				
Volume Right	0	0	24	0	0	68	109	40				
cSH	691	1700	1700	804	1700	1700	91	40				
Volume to Capacity	0.05	0.32	0.17	0.16	0.37	0.23	1.96	2.51				
Queue Length 95th (m)	1.1	0.0	0.0	4.2	0.0	0.0	116.1	83.8				
Control Delay (s)	10.5	0.0	0.0	10.3	0.0	0.0	547.1	898.2				
Lane LOS	В			В			F	F				
Approach Delay (s)	0.4			1.1			547.1	898.2				
Approach LOS	•						F	F				
Intersection Summary												
Average Delay			82.8									
Intersection Capacity Utilization	on		51.1%	IC	U Level	of Service			Α			
Analysis Period (min)			15									

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			4	f)	
Traffic Volume (veh/h)	226	24	9	132	121	72
Future Volume (Veh/h)	226	24	9	132	121	72
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	251	27	10	147	134	80
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	341	174	214			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	341	174	214			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	61	97	99			
cM capacity (veh/h)	650	869	1356			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	278	157	214			
Volume Left	251	10	0			
Volume Right	27	0	80			
cSH	667	1356	1700			
Volume to Capacity	0.42	0.01	0.13			
Queue Length 95th (m)	15.7	0.2	0.0			
Control Delay (s)	14.2	0.5	0.0			
Lane LOS	В	Α				
Approach Delay (s)	14.2	0.5	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			6.2			
Intersection Capacity Utilizat	tion		35.0%	IC	U Level o	f Service
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ተ ኈ		ሻ		7		4			र्स	7
Traffic Volume (veh/h)	84	1091	9	19	1054	121	0	0	10	101	1	63
Future Volume (Veh/h)	84	1091	9	19	1054	121	0	0	10	101	1	63
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	88	1148	9	20	1109	127	0	0	11	106	1	66
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1109			1157			1924	2478	578	1910	2482	554
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1109			1157			1924	2478	578	1910	2482	554
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	85			97			100	100	98	0	96	86
cM capacity (veh/h)	597			611			30	25	464	35	25	481
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	88	765	392	20	554	554	127	11	173			
Volume Left	88	0	0	20	0	0	0	0	106			
Volume Right	0	0	9	0	0	0	127	11	66			
cSH	597	1700	1700	611	1700	1700	1700	464	55			
Volume to Capacity	0.15	0.45	0.23	0.03	0.33	0.33	0.07	0.02	3.14			
Queue Length 95th (m)	3.9	0.0	0.0	0.8	0.0	0.0	0.0	0.6	Err			
Control Delay (s)	12.1	0.0	0.0	11.1	0.0	0.0	0.0	13.0	Err			
Lane LOS	В			В				В	F			
Approach Delay (s)	0.9			0.2				13.0	Err			
Approach LOS								В	F			
Intersection Summary												
Average Delay			644.8									
Intersection Capacity Utiliza	tion		56.1%	IC	U Level	of Service			В			
Analysis Period (min)			15									
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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑			414	W	
Traffic Volume (veh/h)	1172	5	6	1245	0	15
Future Volume (Veh/h)	1172	5	6	1245	0	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	1208	5	6	1284	0	15
Pedestrians					3	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)	. 10110					
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1216		1868	610
vC1, stage 1 conf vol			1210		1000	010
vC2, stage 2 conf vol						
vCu, unblocked vol			1216		1868	610
tC, single (s)			4.1		6.8	7.5
tC, 2 stage (s)			7.1		0.0	7.0
tF (s)			2.2		3.5	3.6
p0 queue free %			99		100	96
cM capacity (veh/h)			579		65	374
	ED 4	ED 0		WD 0		014
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	805	408	434	856	15	
Volume Left	0	0	6	0	0	
Volume Right	0	5	0	0	15	
cSH	1700	1700	579	1700	374	
Volume to Capacity	0.47	0.24	0.01	0.50	0.04	
Queue Length 95th (m)	0.0	0.0	0.2	0.0	0.9	
Control Delay (s)	0.0	0.0	0.3	0.0	15.0	
Lane LOS			Α		С	
Approach Delay (s)	0.0		0.1		15.0	
Approach LOS					С	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliz	zation		48.6%	IC	U Level c	f Service
Analysis Period (min)			15			
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	↑ 1>		ሻ	ħβ		ሻ	4	7	ሻ	^	7
Traffic Volume (vph)	54	869	319	277	770	30	429	45	203	27	54	81
Future Volume (vph)	54	869	319	277	770	30	429	45	203	27	54	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99			1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.960			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.961		0.950		
Satd. Flow (prot)	1825	3277	0	1825	3557	0	1534	1579	1617	1722	1921	1601
FIt Permitted	0.338			0.092			0.720	0.728		0.456		
Satd. Flow (perm)	649	3277	0	177	3557	0	1160	1193	1588	823	1921	1577
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		57			7				211			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	1		8	8		1	3		6	6		3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	17%	0%	2%	0%	13%	3%	1%	6%	0%	2%
Adj. Flow (vph)	56	905	332	289	802	31	447	47	211	28	56	84
Shared Lane Traffic (%)							45%					
Lane Group Flow (vph)	56	1237	0	289	833	0	246	248	211	28	56	84
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	Cl+Ex		CI+Ex	CI+Ex		Cl+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	39.3	39.3		60.2	57.2		25.0	25.0	25.0	25.0	25.0	25.0
Actuated g/C Ratio	0.41	0.41		0.63	0.60		0.26	0.26	0.26	0.26	0.26	0.26
v/c Ratio	0.21	0.89		0.82	0.39		0.81	0.79	0.37	0.13	0.11	0.18
Control Delay	24.8	36.9		40.0	11.1		54.1	51.9	5.8	27.7	26.5	6.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	36.9		40.0	11.1		54.1	51.9	5.8	27.7	26.5	6.5
LOS	С	D		D	В		D	D	Α	С	С	Α
Approach Delay		36.3			18.5			38.8			16.7	
Approach LOS		D			В			D			В	
Queue Length 50th (m)	7.0	113.6		36.6	42.8		44.4	44.5	0.0	3.9	7.8	0.0
Queue Length 95th (m)	18.1	#179.1		62.8	55.6		#81.1	#80.0	15.8	10.7	16.8	9.9
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	267	1385		459	2139		354	364	632	251	587	543
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	0.21	0.89		0.63	0.39		0.69	0.68	0.33	0.11	0.10	0.15

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 95.2

Natural Cycle: 90

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.89

Intersection Signal Delay: 29.8 Intersection Capacity Utilization 84.5%

Intersection LOS: C
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: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ Ъ		ሻ	^	ኘ	7
Traffic Volume (vph)	603	88	219	728	163	236
Future Volume (vph)	603	88	219	728	163	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.,	0.0	180.0	0	90.0	0.0
Storage Lanes		0.0	1		1	1
Taper Length (m)			80.0		80.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.981	3.00		2.00		0.850
Flt Protected	0.001		0.950		0.950	0.000
Satd. Flow (prot)	3467	0	1668	3544	1713	949
Flt Permitted	O-101	- 0	0.341	0017	0.950	010
Satd. Flow (perm)	3467	0	599	3544	1713	949
Right Turn on Red	U 1 U1	Yes	000	UU-T-T	1710	Yes
Satd. Flow (RTOR)	28	169				243
Link Speed (k/h)	80			80	80	240
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	12%	1%	3%	3%	1%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	622	91	226	751	168	243
Shared Lane Traffic (%)	UZZ	31	220	731	100	243
` ,	713	0	226	751	168	243
Lane Group Flow (vph) Enter Blocked Intersection	No	No	No	No		Z43 No
					No	
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane	0.00	0.00	4.00	0.00	4.00	4.00
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		

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Lane Group	EBT	EBR V	VBL	WBT	NBL	NBR
Turn Type	NA		ı+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5	•	2.0	57.5	22.1	22.1
Total Split (%)	57.2%	15	.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		0.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag	L	ead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max	N	one	Max	None	None
Act Effct Green (s)	40.0		5.5	50.0	12.7	12.7
Actuated g/C Ratio	0.52).72	0.65	0.16	0.16
v/c Ratio	0.39).42	0.33	0.60	0.68
Control Delay	12.2		6.3	6.8	39.5	14.8
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	12.2		6.3	6.8	39.5	14.8
LOS	В		Α	Α	D	В
Approach Delay	12.2			6.7	24.9	
Approach LOS	В			Α	С	
Queue Length 50th (m)	29.9		8.8	22.6	23.1	0.0
Queue Length 95th (m)	46.8		7.1	34.0	41.4	21.8
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)		18	30.0		90.0	
Base Capacity (vph)	1808		568	2294	332	380
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	0.39	().40	0.33	0.51	0.64
Intersection Summary						

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 77.3

Natural Cycle: 70

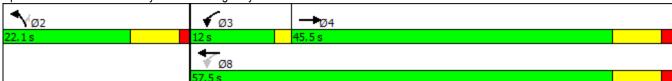
Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.68 Intersection Signal Delay: 12.1

Intersection Capacity Utilization 65.8%

Intersection LOS: B
ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: County Road 50 & Highway 89



	•	→	←	4	-	1
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	∱ }		W	
Traffic Volume (veh/h)	14	765	777	51	33	13
Future Volume (Veh/h)	14	765	777	51	33	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	832	845	55	36	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.90	
vC, conflicting volume	900				1318	450
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	900				1128	450
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					0.0	
tF(s)	2.2				3.5	3.3
p0 queue free %	98				80	98
cM capacity (veh/h)	763				177	562
		ED 0	WD 4	WD 0		002
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	292	555	563	337	50	
Volume Left	15	0	0	0	36	
Volume Right	0	0	0	55	14	
cSH	763	1700	1700	1700	219	
Volume to Capacity	0.02	0.33	0.33	0.20	0.23	
Queue Length 95th (m)	0.5	0.0	0.0	0.0	6.5	
Control Delay (s)	0.7	0.0	0.0	0.0	26.2	
Lane LOS	Α				D	
Approach Delay (s)	0.2		0.0		26.2	
Approach LOS					D	
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utiliza	ation		41.1%	IC	U Level c	f Service
Analysis Period (min)			15			

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑			414	¥	
Traffic Volume (veh/h)	782	73	107	844	81	109
Future Volume (Veh/h)	782	73	107	844	81	109
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	869	81	119	938	90	121
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)	140110			140110		
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			950		1616	475
vC1, stage 1 conf vol			330		1010	413
vC2, stage 2 conf vol						
vCu, unblocked vol			950		1616	475
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)			4.1		0.0	0.9
tF (s)			2.2		3.5	3.3
p0 queue free %			83		0.0	77
cM capacity (veh/h)			719		79	536
						550
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	579	371	432	625	211	
Volume Left	0	0	119	0	90	
Volume Right	0	81	0	0	121	
cSH	1700	1700	719	1700	154	
Volume to Capacity	0.34	0.22	0.17	0.37	1.37	
Queue Length 95th (m)	0.0	0.0	4.5	0.0	99.8	
Control Delay (s)	0.0	0.0	4.6	0.0	257.2	
Lane LOS			Α		F	
Approach Delay (s)	0.0		1.9		257.2	
Approach LOS					F	
Intersection Summary						
Average Delay			25.4			
Intersection Capacity Utiliz	ation		71.6%	IC	CU Level c	of Service
Analysis Period (min)			15	10	. 5 25107 0	55. 1100
ruidiyolo i cilod (iliili)			10			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ î≽		Ţ	∱ î≽			4			4	
Traffic Volume (veh/h)	44	826	24	191	868	168	101	14	224	133	34	46
Future Volume (Veh/h)	44	826	24	191	868	168	101	14	224	133	34	46
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	46	869	25	201	914	177	106	15	236	140	36	48
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1091			894			1898	2466	447	2174	2390	546
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1091			894			1898	2466	447	2174	2390	546
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			73			0	28	58	0	0	90
cM capacity (veh/h)	647			755			0	21	564	5	23	487
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	46	579	315	201	609	482	357	224				
Volume Left	46	0	0	201	0	0	106	140				
Volume Right	0	0	25	0	0	177	236	48				
cSH	647	1700	1700	755	1700	1700	0	8				
Volume to Capacity	0.07	0.34	0.19	0.27	0.36	0.28	Err	29.49				
Queue Length 95th (m)	1.7	0.0	0.0	8.2	0.0	0.0	Err	Err				
Control Delay (s)	11.0	0.0	0.0	11.5	0.0	0.0	Err	Err				
Lane LOS	В			В			F	F				
Approach Delay (s)	0.5			1.8			Err	Err				
Approach LOS							F	F				
Intersection Summary												
Average Delay			Err									
Intersection Capacity Utiliza	tion		67.4%	IC	CU Level	of Service			С			
Analysis Period (min)			15									

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			ર્ન	^	
Traffic Volume (veh/h)	192	21	18	145	136	112
Future Volume (Veh/h)	192	21	18	145	136	112
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	213	23	20	161	151	124
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	414	213	275			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	414	213	275			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)		<u> </u>				
tF (s)	3.5	3.3	2.2			
p0 queue free %	64	97	98			
cM capacity (veh/h)	585	827	1288			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	236	181	275			
Volume Left	213	20	0			
Volume Right	23	0	124			
cSH	603	1288	1700			
Volume to Capacity	0.39	0.02	0.16			
Queue Length 95th (m)	14.1	0.4	0.0			
Control Delay (s)	14.8	1.0	0.0			
Lane LOS	В	Α				
Approach Delay (s)	14.8	1.0	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			5.3			
Intersection Capacity Utiliza	ation		41.3%	IC	CU Level o	f Service
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ ∱		Ţ	^	7		4			र्स	7
Traffic Volume (veh/h)	78	1161	6	27	1182	160	1	6	10	155	5	67
Future Volume (Veh/h)	78	1161	6	27	1182	160	1	6	10	155	5	67
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	82	1222	6	28	1244	168	1	6	11	163	5	71
Pedestrians								1				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1244			1229			2070	2690	615	2089	2693	622
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1244			1229			2070	2690	615	2089	2693	622
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	85			95			94	66	97	0	72	83
cM capacity (veh/h)	555			573			18	18	439	19	18	422
Direction, Lane #	EB 1	EB 2	EB3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	82	815	413	28	622	622	168	18	239			
Volume Left	82	0	0	28	0	0	0	1	163			
Volume Right	0	0	6	0	0	0	168	11	71			
cSH	555	1700	1700	573	1700	1700	1700	43	26			
Volume to Capacity	0.15	0.48	0.24	0.05	0.37	0.37	0.10	0.42	9.23			
Queue Length 95th (m)	3.9	0.0	0.0	1.2	0.0	0.0	0.0	11.1	Err			
Control Delay (s)	12.6	0.0	0.0	11.6	0.0	0.0	0.0	138.6	Err			
Lane LOS	В			В				F	F			
Approach Delay (s)	0.8			0.2				138.6	Err			
Approach LOS								F	F			
Intersection Summary												
Average Delay			796.0									
Intersection Capacity Utiliza	ation		62.5%	IC	CU Level	of Service			В			
Analysis Period (min)			15									

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑			414	W	
Traffic Volume (veh/h)	1352	3	6	1364	0	9
Future Volume (Veh/h)	1352	3	6	1364	0	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1438	3	6	1451	0	10
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1441		2177	720
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1441		2177	720
tC, single (s)			4.1		6.8	7.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			99		100	97
cM capacity (veh/h)			477		40	338
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	959	482	490	967	10	
Volume Left	0	0	6	0	0	
Volume Right	0	3	0	0	10	
cSH	1700	1700	477	1700	338	
Volume to Capacity	0.56	0.28	0.01	0.57	0.03	
Queue Length 95th (m)	0.0	0.20	0.01	0.0	0.03	
Control Delay (s)	0.0	0.0	0.3	0.0	16.0	
Lane LOS	0.0	0.0	Α	0.0	10.0 C	
Approach Delay (s)	0.0		0.1		16.0	
Approach LOS	0.0		0.1		10.0 C	
•					C	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliz	zation		51.9%	IC	U Level c	of Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ 1≽		ሻ	† }		7	ર્ન	7	*	1	7
Traffic Volume (vph)	145	1027	188	451	993	35	258	56	260	51	123	100
Future Volume (vph)	145	1027	188	451	993	35	258	56	260	51	123	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00			1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.977			0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.968		0.950		
Satd. Flow (prot)	1807	3522	0	1825	3594	0	1683	1733	1617	1772	1921	1633
FIt Permitted	0.258			0.108			0.673	0.724		0.576		
Satd. Flow (perm)	490	3522	0	207	3594	0	1188	1293	1593	1072	1921	1607
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			6				280			92
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	3		1	1		3	4		3	3		4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	0%	6%	0%	1%	0%	3%	0%	1%	3%	0%	0%
Adj. Flow (vph)	156	1104	202	485	1068	38	277	60	280	55	132	108
Shared Lane Traffic (%)							41%					
Lane Group Flow (vph)	156	1306	0	485	1106	0	163	174	280	55	132	108
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR WBI	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	pm+p	t NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4	(8			2			6	
Permitted Phases	4		}	}		2		2	6		6
Detector Phase	4	4	3	8		2	2	2	6	6	6
Switch Phase											
Minimum Initial (s)	18.0	18.0	8.0			10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0	12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0	24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%	24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0	20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	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)	7.0	7.0	4.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead	ł							
Lead-Lag Optimize?	Yes	Yes	Yes	6							
Vehicle Extension (s)	3.0	3.0	2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max	None	e Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0		20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0		13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0		0	0	0	0	0	0
Act Effct Green (s)	33.2	33.2	60.3	57.3		19.1	19.1	19.1	19.1	19.1	19.1
Actuated g/C Ratio	0.37	0.37	0.67	0.64		0.21	0.21	0.21	0.21	0.21	0.21
v/c Ratio	0.86	0.99	0.96	0.48		0.64	0.63	0.50	0.24	0.32	0.26
Control Delay	70.2	51.9	58.2	2 10.1		43.7	42.2	6.8	30.8	31.0	9.7
Queue Delay	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.2	51.9	58.2	2 10.1		43.7	42.2	6.8	30.8	31.0	9.7
LOS	Е	D	E			D	D	Α	С	С	Α
Approach Delay		53.9		24.8			26.5			23.2	
Approach LOS		D		С			С			С	
Queue Length 50th (m)	24.2	113.2	64.2	46.0		26.9	28.6	0.0	7.8	19.2	2.2
Queue Length 95th (m)	#68.4	#190.4	#147.3	80.3		47.5	49.6	17.7	17.6	33.8	14.1
Internal Link Dist (m)		493.5		593.4			364.4			46.8	
Turn Bay Length (m)	80.0		95.0)		25.0			15.0		10.0
Base Capacity (vph)	181	1320	503	3 2303		387	421	707	349	625	585
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
Reduced v/c Ratio	0.86	0.99	0.96	0.48		0.42	0.41	0.40	0.16	0.21	0.18

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 89.5

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 35.7

Intersection Capacity Utilization 99.0%

Intersection LOS: D

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: 6: Industrial Parkway/Private Access & Highway 89



	→	•	•	•	4	/
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ሻ	^	ሻ	7
Traffic Volume (vph)	545	212	359	415	81	185
Future Volume (vph)	545	212	359	415	81	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
` ,	3.1	0.0	180.0	3.1	90.0	0.0
Storage Length (m)						1
Storage Lanes		0	1		1	ı
Taper Length (m)	0.05	0.05	80.0	0.05	80.0	4.00
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.958					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	2996	0	1620	3093	1471	1426
FIt Permitted			0.283		0.950	
Satd. Flow (perm)	2996	0	483	3093	1471	1426
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	98					203
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	17%	16%	4%	18%	20%	12%
, ,	599	233	395	456	89	203
Adj. Flow (vph)	599	233	১৬৩	400	09	203
Shared Lane Traffic (%)	000	0	205	450	00	000
Lane Group Flow (vph)	832	0	395	456	89	203
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.01
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		,	Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
	0.0				-1.0	6.0
Trailing Detector (m)			-1.0	0.0		
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	OI. EX			O. LA		
Detector 2 Extend (s)	0.0			0.0		
()			nm±nt		Drot	Dorm
Turn Type	NA		pm+pt	NA	Prot	Perm

	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead	7.0		
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	38.2		55.5	50.0	11.2	11.2
Actuated g/C Ratio	0.50		0.73	0.66	0.15	0.15
v/c Ratio	0.53		0.79	0.22	0.41	0.53
Control Delay	12.9		18.0	5.6	35.4	10.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	12.9		18.0	5.6	35.4	10.2
LOS	12.3 B		В	3.0 A	D	В
Approach Delay	12.9			11.4	17.9	<u> </u>
Approach LOS	12.3 B			В	17.3 B	
Queue Length 50th (m)	33.6		14.5	11.1	11.7	0.0
Queue Length 95th (m)	54.8		#44.2	19.9	24.6	16.5
Internal Link Dist (m)	976.2		#44.2	176.3	613.9	10.5
Turn Bay Length (m)	910.2		180.0	170.5	90.0	
Base Capacity (vph)	1556		503	2042	291	444
. , , ,	0		0	2042	291	0
Starvation Cap Reductn				0		0
Spillback Cap Reductn	0		0		0	
Storage Cap Reductn	0 53		0.70	0.22	0.31	0.46
Reduced v/c Ratio	0.53		0.79	0.22	0.31	0.46

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 75.8

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.79

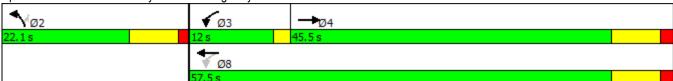
Intersection Signal Delay: 13.0 Intersection LOS: B
Intersection Capacity Utilization 72.9% ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 50 & Highway 89



	•	→	←	•	/	1
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	∱ }		¥	
Traffic Volume (veh/h)	16	690	716	20	44	74
Future Volume (Veh/h)	16	690	716	20	44	74
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	767	796	22	49	82
Pedestrians						<u> </u>
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)		110110	140110			
Upstream signal (m)		200				
pX, platoon unblocked		200			0.92	
vC, conflicting volume	818				1226	409
vC1, stage 1 conf vol	010				1220	TU3
vC2, stage 2 conf vol						
vCu, unblocked vol	818				1063	409
tC, single (s)	4.3				6.8	6.9
tC, 2 stage (s)	4.3				0.0	0.5
	2.3				3.5	3.3
tF (s)	2.3 98				ა.ა 75	3.3 86
p0 queue free %						
cM capacity (veh/h)	751				198	597
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	274	511	531	287	131	
Volume Left	18	0	0	0	49	
Volume Right	0	0	0	22	82	
cSH	751	1700	1700	1700	340	
Volume to Capacity	0.02	0.30	0.31	0.17	0.38	
Queue Length 95th (m)	0.6	0.0	0.0	0.0	13.4	
Control Delay (s)	0.9	0.0	0.0	0.0	22.0	
Lane LOS	Α				С	
Approach Delay (s)	0.3		0.0		22.0	
Approach LOS					С	
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utiliz	ation		44.2%	IC	Ul evel d	of Service
Analysis Period (min)			15	10	O LOVOI C	7. 001 1100
Alialysis Feliou (IIIII)			15			

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑			414	¥	
Traffic Volume (veh/h)	747	142	137	721	14	34
Future Volume (Veh/h)	747	142	137	721	14	34
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	830	158	152	801	16	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)	110110			110110		
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			988		1614	494
vC1, stage 1 conf vol			300		1017	707
vC2, stage 2 conf vol						
vCu, unblocked vol			988		1614	494
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)			7.1		0.0	0.5
tF (s)			2.2		3.5	3.3
p0 queue free %			78		78	93
cM capacity (veh/h)			695		74	521
,						JZ I
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	553	435	419	534	54	
Volume Left	0	0	152	0	16	
Volume Right	0	158	0	0	38	
cSH	1700	1700	695	1700	187	
Volume to Capacity	0.33	0.26	0.22	0.31	0.29	
Queue Length 95th (m)	0.0	0.0	6.3	0.0	8.7	
Control Delay (s)	0.0	0.0	6.1	0.0	31.9	
Lane LOS			Α		D	
Approach Delay (s)	0.0		2.7		31.9	
Approach LOS					D	
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utiliza	tion		62.4%	IC	U Level o	f Service
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ⊅		ሻ	∱ ∱			4			4	
Traffic Volume (veh/h)	36	706	39	195	676	93	24	12	93	86	10	36
Future Volume (Veh/h)	36	706	39	195	676	93	24	12	93	86	10	36
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	767	42	212	735	101	26	13	101	93	11	39
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	836			809			1702	2126	404	1778	2096	418
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	836			809			1702	2126	404	1778	2096	418
tC, single (s)	4.1			4.2			7.5	6.5	6.9	7.5	6.5	7.1
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	95			74			23	63	83	0	70	93
cM capacity (veh/h)	807			806			34	35	601	25	37	562
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	39	511	298	212	490	346	140	143				
Volume Left	39	0	0	212	0	0	26	93				
Volume Right	0	0	42	0	0	101	101	39				
cSH	807	1700	1700	806	1700	1700	108	35				
Volume to Capacity	0.05	0.30	0.18	0.26	0.29	0.20	1.30	4.12				
Queue Length 95th (m)	1.2	0.0	0.0	8.0	0.0	0.0	72.6	Err				
Control Delay (s)	9.7	0.0	0.0	11.1	0.0	0.0	262.0	Err				
Lane LOS	Α			В			F	F				
Approach Delay (s)	0.4			2.2			262.0	Err				
Approach LOS							F	F				
Intersection Summary												
Average Delay			674.3									
Intersection Capacity Utilization	1		55.7%	IC	CU Level	of Service			В			
Analysis Period (min)			15									
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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			ર્ન	ĵ.	
Traffic Volume (veh/h)	51	6	22	79	102	143
Future Volume (Veh/h)	51	6	22	79	102	143
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	57	7	24	88	113	159
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	328	192	272			
vC1, stage 1 conf vol	020	102	_,_			
vC2, stage 2 conf vol						
vCu, unblocked vol	328	192	272			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	0.1	0.2				
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	99	98			
cM capacity (veh/h)	654	849	1291			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	64	112	272			
Volume Left	57	24	0			
Volume Right	7	0	159			
cSH	670	1291	1700			
Volume to Capacity	0.10	0.02	0.16			
Queue Length 95th (m)	2.4	0.4	0.0			
Control Delay (s)	10.9	1.8	0.0			
Lane LOS	В	Α				
Approach Delay (s)	10.9	1.8	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			2.0			
Intersection Capacity Utiliza	ation		32.8%	IC	CU Level o	f Service
Analysis Period (min)	20011		15	10	0 2010, 0	1 001 1100
Analysis i enou (IIIII)			10			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ î≽		ሻ		7		4			र्स	7
Traffic Volume (veh/h)	49	849	1	10	873	86	0	1	1	65	3	60
Future Volume (Veh/h)	49	849	1	10	873	86	0	1	1	65	3	60
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	52	894	1	11	919	91	0	1	1	68	3	63
Pedestrians								4				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	919			899			1486	1944	452	1494	1944	460
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	919			899			1486	1944	452	1494	1944	460
tC, single (s)	4.3			4.8			7.5	6.5	6.9	7.6	6.5	7.2
tC, 2 stage (s)												
tF (s)	2.3			2.5			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	92			98			100	98	100	10	95	88
cM capacity (veh/h)	685			583			68	59	559	76	59	510
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	52	596	299	11	460	460	91	2	134			
Volume Left	52	0	0	11	0	0	0	0	68			
Volume Right	0	0	1	0	0	0	91	1	63			
cSH	685	1700	1700	583	1700	1700	1700	107	141			
Volume to Capacity	0.08	0.35	0.18	0.02	0.27	0.27	0.05	0.02	0.95			
Queue Length 95th (m)	1.9	0.0	0.0	0.4	0.0	0.0	0.0	0.4	50.5			
Control Delay (s)	10.7	0.0	0.0	11.3	0.0	0.0	0.0	39.2	104.2			
Lane LOS	В			В				Е	F			
Approach Delay (s)	0.6			0.1				39.2	104.2			
Approach LOS								E	F			
Intersection Summary												
Average Delay			7.0									
Intersection Capacity Utilizatio	n		47.9%	IC	U Level	of Service			Α			
Analysis Period (min)			15									
Intersection Capacity Utilizatio	n			IC	CU Level of	of Service			А			

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑			414	W	
Traffic Volume (veh/h)	935	1	3	991	0	19
Future Volume (Veh/h)	935	1	3	991	0	19
Sign Control	Free	•		Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1005	1	3	1066	0	20
Pedestrians	.000	•		1000		
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)	NOTIC			140110		
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1006		1544	503
vC1, stage 1 conf vol			1000		1044	300
vC2, stage 2 conf vol						
vCu, unblocked vol			1006		1544	503
tC, single (s)			4.1		6.8	7.1
tC, 2 stage (s)			7.1		0.0	7.1
tF (s)			2.2		3.5	3.4
p0 queue free %			100		100	96
cM capacity (veh/h)			697		107	496
	55 4	ED 0		11/2 0		430
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	670	336	358	711	20	
Volume Left	0	0	3	0	0	
Volume Right	0	1	0	0	20	
cSH	1700	1700	697	1700	496	
Volume to Capacity	0.39	0.20	0.00	0.42	0.04	
Queue Length 95th (m)	0.0	0.0	0.1	0.0	1.0	
Control Delay (s)	0.0	0.0	0.1	0.0	12.6	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.0		12.6	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliz	zation		39.5%	IC	U Level c	of Service
Analysis Period (min)			15			
in any order of the control of the c						

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ħβ		ች	ħβ		ሻ	4	7	*	+	7
Traffic Volume (vph)	44	756	215	315	745	12	228	30	121	12	42	24
Future Volume (vph)	44	756	215	315	745	12	228	30	121	12	42	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0		•	5.0		-
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt	,,,,,,	0.967	0.00		0.998				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.963		0.950		
Satd. Flow (prot)	1643	2851	0	1626	3118	0	1248	1326	1455	1643	1601	1470
FIt Permitted	0.345			0.139			0.728	0.745		0.654		
Satd. Flow (perm)	597	2851	0	238	3118	0	957	1026	1455	1131	1601	1470
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			3				130			88
Link Speed (k/h)		60			50			50	100		50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	5%	34%	1%	5%	14%	25%	0%	1%	0%	8%	0%
Adj. Flow (vph)	47	813	231	339	801	13	245	32	130	13	45	26
Shared Lane Traffic (%)	.,	010	201	000	001		44%	UL.	100	10	10	
Lane Group Flow (vph)	47	1044	0	339	814	0	137	140	130	13	45	26
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	Loit	3.7	rugiit	Loit	3.7	rugiit	Loit	3.7	rugiit	Loit	3.7	ragne
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		7.0			7.0			7.0			4.0	
Headway Factor	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
Turning Speed (k/h)	24	1.10	14	24	1.10	14	24	1.10	14	24	1.10	1.10
Number of Detectors	0	2	17	1	2	17	1	1	1	1	1	0
Detector Template	U	Thru			Thru					ı		U
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		Cl+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex	Cl+Ex
Detector 1 Channel	OIILX	OIILX		OIILX	OIILX		OITEX	OIILX	OIILX	OITEX	OITEX	OIILX
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Type Detector 2 Channel		OITEX			OITEX							
		0.0			0.0							
Detector 2 Extend (s)	Dorse			nm			Dorse	NIA	Dorse	Dores	NI A	Dares
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	36.8	36.8		60.3	57.3		19.0	19.0	19.0	19.0	19.0	19.0
Actuated g/C Ratio	0.41	0.41		0.68	0.64		0.21	0.21	0.21	0.21	0.21	0.21
v/c Ratio	0.19	0.87		0.81	0.41		0.67	0.65	0.32	0.05	0.13	0.07
Control Delay	24.0	35.6		33.1	9.4		48.8	45.6	7.2	26.8	28.1	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	35.6		33.1	9.4		48.8	45.6	7.2	26.8	28.1	0.3
LOS	С	D		С	Α		D	D	Α	С	С	Α
Approach Delay		35.1			16.4			34.4			19.3	
Approach LOS		D			В			С			В	
Queue Length 50th (m)	5.2	85.3		31.6	31.3		22.7	23.0	0.0	1.8	6.3	0.0
Queue Length 95th (m)	16.0	#154.5		#83.7	57.6		42.6	42.4	12.8	6.2	14.6	0.0
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	245	1197		472	2000		312	334	562	369	522	538
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	0.19	0.87		0.72	0.41		0.44	0.42	0.23	0.04	0.09	0.05

Area Type: CBD

Cycle Length: 99

Actuated Cycle Length: 89.3

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 26.6
Intersection Capacity Utilization 79.0%

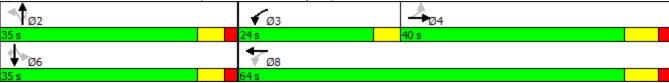
Intersection LOS: C
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ኘ	^	ሻ	7
Traffic Volume (vph)	541	81	236	976	287	447
Future Volume (vph)	541	81	236	976	287	447
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.7	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	100.0		1	1
Taper Length (m)		J	80.0		80.0	'
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.980	0.00	1.00	0.00	1.00	0.850
FIt Protected	0.900		0.950		0.950	0.000
Satd. Flow (prot)	3205	0	1532	3444	1665	921
Flt Permitted	3200	U	0.356	3444	0.950	3Z I
	2205	0		2///		024
Satd. Flow (perm)	3205	0	574	3444	1665	921
Right Turn on Red	00	Yes				Yes
Satd. Flow (RTOR)	28			22	22	368
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	12%	9%	10%	6%	6%	4%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	582	87	254	1049	309	481
Shared Lane Traffic (%)						
Lane Group Flow (vph)	669	0	254	1049	309	481
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane					-1.0	
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)	0.00	14	24	0.00	24	1.03
Number of Detectors	2	17	1	2	1	1
Detector Template	Thru			Thru		
·	30.5		12.0	30.5	12.0	Right 12.0
Leading Detector (m)					12.0	
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	Cl+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
DOTOGO Z EXTORIG (3)	0.0			0.0		

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	ı	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	39.2		55.5	50.0	15.0	15.0
Actuated g/C Ratio	0.49		0.70	0.63	0.19	0.19
v/c Ratio	0.42		0.50	0.48	0.99	1.02
Control Delay	13.6		8.1	8.9	83.1	58.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	13.6		8.1	8.9	83.1	58.0
LOS	В		Α	Α	F	Е
Approach Delay	13.6			8.7	67.8	
Approach LOS	В			Α	Е	
Queue Length 50th (m)	31.1		11.6	39.5	47.0	~22.7
Queue Length 95th (m)	44.7		19.8	52.6	#94.6	#84.2
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)			180.0		90.0	
Base Capacity (vph)	1593		520	2163	313	472
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	0.42		0.49	0.48	0.99	1.02

Area Type: Other

Cycle Length: 79.6

Actuated Cycle Length: 79.6

Natural Cycle: 80

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 1.02 Intersection Signal Delay: 26.8 Intersection Capacity Utilization 73.6%

Intersection LOS: C
ICU Level of Service D

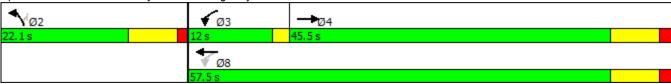
Analysis Period (min) 15

~ 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.

Splits and Phases: 1: County Road 50 & Highway 89



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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	_	41₽	∱ }		¥	
Traffic Volume (veh/h)	59	926	1177	79	25	31
Future Volume (Veh/h)	59	926	1177	79	25	31
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	63	996	1266	85	27	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.90	
vC, conflicting volume	1351				1932	676
vC1, stage 1 conf vol	1001				.002	0.0
vC2, stage 2 conf vol						
vCu, unblocked vol	1351				1809	676
tC, single (s)	4.1				7.0	6.9
tC, 2 stage (s)					7.0	0.0
tF (s)	2.2				3.6	3.3
p0 queue free %	88				48	92
cM capacity (veh/h)	516				52	401
		ED 0	MD 4	WD 0		701
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	395	664	844	507	60	
Volume Left	63	0	0	0	27	
Volume Right	0	0	0	85	33	
cSH	516	1700	1700	1700	99	
Volume to Capacity	0.12	0.39	0.50	0.30	0.61	
Queue Length 95th (m)	3.1	0.0	0.0	0.0	22.0	
Control Delay (s)	3.7	0.0	0.0	0.0	85.8	
Lane LOS	А				F	
Approach Delay (s)	1.4		0.0		85.8	
Approach LOS					F	
Intersection Summary						
Average Delay			2.7			
Intersection Capacity Utiliz	ation		75.7%	IC	U Level o	f Service
Analysis Period (min)			15			
			10			

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† }		ሻ	^	¥	
Traffic Volume (veh/h)	936	42	68	1161	95	132
Future Volume (Veh/h)	936	42	68	1161	95	132
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1040	47	76	1290	106	147
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)	110110			110110		
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1087		1860	544
vC1, stage 1 conf vol			1007		1000	011
vC2, stage 2 conf vol						
vCu, unblocked vol			1087		1860	544
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)			7.1		0.0	0.5
tF (s)			2.2		3.5	3.3
p0 queue free %			88		0	70
cM capacity (veh/h)			638		57	484
	ED 4	ED 0		W/D O		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	693	394	76	645	645	253
Volume Left	0	0	76	0	0	106
Volume Right	0	47	0	0	0	147
cSH	1700	1700	638	1700	1700	117
Volume to Capacity	0.41	0.23	0.12	0.38	0.38	2.16
Queue Length 95th (m)	0.0	0.0	3.1	0.0	0.0	162.9
Control Delay (s)	0.0	0.0	11.4	0.0	0.0	611.0
Lane LOS			В			F
Approach Delay (s)	0.0		0.6			611.0
Approach LOS						F
Intersection Summary						
Average Delay			57.4			
Intersection Capacity Utiliza	ation		54.3%	IC	U Level	of Service
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Ť	∱ }		ň	∱ ∱			4			4	
Traffic Volume (veh/h)	35	1009	27	174	1080	75	135	17	227	57	10	44
Future Volume (Veh/h)	35	1009	27	174	1080	75	135	17	227	57	10	44
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	37	1062	28	183	1137	79	142	18	239	60	11	46
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1216			1090			2136	2732	545	2396	2706	608
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1216			1090			2136	2732	545	2396	2706	608
tC, single (s)	4.1			4.1			7.7	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			72			0	0	51	0	24	90
cM capacity (veh/h)	581			648			7	14	488	0	14	444
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	37	708	382	183	758	458	399	117				
Volume Left	37	0	0	183	0	0	142	60				
Volume Right	0	0	28	0	0	79	239	46				
cSH	581	1700	1700	648	1700	1700	17	0				
Volume to Capacity	0.06	0.42	0.22	0.28	0.45	0.27	23.03	Err				
Queue Length 95th (m)	1.5	0.0	0.0	8.8	0.0	0.0	Err	Err				
Control Delay (s)	11.6	0.0	0.0	12.7	0.0	0.0	Err	Err				
Lane LOS	В			В			F	F				
Approach Delay (s)	0.4			1.7			Err	Err				
Approach LOS							F	F				
Intersection Summary												
Average Delay			Err									
Intersection Capacity Utilization	n		73.4%	IC	U Level	of Service			D			
Analysis Period (min)			15									

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			ર્ન	ĵ.	
Traffic Volume (veh/h)	226	24	9	153	141	72
Future Volume (Veh/h)	226	24	9	153	141	72
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	251	27	10	170	157	80
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				7.0		
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	387	197	237			
vC1, stage 1 conf vol	007	101	201			
vC2, stage 2 conf vol						
vCu, unblocked vol	387	197	237			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	0	0.2				
tF (s)	3.5	3.3	2.2			
p0 queue free %	59	97	99			
cM capacity (veh/h)	612	844	1330			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	278	180	237			
Volume Left	251	10	0			
Volume Right	27	0	80			
cSH	629	1330	1700			
Volume to Capacity	0.44	0.01	0.14			
Queue Length 95th (m)	17.2	0.2	0.0			
Control Delay (s)	15.2	0.5	0.0			
Lane LOS	С	Α				
Approach Delay (s)	15.2	0.5	0.0			
Approach LOS	С					
Intersection Summary						
Average Delay			6.2			
Intersection Capacity Utilization	on		36.1%	IC	CU Level of	Service
Analysis Period (min)	011		15		O LOVOI OI	CCIVICC
Alialysis i Glioù (Illill)			10			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	↑ ↑		7	^	7		4			र्स	7
Traffic Volume (veh/h)	95	1227	10	22	1202	140	0	0	12	117	1	73
Future Volume (Veh/h)	95	1227	10	22	1202	140	0	0	12	117	1	73
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	100	1292	11	23	1265	147	0	0	13	123	1	77
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1265			1303			2176	2808	652	2170	2814	632
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1265			1303			2176	2808	652	2170	2814	632
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	81			96			100	100	97	0	93	82
cM capacity (veh/h)	519			538			17	14	416	21	14	428
Direction, Lane #	EB 1	EB 2	EB3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	100	861	442	23	632	632	147	13	201			
Volume Left	100	0	0	23	0	0	0	0	123			
Volume Right	0	0	11	0	0	0	147	13	77			
cSH	519	1700	1700	538	1700	1700	1700	416	33			
Volume to Capacity	0.19	0.51	0.26	0.04	0.37	0.37	0.09	0.03	6.03			
Queue Length 95th (m)	5.4	0.0	0.0	1.0	0.0	0.0	0.0	0.7	Err			
Control Delay (s)	13.6	0.0	0.0	12.0	0.0	0.0	0.0	13.9	Err			
Lane LOS	В			В				В	F			
Approach Delay (s)	1.0			0.2				13.9	Err			
Approach LOS								В	F			
Intersection Summary												
Average Delay			659.1									
Intersection Capacity Utilizatio	n		61.7%	IC	CU Level	of Service			В			
Analysis Period (min)			15									

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑			414	W	
Traffic Volume (veh/h)	1321	6	7	1423	0	17
Future Volume (Veh/h)	1321	6	7	1423	0	17
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	1362	6	7	1467	0	18
Pedestrians					3	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1371		2116	687
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1371		2116	687
tC, single (s)			4.1		6.8	7.5
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.6
p0 queue free %			99		100	95
cM capacity (veh/h)			506		44	330
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	908	460	496	978	18	
Volume Left	0	0	7	0	0	
Volume Right	0	6	0	0	18	
cSH	1700	1700	506	1700	330	
Volume to Capacity	0.53	0.27	0.01	0.58	0.05	
Queue Length 95th (m)	0.0	0.0	0.3	0.0	1.3	
Control Delay (s)	0.0	0.0	0.4	0.0	16.6	
Lane LOS			Α		С	
Approach Delay (s)	0.0		0.1		16.6	
Approach LOS					С	
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utiliz	zation		54.2%	IC	U Level o	of Service
Analysis Period (min)			15			
, maryoto i oriou (iiiii)			10			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ }		ሻ	∱ }		ሻ	4	7	ሻ	1	7
Traffic Volume (vph)	63	765	365	321	795	35	496	52	235	31	63	94
Future Volume (vph)	63	765	365	321	795	35	496	52	235	31	63	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.952			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.961		0.950		
Satd. Flow (prot)	1825	3219	0	1825	3557	0	1534	1578	1617	1722	1921	1601
Flt Permitted	0.328		•	0.097		•	0.714	0.721		0.403		
Satd. Flow (perm)	630	3219	0	186	3557	0	1150	1182	1588	728	1921	1577
Right Turn on Red	000	0210	Yes	100	0001	Yes	1100	1102	Yes	, 20	1021	Yes
Satd. Flow (RTOR)		87			7				245			98
Link Speed (k/h)		60			50			50	2.0		50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	1	01.1	8	8	11.0	1	3	20.0	6	6	0.1	3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	17%	0%	2%	0%	13%	3%	1%	6%	0%	2%
Adj. Flow (vph)	66	797	380	334	828	36	517	54	245	32	66	98
Shared Lane Traffic (%)			000	00.	020		45%	V .	2.0	02		
Lane Group Flow (vph)	66	1177	0	334	864	0	284	287	245	32	66	98
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	Loit	3.7	rugiit	Loit	3.7	rugiit	Loit	3.7	rugiit	LOIL	3.7	rugiit
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		7.0			7.0			7.0			7.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	0	2	17	1	2	17	1	1	1	1	1	0
Detector Template	0	Thru		•	Thru		•			•	'	J
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	Cl+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel	OITEX	OITEX		OITEX	OIILX		OIILX	OITEX	OIILX	OITEX	OIILX	OIILX
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
	0.0			0.0	28.7		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7										
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			Cl+Ex							
Detector 2 Channel		0.0			0.0							
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	37.2	37.2		60.1	57.1		27.1	27.1	27.1	27.1	27.1	27.1
Actuated g/C Ratio	0.38	0.38		0.62	0.59		0.28	0.28	0.28	0.28	0.28	0.28
v/c Ratio	0.27	0.92		0.87	0.41		0.89	0.87	0.40	0.16	0.12	0.19
Control Delay	27.9	40.5		46.2	11.9		63.3	60.4	5.6	28.5	26.5	6.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	40.5		46.2	11.9		63.3	60.4	5.6	28.5	26.5	6.6
LOS	С	D		D	В		Е	Е	Α	С	С	Α
Approach Delay		39.8			21.5			45.0			16.9	
Approach LOS		D			С			D			В	
Queue Length 50th (m)	9.0	108.8		44.8	45.2		53.5	53.8	0.0	4.5	9.2	0.0
Queue Length 95th (m)	21.1	#163.5		#81.6	58.4		#100.4	#100.1	16.8	12.0	19.2	11.1
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	241	1285		452	2091		343	353	646	217	573	540
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	0.27	0.92		0.74	0.41		0.83	0.81	0.38	0.15	0.12	0.18

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 97.2

Natural Cycle: 90

MNF

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 33.4

Intersection Capacity Utilization 87.3%

Intersection LOS: C
ICU Level of Service E

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ኘ	^	ሻ	7
Traffic Volume (vph)	692	102	254	824	189	274
Future Volume (vph)	692	102	254	824	189	274
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	5.1	0.0	180.0	5.1	90.0	0.0
Storage Lanes		0.0	100.0		30.0	1
Taper Length (m)		U	80.0		80.0	ı
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.93	0.95	1.00	0.95	1.00	0.850
	0.901		0.050		0.950	0.000
Flt Protected	2407	٥	0.950	2544		040
Satd. Flow (prot)	3467	0	1668	3544	1713	949
Flt Permitted	0.40=	•	0.289	0544	0.950	0.40
Satd. Flow (perm)	3467	0	507	3544	1713	949
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	28					282
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	12%	1%	3%	3%	1%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	713	105	262	849	195	282
Shared Lane Traffic (%)						
Lane Group Flow (vph)	818	0	262	849	195	282
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0	, agric	Loit	3.0	3.4	i dgiit
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
\ /	4.9			4.9	4.9	
Two way Left Turn Lane	0.00	0.00	1.00	0.00	1.00	1.00
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)	•	14	24		24	14
Number of Detectors	_ 2		1	_ 2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7		0.0	28.7	0.0	0.0
Detector 2 Size(m)	1.8			1.8		
` '	CI+Ex			Cl+Ex		
Detector 2 Type	UI+EX			OI+EX		
Detector 2 Channel	0.0			0.0		
Detector 2 Extend (s)	0.0			0.0		

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Turn Type	NA	р	m+pt	NA	Prot	Perm	
Protected Phases	4		3	8	2		
Permitted Phases			8			2	
Detector Phase	4		3	8	2	2	
Switch Phase							
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0	
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1	
Total Split (s)	45.5		12.0	57.5	22.1	22.1	
Total Split (%)	57.2%	1	5.1%	72.2%	27.8%	27.8%	
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0	
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9	
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1	
Lead/Lag	Lag		Lead				
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0	
Recall Mode	Max		None	Max	None	None	
Act Effct Green (s)	39.6		55.5	50.0	13.2	13.2	
Actuated g/C Ratio	0.51		0.71	0.64	0.17	0.17	
v/c Ratio	0.46		0.54	0.37	0.67	0.72	
Control Delay	13.4		8.3	7.3	42.6	15.5	
Queue Delay	0.0		0.0	0.0	0.0	0.0	
Total Delay	13.4		8.3	7.3	42.6	15.5	
LOS	В		Α	Α	D	В	
Approach Delay	13.4			7.5	26.6		
Approach LOS	В			Α	С		
Queue Length 50th (m)	38.5		11.4	28.2	27.2	0.0	
Queue Length 95th (m)	55.3		19.9	39.4	47.6	#31.0	
Internal Link Dist (m)	976.2			176.3	613.9		
Turn Bay Length (m)		•	180.0		90.0		
Base Capacity (vph)	1776		511	2279	330	410	
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	0.46		0.51	0.37	0.59	0.69	
			-	-			

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 77.8

Natural Cycle: 70

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.72 Intersection Signal Delay: 13.3

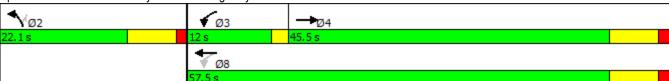
Intersection Signal Delay: 13.3 Intersection LOS: B
Intersection Capacity Utilization 69.2% ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 50 & Highway 89



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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	∱ Љ		W	
Traffic Volume (veh/h)	15	840	845	54	36	14
Future Volume (Veh/h)	15	840	845	54	36	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	913	918	59	39	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.88	
vC, conflicting volume	977				1436	488
vC1, stage 1 conf vol	01.				1100	.00
vC2, stage 2 conf vol						
vCu, unblocked vol	977				1215	488
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					3.0	3.0
tF (s)	2.2				3.5	3.3
p0 queue free %	98				74	97
cM capacity (veh/h)	714				151	531
		ED 0	MD 4	M/D 0		001
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	320	609	612	365	54	
Volume Left	16	0	0	0	39	
Volume Right	0	0	0	59	15	
cSH	714	1700	1700	1700	189	
Volume to Capacity	0.02	0.36	0.36	0.21	0.29	
Queue Length 95th (m)	0.5	0.0	0.0	0.0	8.6	
Control Delay (s)	0.8	0.0	0.0	0.0	31.5	
Lane LOS	Α				D	
Approach Delay (s)	0.3		0.0		31.5	
Approach LOS					D	
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utiliza	ation		43.9%	IC	U Level o	of Service
Analysis Period (min)			15	۰٬۰	2 23.07	
Analysis i chod (illiii)			10			

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑			414	¥	
Traffic Volume (veh/h)	910	73	107	869	81	109
Future Volume (Veh/h)	910	73	107	869	81	109
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1011	81	119	966	90	121
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1092		1772	546
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1092		1772	546
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			81		0	75
cM capacity (veh/h)			635		60	482
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	674	418	441	644	211	
Volume Left	0	0	119	0	90	
Volume Right	0	81	0	0	121	
cSH	1700	1700	635	1700	121	
Volume to Capacity	0.40	0.25	0.19	0.38	1.74	
Queue Length 95th (m)	0.0	0.0	5.2	0.0	122.7	
Control Delay (s)	0.0	0.0	5.3	0.0	428.7	
Lane LOS			Α		F	
Approach Delay (s)	0.0		2.1		428.7	
Approach LOS					F	
Intersection Summary						
Average Delay			38.9			
Intersection Capacity Utiliz	ation		75.8%	IC	CU Level c	f Service
Analysis Period (min)			15			
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ₽		ሻ	∱ ∱			4			4	
Traffic Volume (veh/h)	51	943	28	204	993	195	104	16	243	154	39	53
Future Volume (Veh/h)	51	943	28	204	993	195	104	16	243	154	39	53
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	54	993	29	215	1045	205	109	17	256	162	41	56
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1250			1022			2144	2796	511	2446	2708	625
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1250			1022			2144	2796	511	2446	2708	625
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF(s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			68			0	0	50	0	0	87
cM capacity (veh/h)	564			675			0	12	513	0	13	433
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	54	662	360	215	697	553	382	259				
Volume Left	54	0	0	215	0	0	109	162				
Volume Right	0	0	29	0	0	205	256	56				
cSH	564	1700	1700	675	1700	1700	0	0				
Volume to Capacity	0.10	0.39	0.21	0.32	0.41	0.33	Err	Err				
Queue Length 95th (m)	2.4	0.0	0.0	10.4	0.0	0.0	Err	Err				
Control Delay (s)	12.1	0.0	0.0	12.8	0.0	0.0	Err	Err				
Lane LOS	В	0.0	0.0	В	0.0	0.0	F	F				
Approach Delay (s)	0.6			1.9			Err	Err				
Approach LOS	0.0			1.5			F	F				
Intersection Summary												
Average Delay			Err									
Intersection Capacity Utilizat	tion		75.8%	IC	CU Level	of Service			D			
Analysis Period (min)			15									

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			ર્ન	f)	_
Traffic Volume (veh/h)	192	21	18	169	158	112
Future Volume (Veh/h)	192	21	18	169	158	112
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	213	23	20	188	176	124
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	466	238	300			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	466	238	300			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	61	97	98			
cM capacity (veh/h)	546	801	1261			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	236	208	300			
	230					
Volume Left		20	0			
Volume Right	23	1001	124			
cSH	564	1261	1700			
Volume to Capacity	0.42	0.02	0.18			
Queue Length 95th (m)	15.6	0.4	0.0			
Control Delay (s)	15.9	0.9	0.0			
Lane LOS	C	A	2.0			
Approach Delay (s)	15.9	0.9	0.0			
Approach LOS	С					
Intersection Summary						
Average Delay			5.3			
Intersection Capacity Utilizat	tion		42.5%	IC	CU Level c	f Service
Analysis Period (min)			15			
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ∱		7	^	7		4			र्स	7
Traffic Volume (veh/h)	89	1316	7	31	1340	185	1	7	12	180	6	77
Future Volume (Veh/h)	89	1316	7	31	1340	185	1	7	12	180	6	77
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	94	1385	7	33	1411	195	1	7	13	189	6	81
Pedestrians								1				
Lane Width (m)								3.7				
Walking Speed (m/s)								1.1				
Percent Blockage								0				
Right turn flare (veh)												9
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1411			1393			2352	3054	697	2374	3058	706
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1411			1393			2352	3054	697	2374	3058	706
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	7.0
tC, 2 stage (s)												
tF(s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	80			93			84	27	97	0	37	78
cM capacity (veh/h)	479			497			6	10	388	6	9	372
Direction, Lane #	EB 1	EB 2	EB3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	94	923	469	33	706	706	195	21	276			
Volume Left	94	0	0	33	0	0	0	1	189			
Volume Right	0	0	7	0	0	0	195	13	81			
cSH	479	1700	1700	497	1700	1700	1700	23	8			
Volume to Capacity	0.20	0.54	0.28	0.07	0.41	0.41	0.11	0.93	33.26			
Queue Length 95th (m)	5.5	0.0	0.0	1.6	0.0	0.0	0.0	20.6	Err			
Control Delay (s)	14.3	0.0	0.0	12.8	0.0	0.0	0.0	405.7	Err			
Lane LOS	В			В				F	F			
Approach Delay (s)	0.9			0.3				405.7	Err			
Approach LOS								F	F			
Intersection Summary												
Average Delay			809.5									
Intersection Capacity Utilizati	on		68.9%	IC	U Level	of Service			С			
Analysis Period (min)			15									

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑			414	W	
Traffic Volume (veh/h)	1538	3	7	1551	0	10
Future Volume (Veh/h)	1538	3	7	1551	0	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1636	3	7	1650	0	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1639		2476	820
vC1, stage 1 conf vol						V-V
vC2, stage 2 conf vol						
vCu, unblocked vol			1639		2476	820
tC, single (s)			4.1		6.8	7.2
tC, 2 stage (s)					,,,	
tF (s)			2.2		3.5	3.5
p0 queue free %			98		100	96
cM capacity (veh/h)			401		25	289
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	1091	548	557	1100	11	
Volume Left	0	0	7	0	0	
Volume Right	0	3	0	0	11	
cSH	1700	1700	401	1700	289	
Volume to Capacity	0.64	0.32	0.02	0.65	0.04	
Queue Length 95th (m)	0.0	0.0	0.02	0.00	0.04	
Control Delay (s)	0.0	0.0	0.4	0.0	18.0	
Lane LOS	0.0	0.0	Α	0.0	C	
Approach Delay (s)	0.0		0.2		18.0	
Approach LOS	0.0		0.2		10.0 C	
•					U	
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utiliza	ation		57.8%	IC	U Level c	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	ħβ		ř	∱ }		Ţ	ર્ન	7	ħ		7
Traffic Volume (vph)	168	1161	217	523	1121	41	299	65	301	59	143	116
Future Volume (vph)	168	1161	217	523	1121	41	299	65	301	59	143	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00			1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.976			0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.968		0.950		
Satd. Flow (prot)	1807	3517	0	1825	3594	0	1683	1733	1617	1772	1921	1633
Flt Permitted	0.223			0.108			0.642	0.693		0.527		
Satd. Flow (perm)	424	3517	0	207	3594	0	1134	1238	1593	981	1921	1607
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			6				324			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	3		1	1		3	4		3	3		4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	0%	6%	0%	1%	0%	3%	0%	1%	3%	0%	0%
Adj. Flow (vph)	181	1248	233	562	1205	44	322	70	324	63	154	125
Shared Lane Traffic (%)							41%					
Lane Group Flow (vph)	181	1481	0	562	1249	0	190	202	324	63	154	125
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7	J		3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		Cl+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	33.1	33.1		60.3	57.2		21.8	21.8	21.8	21.8	21.8	21.8
Actuated g/C Ratio	0.36	0.36		0.65	0.62		0.24	0.24	0.24	0.24	0.24	0.24
v/c Ratio	1.19	1.16		1.15	0.56		0.71	0.69	0.52	0.27	0.34	0.28
Control Delay	164.6	109.1		116.1	12.2		46.9	44.5	6.4	30.9	30.6	11.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	164.6	109.1		116.1	12.2		46.9	44.5	6.4	30.9	30.6	11.7
LOS	F	F		F	В		D	D	Α	С	С	В
Approach Delay		115.1			44.4			27.9			23.7	
Approach LOS		F			D			С			С	
Queue Length 50th (m)	~39.8	~167.5		~104.0	63.4		32.4	34.3	0.0	9.1	22.7	5.1
Queue Length 95th (m)	#85.2	#229.2		#181.7	95.7		56.5	58.5	19.0	19.9	38.7	18.2
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	152	1280		488	2236		358	391	725	310	607	568
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	1.19	1.16		1.15	0.56		0.53	0.52	0.45	0.20	0.25	0.22

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 92.1

Natural Cycle: 150

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 66.2

Intersection LOS: E

Intersection Capacity Utilization 108.8% ICU Level of Service G

- ~ 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.

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†	LDIX	YVDL	↑	ind.	TADIX
Traffic Volume (vph)	T № 438	158	267	TT 315	60	138
Future Volume (vph)	438	158	267	315	60	138
\ I /		1900	1900	1900		1900
Ideal Flow (vphpl)	1900 3.7	3.7	3.0	3.7	1900 3.4	3.5
Lane Width (m)	3.1			3.1		
Storage Length (m)		0.0	180.0		90.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)	0.05	0.05	80.0	0.05	80.0	4.00
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.960					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3002	0	1620	3093	1471	1426
Flt Permitted			0.374		0.950	
Satd. Flow (perm)	3002	0	638	3093	1471	1426
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	88					152
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	17%	16%	4%	18%	20%	12%
• • • • • •	481	174	293	346	66	152
Adj. Flow (vph)	401	174	293	340	00	152
Shared Lane Traffic (%)	٥٦٦	^	000	0.40	00	450
Lane Group Flow (vph)	655	0	293	346	66	152
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.01
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
	NA		nm±nt	NA	Prot	Perm
Turn Type	NA		pm+pt	INA	PIOL	reim

	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	39.4		55.5	50.0	10.5	10.5
Actuated g/C Ratio	0.52		0.74	0.67	0.14	0.14
v/c Ratio	0.41		0.50	0.17	0.32	0.46
Control Delay	10.4		6.4	5.1	33.7	10.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	10.4		6.4	5.1	33.7	10.5
LOS	В		A	A	C	В
Approach Delay	10.4		, .	5.7	17.5	
Approach LOS	В			A	В	
Queue Length 50th (m)	22.8		9.9	8.0	8.6	0.0
Queue Length 95th (m)	38.1		19.6	14.0	19.3	14.8
Internal Link Dist (m)	976.2		10.0	176.3	613.9	11.0
Turn Bay Length (m)	010.E		180.0		90.0	
Base Capacity (vph)	1617		602	2059	293	406
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	0.41		0.49	0.17	0.23	0.37
Intersection Cummers	V		J. 10	¥111		

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 75.1 Natural Cycle: 70

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.50

Intersection Signal Delay: 9.4 Intersection LOS: A Intersection Capacity Utilization 67.8% ICU Level of Service C

Analysis Period (min) 15

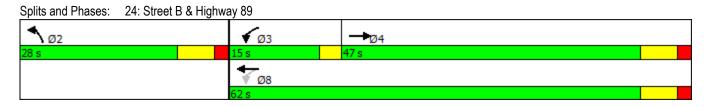
Splits and Phases: 1: County Road 50 & Highway 89



	•	→	—	4	/	✓
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	∱ }		W	
Traffic Volume (veh/h)	12	546	539	16	36	55
Future Volume (Veh/h)	12	546	539	16	36	55
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	13	607	599	18	40	61
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.96	
vC, conflicting volume	617				938	308
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	617				857	308
tC, single (s)	4.3				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	99				86	91
cM capacity (veh/h)	900				285	693
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	215	405	399	218	101	
Volume Left	13	0	0	0	40	
Volume Right	0	0	0	18	61	
cSH	900	1700	1700	1700	442	
Volume to Capacity	0.01	0.24	0.23	0.13	0.23	
Queue Length 95th (m)	0.3	0.0	0.0	0.0	6.6	
Control Delay (s)	0.7	0.0	0.0	0.0	15.5	
Lane LOS	Α				С	
Approach Delay (s)	0.2		0.0		15.5	
Approach LOS					С	
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utiliza	ation		35.7%	IC	U Level c	f Service
Analysis Period (min)			15			
raidiyələ i Gilou (illili)			10			

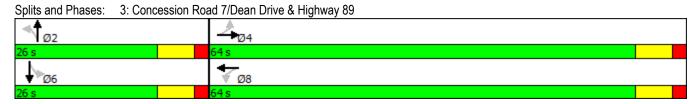
	-	•	•	←	4	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†	LDIX	YVDL	↑	₩.	HUIT
Traffic Volume (vph)	555	142	137	540	14	34
Future Volume (vph)	555	142	137	540	14	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	1300	0.0	15.0	1300	0.0	0.0
Storage Lanes		0.0	13.0		1	0.0
Taper Length (m)		U	60.0		2.5	U
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.969	0.00	1.00	0.00	0.905	1.00
Flt Protected	0.505		0.950		0.985	
Satd. Flow (prot)	3468	0	1789	3579	1679	0
Flt Permitted	J -1 00	U	0.329	5513	0.985	U
Satd. Flow (perm)	3468	0	620	3579	1679	0
Right Turn on Red	3400	Yes	020	3313	10/3	Yes
Satd. Flow (RTOR)	46	165			38	165
	80			80	50	
Link Speed (k/h) Link Distance (m)	647.5			74.9	107.1	
Travel Time (s)	29.1			3.4	7.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
				600	0.90	0.90
Adj. Flow (vph)	617	158	152	000	10	30
Shared Lane Traffic (%)	775	0	150	600	E A	0
Lane Group Flow (vph)	775	0	152 No.	600	54	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane	0.00	0.00	2.00	0.00	0.00	0.00
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	
Protected Phases	4		3	8	2	
Permitted Phases			8			

	→	•	•	•	•	/
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4		3	8	2	
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	
Minimum Split (s)	25.0		9.5	25.0	25.0	
Total Split (s)	47.0		15.0	62.0	28.0	
Total Split (%)	52.2%	1	6.7%	68.9%	31.1%	
Maximum Green (s)	40.0		12.0	55.0	21.0	
Yellow Time (s)	5.0		3.0	5.0	5.0	
All-Red Time (s)	2.0		0.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.0		3.0	7.0	7.0	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Max	1	None	Max	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	49.6		63.4	62.3	6.6	
Actuated g/C Ratio	0.66		0.85	0.83	0.09	
v/c Ratio	0.34		0.24	0.20	0.30	
Control Delay	6.9		2.8	2.8	20.0	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	6.9		2.8	2.8	20.0	
LOS	A		Α	A	С	
Approach Delay	6.9			2.8	20.0	
Approach LOS	A			A	С	
Queue Length 50th (m)	24.8		3.6	11.3	2.2	
Queue Length 95th (m)	40.5		8.4	18.9	11.8	
Internal Link Dist (m)	623.5			50.9	83.1	
Turn Bay Length (m)			15.0			
Base Capacity (vph)	2312		712	2977	499	
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	0.34		0.21	0.20	0.11	
					• • • • • • • • • • • • • • • • • • • •	
Intersection Summary						
Area Type:	Other					
Cycle Length: 90						
Actuated Cycle Length: 74	4.9					
Natural Cycle: 60						
Control Type: Semi Act-U	ncoord					
Maximum v/c Ratio: 0.34						
Intersection Signal Delay:					ntersection	
Intersection Capacity Utiliz	zation 46.6%			IC	CU Level of	of Service A



	۶	→	•	•	←	•	•	†	/	/	↓	✓
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	, j	∱ }		ň	↑ ↑			4			4	
Traffic Volume (vph)	27	499	35	51	401	69	12	9	53	64	8	27
Future Volume (vph)	27	499	35	51	401	69	12	9	53	64	8	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.978			0.903			0.964	
Flt Protected	0.950			0.950				0.992			0.969	
Satd. Flow (prot)	1825	3153	0	1772	3164	0	0	1721	0	0	1748	0
FIt Permitted	0.464			0.434				0.937			0.775	
Satd. Flow (perm)	891	3153	0	809	3164	0	0	1625	0	0	1398	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			42			58			19	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		314.7			133.1			224.3			107.2	
Travel Time (s)		18.9			8.0			13.5			7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	9%	3%	14%	6%	0%	0%	0%	0%	0%	10%
Adj. Flow (vph)	29	542	38	55	436	75	13	10	58	70	9	29
Shared Lane Traffic (%)	20	012		00	100	, ,	10	10	00	, ,		
Lane Group Flow (vph)	29	580	0	55	511	0	0	81	0	0	108	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	Loit	3.7	rtigitt	Loit	3.7	ragin	LOIL	0.0	rtigiit	LOIL	0.0	rtigitt
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		т.5			7.5			4.5			4.5	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.55	14	24	0.33	14	24	0.33	14	24	0.55	14
Number of Detectors	1	2	17	1	2	17	1	2	17	1	2	14
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	CI+Ex		CI+Ex	Cl+Ex		CI+Ex	Cl+Ex		Cl+Ex	CI+Ex	
Detector 1 Channel	CITLX	OITLX		CITLX	CITLX		OITLX	OITLX		CITLX	CITLX	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	28.7		0.0	28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			Cl+Ex			CI+Ex			CI+Ex	
		OI+EX			OI+EX			OI+ĽX			OI+ĽX	
Detector 2 Channel		0.0			0.0			0.0			0.0	
Detector 2 Extend (s)	Derm			Derm			Dema			Derm	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

	٠	→	•	•	+	•	•	†	<i>></i>	/	↓	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	64.0	64.0		64.0	64.0		26.0	26.0		26.0	26.0	
Total Split (%)	71.1%	71.1%		71.1%	71.1%		28.9%	28.9%		28.9%	28.9%	
Maximum Green (s)	57.0	57.0		57.0	57.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	62.5	62.5		62.5	62.5			10.7			10.8	
Actuated g/C Ratio	0.75	0.75		0.75	0.75			0.13			0.13	
v/c Ratio	0.04	0.24		0.09	0.21			0.31			0.55	
Control Delay	5.0	4.8		5.3	4.4			16.5			37.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	5.0	4.8		5.3	4.4			16.5			37.9	
LOS	Α	Α		Α	Α			В			D	
Approach Delay		4.8			4.5			16.5			37.9	
Approach LOS		Α			Α			В			D	
Queue Length 50th (m)	1.2	14.3		2.4	11.4			3.2			13.0	
Queue Length 95th (m)	4.3	25.9		7.2	21.4			14.6			28.0	
Internal Link Dist (m)		290.7			109.1			200.3			83.2	
Turn Bay Length (m)	100.0			70.0								
Base Capacity (vph)	669	2374		608	2389			416			334	
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	0.04	0.24		0.09	0.21			0.19			0.32	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 83	3.1											
Natural Cycle: 50												
Control Type: Semi Act-Ur	ncoord											
Maximum v/c Ratio: 0.55												
Intersection Signal Delay:	8.0			Ir	ntersection	LOS: A						
Intersection Capacity Utiliz				IC	CU Level o	of Service	e A					
Analysis Period (min) 15												



	٠	•	1	†	ţ	1
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			ર્ન	ĵ.	
Traffic Volume (veh/h)	51	6	22	59	76	143
Future Volume (Veh/h)	51	6	22	59	76	143
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	57	7	24	66	84	159
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				110110	710110	
Upstream signal (m)					224	
pX, platoon unblocked					LLT	
vC, conflicting volume	278	164	243			
vC1, stage 1 conf vol	210	104	270			
vC2, stage 2 conf vol						
vCu, unblocked vol	278	164	243			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	0.4	0.2	4.1			
tF (s)	3.5	3.3	2.2			
	92	99	98			
p0 queue free %	699	881	1323			
cM capacity (veh/h)						
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	64	90	243			
Volume Left	57	24	0			
Volume Right	7	0	159			
cSH	715	1323	1700			
Volume to Capacity	0.09	0.02	0.14			
Queue Length 95th (m)	2.2	0.4	0.0			
Control Delay (s)	10.5	2.2	0.0			
Lane LOS	В	Α				
Approach Delay (s)	10.5	2.2	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utiliza	ation		30.4%	IC	CU Level o	f Service
Analysis Period (min)			15		. 5 _5.0.0	
Analysis i Gilou (IIIIII)			10			

Traffic Volume (vph) 36 648 1 8 718 64 0 1 1 48 3 47 Future Volume (vph) 36 648 1 8 718 64 0 1 1 48 3 47	7 47
Traffic Volume (vph) 36 648 1 8 718 64 0 1 1 48 3 47 Future Volume (vph) 36 648 1 8 718 64 0 1 1 48 3 47	47
Traffic Volume (vph) 36 648 1 8 718 64 0 1 1 48 3 47 Future Volume (vph) 36 648 1 8 718 64 0 1 1 48 3 47	47
Future Volume (vph) 36 648 1 8 718 64 0 1 1 48 3 47	
	47
Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 190	00
Storage Length (m) 110.0 0.0 35.0 100.0 0.0 0.0 0.0 70.0	
	1
Taper Length (m) 100.0 70.0 7.6 7.6	
Lane Util. Factor 1.00 0.95 0.95 1.00 0.95 1.00 1.00 1.00 1.00 1.00 1.00 1.00	.00
Ped Bike Factor 1.00 1.00	
Frt 0.850 0.932 0.850	50
Flt Protected 0.950 0.950 0.955	
Satd. Flow (prot) 1644 3259 0 1372 3230 1570 0 1790 0 0 1752 1396	96
Flt Permitted 0.365 0.392 0.737	
Satd. Flow (perm) 632 3259 0 564 3230 1570 0 1790 0 0 1352 1396	96
Right Turn on Red Yes Yes Yes Yes	'es
Satd. Flow (RTOR) 133 1 133	33
Link Speed (k/h) 60 60 50 60	
Link Distance (m) 204.7 248.7 28.0 126.5	
Travel Time (s) 12.3 14.9 2.0 7.6	
Confl. Peds. (#/hr) 4 4	
Peak Hour Factor 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95	.95
Heavy Vehicles (%) 11% 12% 0% 33% 13% 4% 0% 0% 0% 5% 0% 17%	
	49
Shared Lane Traffic (%)	
	49
	No
Lane Alignment Left Left Right Left Right Left Right Left Righ	
Median Width(m) 3.7 3.7 0.0 0.0	
Link Offset(m) 0.0 0.0 0.0 0.0	
Crosswalk Width(m) 4.9 4.9 4.9 4.9	
Two way Left Turn Lane	
Headway Factor 0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.9	.99
Turning Speed (k/h) 24 14 24 14 24 14 24 14 24 14	14
Number of Detectors 1 2 1 2 1 1 2 1 2	1
Detector Template Left Thru Left Thru Right Left Thru Left Thru Righ	ght
	6.1
	0.0
	0.0
	6.1
Detector 1 Type CI+Ex CI	Ex
Detector 1 Channel	
	0.0
	0.0
· · · · · · · · · · · · · · · · · · ·	0.0
Detector 2 Position(m) 28.7 28.7 28.7 28.7	
Detector 2 Size(m) 1.8 1.8 1.8	
Detector 2 Type CI+Ex CI+Ex CI+Ex CI+Ex	
Detector 2 Channel	
Detector 2 Extend (s) 0.0 0.0 0.0 0.0	

4: Elizabeth Street/Concession Road 7 & Highway 89

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Free		NA		Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	58.0	58.0		58.0	58.0		32.0	32.0		32.0	32.0	
Total Split (%)	64.4%	64.4%		64.4%	64.4%		35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	51.0	51.0		51.0	51.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	67.1	67.1		67.1	67.1	80.8		8.3			8.6	80.8
Actuated g/C Ratio	0.83	0.83		0.83	0.83	1.00		0.10			0.11	1.00
v/c Ratio	0.07	0.25		0.02	0.28	0.04		0.01			0.38	0.04
Control Delay	4.1	3.5		4.0	3.6	0.0		28.5			41.7	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	4.1	3.5		4.0	3.6	0.0		28.5			41.7	0.0
LOS	Α	Α		Α	Α	Α		С			D	Α
Approach Delay		3.5			3.3			28.5			21.9	
Approach LOS		Α			Α			С			С	
Queue Length 50th (m)	1.4	16.1		0.3	18.4	0.0		0.1			8.8	0.0
Queue Length 95th (m)	4.7	26.2		1.6	29.6	0.0		m1.8			17.8	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	524	2704		468	2680	1570		558			421	1396
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.07	0.25		0.02	0.28	0.04		0.00			0.13	0.04

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 80.8

Natural Cycle: 50

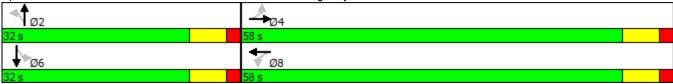
Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.38 Intersection Signal Delay: 4.6

Intersection Capacity Utilization 51.0%

Intersection LOS: A ICU Level of Service A

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Elizabeth Street/Concession Road 7 & Highway 89



	→	•	•	←	4	/
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†			414	¥	
Traffic Volume (veh/h)	713	1	3	806	0	14
Future Volume (Veh/h)	713	1	3	806	0	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	767	1	3	867	0	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	249					
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			768		1207	384
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			715		1164	322
tC, single (s)			4.1		6.8	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			100		100	98
cM capacity (veh/h)			874		185	639
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	511	257	292	578	15	
Volume Left	0	0	3	0	0	
Volume Right	0	1	0	0	15	
cSH	1700	1700	874	1700	639	
Volume to Capacity	0.30	0.15	0.00	0.34	0.02	
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.5	
Control Delay (s)	0.0	0.0	0.1	0.0	10.8	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.0		10.8	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilizati	on		34.4%	IC	U Level o	f Service
Analysis Period (min)			15			

	۶	→	•	•	+	•	•	†	/	/	+	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ∱		ሻ	∱ }		ሻ	4	7	ሻ	†	7
Traffic Volume (vph)	33	579	161	235	622	9	171	22	90	9	31	18
Future Volume (vph)	33	579	161	235	622	9	171	22	90	9	31	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.967			0.998				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.963		0.950		
Satd. Flow (prot)	1825	3171	0	1807	3465	0	1387	1473	1617	1825	1779	1633
Flt Permitted	0.393	•	•	0.281	0.00		0.736	0.753		0.686		
Satd. Flow (perm)	755	3171	0	534	3465	0	1075	1152	1617	1318	1779	1633
Right Turn on Red		0111	Yes	001	0.00	Yes	10.0	1102	Yes	1010		Yes
Satd. Flow (RTOR)		38	100		2	. 00			97			88
Link Speed (k/h)		60			50			50	<u> </u>		50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	5%	34%	1%	5%	14%	25%	0%	1%	0%	8%	0%
Adj. Flow (vph)	35	623	173	253	669	10	184	24	97	10	33	19
Shared Lane Traffic (%)	00	020	170	200	000		44%	<u> 1</u>	O1	10	00	10
Lane Group Flow (vph)	35	796	0	253	679	0	103	105	97	10	33	19
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	Lon	3.7	rugiit	Loit	3.7	rugiit	Loit	3.7	rugiit	Loit	3.7	ragin
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		1.0			1.0			1.0			1.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template	· ·	Thru		•	Thru		•	•	•	•	•	•
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel	O	0. 1.		O	O		O	O/.	O	O	O	O
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			CI+Ex							
Detector 2 Channel		O. LA			OI LX							
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1 31111	4		3	8		. 51111	2	7 31111	1 31111	6	1 31111
1.1010010011110303				J	U						U	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	43.6	43.6		60.1	57.1		14.8	14.8	14.8	14.8	14.8	14.8
Actuated g/C Ratio	0.51	0.51		0.71	0.67		0.17	0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.09	0.48		0.49	0.29		0.55	0.52	0.27	0.04	0.11	0.05
Control Delay	13.9	15.1		8.2	6.6		43.2	41.3	8.4	28.3	29.4	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.9	15.1		8.2	6.6		43.2	41.3	8.4	28.3	29.4	0.3
LOS	В	В		Α	Α		D	D	Α	С	С	Α
Approach Delay		15.0			7.0			31.5			20.3	
Approach LOS		В			Α			С			С	
Queue Length 50th (m)	2.6	37.5		11.3	19.8		16.2	16.4	0.0	1.4	4.6	0.0
Queue Length 95th (m)	9.6	70.2		26.2	36.6		32.0	32.1	11.5	5.4	11.8	0.0
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	387	1644		677	2329		367	393	616	450	608	616
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	0.09	0.48		0.37	0.29		0.28	0.27	0.16	0.02	0.05	0.03

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 85

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 14.0 Intersection Capacity Utilization 61.1%

Intersection LOS: B ICU Level of Service B

Analysis Period (min) 15

	-	\rightarrow	•	←	4	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ Ъ		ሻ	^	ሻ	7
Traffic Volume (vph)	410	60	176	766	214	333
Future Volume (vph)	410	60	176	766	214	333
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.7	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	1		1	1
Taper Length (m)			80.0		80.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.981	0.50	1.00	0.55	1.00	0.850
Flt Protected	0.001		0.950		0.950	0.000
Satd. Flow (prot)	3208	0	1532	3444	1665	921
Flt Permitted	3200	U	0.444	J 111 1	0.950	321
Satd. Flow (perm)	3208	0	716	3444	1665	921
Right Turn on Red	3200	Yes	110	3444	1005	Yes
•	20	168				
Satd. Flow (RTOR)	28			00	00	358
Link Speed (k/h)	80			200.2	637.0	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0	0.00	0.00	9.0	28.7	0.00
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	12%	9%	10%	6%	6%	4%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	441	65	189	824	230	358
Shared Lane Traffic (%)	-00		400	004	000	0=0
Lane Group Flow (vph)	506	0	189	824	230	358
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel	J. L A			<u>_</u>		
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7		0.0	28.7	0.0	0.0
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			Cl+Ex		
	OI+EX			CITEX		
Detector 2 Channel	0.0			0.0		
Detector 2 Extend (s)	0.0			0.0		

	→	•	•	•	7	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	40.1		55.5	50.0	13.9	13.9
Actuated g/C Ratio	0.51		0.71	0.64	0.18	0.18
v/c Ratio	0.31		0.32	0.38	0.78	0.78
Control Delay	11.6		5.6	7.6	50.9	17.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	11.6		5.6	7.6	50.9	17.5
LOS	В		Α	Α	D	В
Approach Delay	11.6			7.2	30.6	
Approach LOS	В			Α	С	
Queue Length 50th (m)	20.8		8.2	28.4	33.1	0.0
Queue Length 95th (m)	32.5		14.7	38.4	#64.3	#40.3
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)			180.0		90.0	
Base Capacity (vph)	1651		610	2195	318	465
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	0.31		0.31	0.38	0.72	0.77

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 78.5

Natural Cycle: 75

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.78 Intersection Signal Delay: 14.8

Intersection Capacity Utilization 66.3%

Intersection LOS: B

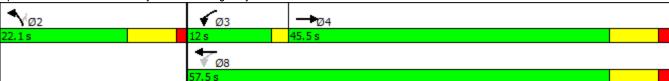
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 50 & Highway 89



	•	→	+	4	/	4
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	∱ }		¥	
Traffic Volume (veh/h)	44	697	916	66	19	23
Future Volume (Veh/h)	44	697	916	66	19	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	47	749	985	71	20	25
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.94	
vC, conflicting volume	1056				1489	528
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1056				1397	528
tC, single (s)	4.1				7.0	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	93				82	95
cM capacity (veh/h)	667				110	500
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	297	499	657	399	45	
Volume Left	47	0	0	0	20	
Volume Right	0	0	0	71	25	
cSH	667	1700	1700	1700	193	
Volume to Capacity	0.07	0.29	0.39	0.23	0.23	
Queue Length 95th (m)	1.7	0.0	0.0	0.0	6.6	
Control Delay (s)	2.5	0.0	0.0	0.0	29.2	
Lane LOS	A			3.0	D	
Approach Delay (s)	0.9		0.0		29.2	
Approach LOS	0.0		0.0		D	
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utiliza	ation		61.3%	IC	Ulevelo	of Service
Analysis Period (min)	AOII		15	10	5 L0 VOI (OO! VIOO
Analysis i ellou (IIIIII)			10			

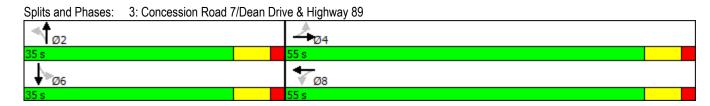
	-	•	•	←	4	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<u>↑</u>	LDK	VVDL		NDL W	MDIX
Traffic Volume (vph)	T → 694	42	1 68	↑↑ 886	''' 95	132
Future Volume (vph)	694	42	68	886	95 95	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
(, , ,	1900	0.0	15.0	1900	0.0	0.0
Storage Length (m)						
Storage Lanes		0	1		1	0
Taper Length (m)	0.05	0.05	60.0	0.05	2.5	4.00
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.991				0.922	
Flt Protected		_	0.950		0.979	
Satd. Flow (prot)	3546	0	1789	3579	1700	0
FIt Permitted			0.290		0.979	
Satd. Flow (perm)	3546	0	546	3579	1700	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	9				77	
Link Speed (k/h)	80			80	50	
Link Distance (m)	648.3			78.2	116.9	
Travel Time (s)	29.2			3.5	8.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	771	47	76	984	106	147
Shared Lane Traffic (%)	111	71	70	304	100	177
Lane Group Flow (vph)	818	0	76	984	253	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	CI+Ex	
Detector 1 Channel	OI LX		OI ' LX	OI · LX	O1 · LX	
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
	0.0		0.0	0.0		
Detector 1 Delay (s)			0.0		0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	
Protected Phases	4		3	8	2	
Permitted Phases			8			

	→	\rightarrow	•	←	•	<i>></i>
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4		3	8	2	
Switch Phase	•					
Minimum Initial (s)	5.0		5.0	5.0	5.0	
Minimum Split (s)	25.0		9.5	25.0	25.0	
Total Split (s)	48.0		10.0	58.0	32.0	
Total Split (%)	53.3%		11.1%	64.4%	35.6%	
Maximum Green (s)	41.0		7.0	51.0	25.0	
Yellow Time (s)	5.0		3.0	5.0	5.0	
All-Red Time (s)	2.0		0.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.0		3.0	7.0	7.0	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Max		None	Max	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	44.5		56.2	52.1	13.8	
Actuated g/C Ratio	0.56		0.70	0.65	0.17	
v/c Ratio	0.41		0.16	0.42	0.71	
Control Delay	12.4		5.5	8.0	32.3	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	12.4		5.5	8.0	32.3	
LOS	В		Α	Α	С	
Approach Delay	12.4			7.8	32.3	
Approach LOS	В			Α	С	
Queue Length 50th (m)	36.4		3.0	32.8	24.7	
Queue Length 95th (m)	60.7		8.8	57.2	47.4	
Internal Link Dist (m)	624.3			54.2	92.9	
Turn Bay Length (m)			15.0			
Base Capacity (vph)	1976		492	2332	585	
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	0.41		0.15	0.42	0.43	
Intersection Summary						
Area Type:	Other					
Cycle Length: 90						
Actuated Cycle Length: 80)					
Natural Cycle: 60						
Control Type: Semi Act-Ur	ncoord					
Maximum v/c Ratio: 0.71						
Intersection Signal Delay:	12.5			lr	ntersection	LOS: B
Intersection Capacity Utiliz						of Service A



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	∱ }		ሻ	∱ }			4			4	
Traffic Volume (vph)	26	782	20	148	819	56	125	13	201	42	8	33
Future Volume (vph)	26	782	20	148	819	56	125	13	201	42	8	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.990			0.920			0.946	
Flt Protected	0.950			0.950				0.982			0.975	
Satd. Flow (prot)	1825	3298	0	1825	3391	0	0	1680	0	0	1772	0
FIt Permitted	0.272			0.304				0.842			0.657	
Satd. Flow (perm)	523	3298	0	584	3391	0	0	1440	0	0	1194	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			12			84			35	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		310.5			133.1			226.8			107.2	
Travel Time (s)		18.6			8.0			13.6			7.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	10%	20%	0%	7%	0%	9%	0%	0%	0%	0%	0%
Adj. Flow (vph)	27	823	21	156	862	59	132	14	212	44	8	35
Shared Lane Traffic (%)		020		100	002		102					
Lane Group Flow (vph)	27	844	0	156	921	0	0	358	0	0	87	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	• •	1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	O	O		O	O		O	O		O	J	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	28.7		0.0	28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel		OI LX			OI LX			OI LX			OI LA	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	1 31111	4		1 31117	8		1 31111	2		7 31111	6	
1.1010010011110003		7			U						U	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	55.0	55.0		55.0	55.0		35.0	35.0		35.0	35.0	
Total Split (%)	61.1%	61.1%		61.1%	61.1%		38.9%	38.9%		38.9%	38.9%	
Maximum Green (s)	48.0	48.0		48.0	48.0		28.0	28.0		28.0	28.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	48.2	48.2		48.2	48.2			20.9			20.9	
Actuated g/C Ratio	0.58	0.58		0.58	0.58			0.25			0.25	
v/c Ratio	0.09	0.44		0.46	0.47			0.84			0.27	
Control Delay	10.7	11.6		17.5	11.8			40.8			17.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	10.7	11.6		17.5	11.8			40.8			17.8	
LOS	В	В		В	В			D			В	
Approach Delay		11.6			12.7			40.8			17.8	
Approach LOS		В			В			D			В	
Queue Length 50th (m)	1.8	37.5		13.5	41.4			41.7			6.4	
Queue Length 95th (m)	6.5	59.7		34.9	65.4			73.7			17.5	
Internal Link Dist (m)		286.5		0	109.1			202.8			83.2	
Turn Bay Length (m)	100.0	200.0		70.0	100.1			202.0			00.2	
Base Capacity (vph)	303	1913		338	1971			542			427	
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	0.09	0.44		0.46	0.47			0.66			0.20	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 83	5.2											
Natural Cycle: 60												
Control Type: Semi Act-Ur	ncoord											
Maximum v/c Ratio: 0.84												
Intersection Signal Delay:	16.7			Ir	ntersection	LOS: B						
Intersection Capacity Utiliz	ation 70.6%			IC	CU Level o	of Service	e C					
Analysis Period (min) 15												



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			4	î,	
Traffic Volume (veh/h)	226	24	9	114	104	72
Future Volume (Veh/h)	226	24	9	114	104	72
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	251	27	10	127	116	80
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					227	
pX, platoon unblocked					,	
vC, conflicting volume	303	156	196			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	303	156	196			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	.	V. <u> </u>				
tF (s)	3.5	3.3	2.2			
p0 queue free %	63	97	99			
cM capacity (veh/h)	684	890	1377			
			SB 1			
Direction, Lane #	EB 1	NB 1				
Volume Total	278	137	196			
Volume Left	251	10	0			
Volume Right	27	0	80			
cSH	699	1377	1700			
Volume to Capacity	0.40	0.01	0.12			
Queue Length 95th (m)	14.5	0.2	0.0			
Control Delay (s)	13.5	0.6	0.0			
Lane LOS	В	Α				
Approach Delay (s)	13.5	0.6	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			6.3			
Intersection Capacity Util	ization		34.1%	IC	CU Level o	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ }		ሻ	^	7		4			र्स	7
Traffic Volume (vph)	74	974	8	16	926	104	0	0	9	87	1	55
Future Volume (vph)	74	974	8	16	926	104	0	0	9	87	1	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.865				0.850
Flt Protected	0.950			0.950							0.953	
Satd. Flow (prot)	1706	3378	0	1825	3444	1633	0	1662	0	0	1813	1633
FIt Permitted	0.283			0.263							0.722	
Satd. Flow (perm)	508	3378	0	505	3444	1633	0	1662	0	0	1373	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				133		134				133
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	8%	0%	0%	6%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	78	1025	8	17	975	109	0	0	9	92	1	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	1033	0	17	975	109	0	9	0	0	93	58
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	Cl+Ex		CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			Cl+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Free		NA		Perm	NA	Free
Protected Phases		4			8			2			6	

4: Elizabeth Street/Concession Road 7 & Highway 89

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	65.0	65.0		65.0	65.0		25.0	25.0		25.0	25.0	
Total Split (%)	72.2%	72.2%		72.2%	72.2%		27.8%	27.8%		27.8%	27.8%	
Maximum Green (s)	58.0	58.0		58.0	58.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	67.8	67.8		67.8	67.8	88.6		11.1			11.3	88.6
Actuated g/C Ratio	0.77	0.77		0.77	0.77	1.00		0.13			0.13	1.00
v/c Ratio	0.20	0.40		0.04	0.37	0.07		0.03			0.53	0.04
Control Delay	6.7	5.7		5.1	5.5	0.1		0.1			46.9	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	6.7	5.7		5.1	5.5	0.1		0.1			46.9	0.0
LOS	Α	Α		Α	Α	Α		Α			D	Α
Approach Delay		5.8			4.9			0.1			28.9	
Approach LOS		Α			Α			Α			С	
Queue Length 50th (m)	3.8	32.2		0.7	29.5	0.0		0.0			15.7	0.0
Queue Length 95th (m)	11.2	51.8		3.1	47.5	0.0		m0.0			28.0	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	388	2584		386	2634	1633		445			279	1633
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.20	0.40		0.04	0.37	0.07		0.02			0.33	0.04

Intersection LOS: A

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 88.6

Natural Cycle: 55

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 6.8

Intersection Capacity Utilization 60.4% ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

	-	•	•	←	•	/
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† 1>			414	**	
Traffic Volume (veh/h)	1044	4	5	1091	0	13
Future Volume (Veh/h)	1044	4	5	1091	0	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	1076	4	5	1125	0	13
Pedestrians					3	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	249					
pX, platoon unblocked			0.90		0.90	0.90
vC, conflicting volume			1083		1654	543
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			867		1502	266
tC, single (s)			4.1		6.8	7.5
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.6
p0 queue free %			99		100	98
cM capacity (veh/h)			704		102	586
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	717	363	380	750	13	
Volume Left	0	0	5	0	0	
Volume Right	0	4	0	0	13	
cSH	1700	1700	704	1700	586	
Volume to Capacity	0.42	0.21	0.01	0.44	0.02	
Queue Length 95th (m)	0.0	0.0	0.2	0.0	0.5	
Control Delay (s)	0.0	0.0	0.2	0.0	11.3	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		11.3	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliza	ation		43.6%	IC	U Level o	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ }		ሻ	∱ }		ሻ	ર્ન	7	ሻ	1	7
Traffic Volume (vph)	47	782	276	239	681	26	370	39	175	23	47	70
Future Volume (vph)	47	782	276	239	681	26	370	39	175	23	47	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.961			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.961		0.950		
Satd. Flow (prot)	1825	3284	0	1825	3557	0	1534	1579	1617	1722	1921	1601
Flt Permitted	0.372			0.135			0.725	0.734		0.506		
Satd. Flow (perm)	714	3284	0	259	3557	0	1168	1203	1588	913	1921	1577
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		54			6				182			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	1		8	8		1	3		6	6		3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	17%	0%	2%	0%	13%	3%	1%	6%	0%	2%
Adj. Flow (vph)	49	815	288	249	709	27	385	41	182	24	49	73
Shared Lane Traffic (%)							45%					
Lane Group Flow (vph)	49	1103	0	249	736	0	212	214	182	24	49	73
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	Cl+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	41.1	41.1		60.3	57.3		22.4	22.4	22.4	22.4	22.4	22.4
Actuated g/C Ratio	0.44	0.44		0.65	0.62		0.24	0.24	0.24	0.24	0.24	0.24
v/c Ratio	0.16	0.74		0.67	0.33		0.75	0.74	0.35	0.11	0.11	0.16
Control Delay	21.6	26.7		20.5	9.8		49.5	47.9	6.2	27.5	26.8	5.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	26.7		20.5	9.8		49.5	47.9	6.2	27.5	26.8	5.3
LOS	С	С		С	Α		D	D	Α	С	С	Α
Approach Delay		26.4			12.5			35.9			16.1	
Approach LOS		С			В			D			В	
Queue Length 50th (m)	5.1	79.9		16.9	31.2		36.8	37.0	0.0	3.3	6.8	0.0
Queue Length 95th (m)	15.6	#147.4		43.1	48.2		62.7	62.7	14.7	9.6	15.2	7.6
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	316	1485		507	2199		367	377	623	286	603	556
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	0.16	0.74		0.49	0.33		0.58	0.57	0.29	0.08	0.08	0.13

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 92.7

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 23.2

Intersection Capacity Utilization 78.2%

Intersection LOS: C

ICU Level of Service D

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ኘ	^	ሻ	7
Traffic Volume (vph)	527	76	189	645	141	204
Future Volume (vph)	527	76	189	645	141	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.1	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	100.0		1	1
Taper Length (m)		U	80.0		80.0	ı
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.93	0.30	1.00	0.90	1.00	0.850
FIt Protected	0.301		0.950		0.950	0.000
	3468	0	1668	3544	1713	949
Satd. Flow (prot)	3400	0	0.391	JJ44	0.950	949
Flt Permitted	2460	0		2544		040
Satd. Flow (perm)	3468	0	687	3544	1713	949
Right Turn on Red	07	Yes				Yes
Satd. Flow (RTOR)	27			22	22	210
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	12%	1%	3%	3%	1%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	543	78	195	665	145	210
Shared Lane Traffic (%)						
Lane Group Flow (vph)	621	0	195	665	145	210
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0	3 -		3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane	7.0			1.0	1.0	
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)	0.00	14	24	0.00	24	1.03
Number of Detectors	2	14	1	2	1	14
			I		I	
Detector Template	Thru		10.0	Thru	10.0	Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	J1 · L∧			O1 · LX		
	0.0			0.0		
Detector 2 Extend (s)	0.0			0.0		

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	р	m+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%	1	5.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	40.4		55.5	50.0	12.1	12.1
Actuated g/C Ratio	0.53		0.72	0.65	0.16	0.16
v/c Ratio	0.34		0.33	0.29	0.54	0.64
Control Delay	11.1		5.2	6.3	37.6	14.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	11.1		5.2	6.3	37.6	14.6
LOS	В		Α	Α	D	В
Approach Delay	11.1			6.1	24.0	
Approach LOS	В			Α	С	
Queue Length 50th (m)	23.6		6.9	18.5	19.6	0.0
Queue Length 95th (m)	39.9		14.8	29.5	36.2	19.4
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)		•	180.0		90.0	
Base Capacity (vph)	1840		625	2311	335	354
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	0.34		0.31	0.29	0.43	0.59

Area Type: Other

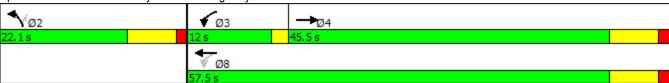
Cycle Length: 79.6
Actuated Cycle Length: 76.7
Natural Cycle: 70

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.64 Intersection Signal Delay: 11.2

Intersection Signal Delay: 11.2 Intersection LOS: B
Intersection Capacity Utilization 63.5% ICU Level of Service B

Analysis Period (min) 15

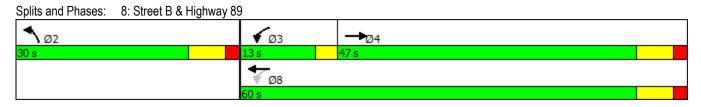
Splits and Phases: 1: County Road 50 & Highway 89



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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	∱ }		¥	
Traffic Volume (veh/h)	13	697	715	48	30	12
Future Volume (Veh/h)	13	697	715	48	30	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	758	777	52	33	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.92	
vC, conflicting volume	829				1210	414
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	829				1053	414
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				84	98
cM capacity (veh/h)	811				203	592
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	267	505	518	311	46	
Volume Left	14	0	0	0	33	
Volume Right	0	0	0	52	13	
cSH	811	1700	1700	1700	250	
Volume to Capacity	0.02	0.30	0.30	0.18	0.18	
Queue Length 95th (m)	0.4	0.0	0.0	0.0	5.0	
Control Delay (s)	0.7	0.0	0.0	0.0	22.7	
Lane LOS	Α				С	
Approach Delay (s)	0.2		0.0		22.7	
Approach LOS					С	
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utiliza	ition		38.5%	IC	U Level o	of Service
Analysis Period (min)	. ***		15	,,		22
raidly old i oliou (Illiii)			10			

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ሻ	^	W	
Traffic Volume (vph)	672	73	107	736	81	109
Future Volume (vph)	672	73	107	736	81	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	1300	0.0	15.0	1300	0.0	0.0
Storage Lanes		0.0	13.0		1	0.0
Taper Length (m)		U	60.0		2.5	U
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.95	0.30	1.00	0.33	0.923	1.00
FIt Protected	0.500		0.950		0.923	
	3525	0	1789	3579	1702	0
Satd. Flow (prot)	3323	U		3318		U
Fit Permitted	2505	0	0.290	2570	0.979	^
Satd. Flow (perm)	3525	0	546	3579	1702	0
Right Turn on Red	40	Yes			70	Yes
Satd. Flow (RTOR)	16			22	72	
Link Speed (k/h)	80			80	50	
Link Distance (m)	648.9			75.8	107.5	
Travel Time (s)	29.2			3.4	7.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	747	81	119	818	90	121
Shared Lane Traffic (%)						
Lane Group Flow (vph)	828	0	119	818	211	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	- 11
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
• ,	0.0		0.0	0.0	0.0	
Detector 1 Position(m)				1.8		
Detector 1 Size(m)	1.8		6.1		6.1	
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	
Detector 1 Channel	2.2				• •	
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	
Protected Phases	4		3	8	2	
Permitted Phases			8		_	
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Lane Group	EBT	EBR W	BL WE	T NBL	NBR
Detector Phase	4		3	8 2	
Switch Phase					
Minimum Initial (s)	5.0		5.0 5	.0 5.0	
Minimum Split (s)	25.0		9.5 25	.0 25.0	
Total Split (s)	47.0	1;	3.0 60	.0 30.0	
Total Split (%)	52.2%	14.4	1% 66.7	% 33.3%	
Maximum Green (s)	40.0	1	0.0 53	.0 23.0	
Yellow Time (s)	5.0	,	3.0 5	.0 5.0	
All-Red Time (s)	2.0		0.0 2	.0 2.0	
Lost Time Adjust (s)	0.0		0.0	.0 0.0	
Total Lost Time (s)	7.0	,	3.0 7	.0 7.0	
Lead/Lag	Lag	Le	ad		
Lead-Lag Optimize?	Yes		es		
Vehicle Extension (s)	3.0	,	3.0 3	.0 3.0	
Recall Mode	Max	No			
Walk Time (s)	7.0			.0 7.0	
Flash Dont Walk (s)	11.0		11		
Pedestrian Calls (#/hr)	0			0 0	
Act Effct Green (s)	46.1	5	3.6 54	.6 12.1	
Actuated g/C Ratio	0.57	0	73 0.6	8 0.15	
v/c Ratio	0.41	0	23 0.3	34 0.67	
Control Delay	11.7		5.1 6	.5 31.2	
Queue Delay	0.0			.0 0.0	
Total Delay	11.7		5.1 6	.5 31.2	
LOS	В		Α	A C	
Approach Delay	11.7		6	.3 31.2	
Approach LOS	В			A C	
Queue Length 50th (m)	35.2		1.3 23		
Queue Length 95th (m)	60.7	1	1.4 41		
Internal Link Dist (m)	624.9		51	.8 83.5	
Turn Bay Length (m)		1:	5.0		
Base Capacity (vph)	2020		50 242	20 537	
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	0.41	0	22 0.3	34 0.39	
Intersection Summary					
Area Type:	Other				
Cycle Length: 90	Otriei				
Actuated Cycle Length: 80	0.7				
Natural Cycle: 60	0.1				
Control Type: Semi Act-U	ncoord				
Maximum v/c Ratio: 0.67	TICOULU				
Intersection Signal Delay:	11.0			Intersection	on LOS: B
Intersection Capacity Utiliz	zation 53.0%			ICU Leve	of Service A



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Ť	∱ 1≽		*	∱ }			4			4	
Traffic Volume (vph)	38	725	21	180	760	145	98	12	208	115	29	40
Future Volume (vph)	38	725	21	180	760	145	98	12	208	115	29	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.976			0.912			0.971	
Flt Protected	0.950			0.950				0.985			0.970	
Satd. Flow (prot)	1825	3566	0	1789	3475	0	0	1726	0	0	1798	0
FIt Permitted	0.281			0.249				0.841			0.545	
Satd. Flow (perm)	540	3566	0	469	3475	0	0	1473	0	0	1010	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			29			113			17	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		312.3			133.1			226.7			107.2	
Travel Time (s)		18.7			8.0			13.6			7.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	0%	2%	3%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	40	763	22	189	800	153	103	13	219	121	31	42
Shared Lane Traffic (%)								. •			<u> </u>	· <u>-</u>
Lane Group Flow (vph)	40	785	0	189	953	0	0	335	0	0	194	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	20.0	3.7	ı uğını	20.0	3.7	. ugiit	20.0	0.0	ı uğılı	20.0	0.0	. ugiit
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	OI · LX	OI · LX		OI LX	OI · LX		OI LX	OI · LX		OI LX	OI · LX	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	28.7		0.0	28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			CI+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel		CITEX			CITEX			CITEX			CITEX	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
` '	nmint	NA		nmint			Dorm			Dorm		
Turn Type	pm+pt			pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	

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3: Concession	Road	7/Dean	Drive &	Highway 89

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	25.0		9.5	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	10.0	36.0		17.0	43.0		37.0	37.0		37.0	37.0	
Total Split (%)	11.1%	40.0%		18.9%	47.8%		41.1%	41.1%		41.1%	41.1%	
Maximum Green (s)	5.5	29.0		12.5	36.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	3.5	5.0		3.5	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	2.0		1.0	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)	4.5	7.0		4.5	7.0			7.0			7.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	Max		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	38.7	30.5		46.5	38.6			17.7			17.7	
Actuated g/C Ratio	0.51	0.40		0.61	0.51			0.23			0.23	
v/c Ratio	0.11	0.55		0.43	0.54			0.78			0.78	
Control Delay	9.1	20.9		10.8	16.1			31.0			46.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	9.1	20.9		10.8	16.1			31.0			46.7	
LOS	Α	С		В	В			С			D	
Approach Delay		20.3			15.2			31.0			46.7	
Approach LOS		С			В			С			D	
Queue Length 50th (m)	2.0	43.7		10.4	50.5			31.0			24.7	
Queue Length 95th (m)	7.3	79.7		26.3	87.0			58.4			47.0	
Internal Link Dist (m)		288.3			109.1			202.7			83.2	
Turn Bay Length (m)	100.0			70.0								
Base Capacity (vph)	368	1432		507	1778			657			414	
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	0.11	0.55		0.37	0.54			0.51			0.47	
Intersection Summary												
Aroa Typo:	Othor											

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 76.1

Natural Cycle: 60

Control Type: Semi Act-Uncoord

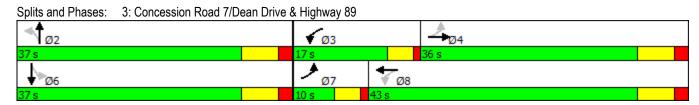
Maximum v/c Ratio: 0.78

Intersection Signal Delay: 21.5
Intersection Capacity Utilization 65.7%

Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service C



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	N/			4	7	
Traffic Volume (veh/h)	192	21	18	124	117	112
Future Volume (Veh/h)	192	21	18	124	117	112
Sign Control	Stop	Z 1	10	Free	Free	112
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	213	23	20	138	130	124
Pedestrians	213	23	20	130	130	124
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)				N	NI.	
Median type				None	None	
Median storage veh)						
Upstream signal (m)					227	
pX, platoon unblocked	0.98	0.98	0.98			
vC, conflicting volume	370	192	254			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	344	162	226			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	66	97	98			
cM capacity (veh/h)	628	863	1313			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	236	158	254			
Volume Left	213	20	0			
Volume Right	23	0	124			
cSH	645	1313	1700			
Volume to Capacity	0.37	0.02	0.15			
Queue Length 95th (m)	12.7	0.4	0.0			
Control Delay (s)	13.8	1.1	0.0			
Lane LOS	В	A	0.0			
Approach Delay (s)	13.8	1.1	0.0			
Approach LOS	13.0 B	1.1	0.0			
	Ь					
Intersection Summary						
Average Delay			5.3			
Intersection Capacity Utilization	on		40.3%	IC	CU Level c	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	∱ }		*	^	7		4			4	7
Traffic Volume (vph)	69	1027	5	23	1046	138	1	5	9	134	4	58
Future Volume (vph)	69	1027	5	23	1046	138	1	5	9	134	4	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt		0.999				0.850		0.919				0.850
Flt Protected	0.950			0.950				0.997			0.954	
Satd. Flow (prot)	1789	3575	0	1825	3579	1601	0	1760	0	0	1781	1555
Flt Permitted	0.231			0.236				0.978			0.721	
Satd. Flow (perm)	435	3575	0	453	3579	1601	0	1727	0	0	1346	1555
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				142		9				133
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	0%	0%	2%	2%	0%	0%	0%	3%	0%	5%
Adj. Flow (vph)	73	1081	5	24	1101	145	1	5	9	141	4	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	73	1086	0	24	1101	145	0	15	0	0	145	61
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	Cl+Ex		Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Free	Perm	NA		Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	63.0	63.0		63.0	63.0		27.0	27.0		27.0	27.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	56.0	56.0		56.0	56.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	60.4	60.4		60.4	60.4	88.9		14.5			14.5	88.9
Actuated g/C Ratio	0.68	0.68		0.68	0.68	1.00		0.16			0.16	1.00
v/c Ratio	0.25	0.45		80.0	0.45	0.09		0.05			0.66	0.04
Control Delay	9.4	7.8		6.9	7.9	0.1		18.6			48.6	0.1
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	9.4	7.8		6.9	7.9	0.1		18.6			48.6	0.1
LOS	Α	Α		Α	Α	Α		В			D	Α
Approach Delay		7.9			7.0			18.6			34.2	
Approach LOS		Α			Α			В			С	
Queue Length 50th (m)	4.1	38.4		1.2	39.3	0.0		0.8			22.0	0.0
Queue Length 95th (m)	13.0	62.4		4.8	63.6	0.0		m5.3			40.1	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	295	2429		307	2431	1601		396			303	1555
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.25	0.45		0.08	0.45	0.09		0.04			0.48	0.04
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 88.	9											
Natural Cycle: 60												
Control Type: Semi Act-Und	coord											
Maximum v/c Ratio: 0.66												

Intersection LOS: A

ICU Level of Service C

2026 Future Total - SAT: Add'l Signals 06/10/2017 Baseline MNF

Intersection Signal Delay: 9.6

Intersection Capacity Utilization 64.9%

Synchro 9 Light Report Page 2

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Elizabeth Street/Concession Road 7 & Highway 89



	-	\rightarrow	•	←	•	/
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† ‡			414	W	
Traffic Volume (veh/h)	1192	3	5	1203	0	8
Future Volume (Veh/h)	1192	3	5	1203	0	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1268	3	5	1280	0	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	249					
pX, platoon unblocked			0.86		0.86	0.86
vC, conflicting volume			1271		1920	636
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			981		1738	238
tC, single (s)			4.1		6.8	7.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			99		100	99
cM capacity (veh/h)			610		68	616
Direction, Lane#	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	845	426	432	853	9	
Volume Left	0	0	5	0	0	
Volume Right	0	3	0	0	9	
cSH	1700	1700	610	1700	616	
Volume to Capacity	0.50	0.25	0.01	0.50	0.01	
Queue Length 95th (m)	0.0	0.0	0.2	0.0	0.3	
Control Delay (s)	0.0	0.0	0.2	0.0	10.9	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		10.9	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliza	ation		46.7%	IC	U Level o	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ 1≽		ሻ	† }		ሻ	ર્ન	7	ሻ	1	7
Traffic Volume (vph)	125	911	163	389	882	30	223	48	224	44	106	86
Future Volume (vph)	125	911	163	389	882	30	223	48	224	44	106	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.977			0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.968		0.950		
Satd. Flow (prot)	1807	3523	0	1825	3594	0	1683	1733	1617	1772	1921	1633
Flt Permitted	0.292			0.103			0.684	0.735		0.628		
Satd. Flow (perm)	555	3523	0	198	3594	0	1208	1313	1593	1168	1921	1607
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			6				241			92
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	3		1	1		3	4		3	3		4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	0%	6%	0%	1%	0%	3%	0%	1%	3%	0%	0%
Adj. Flow (vph)	134	980	175	418	948	32	240	52	241	47	114	92
Shared Lane Traffic (%)							41%					
Lane Group Flow (vph)	134	1155	0	418	980	0	142	150	241	47	114	92
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	Cl+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR W	'BL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	pm	+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0	1	2.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0	2	4.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%	24.	2% 6	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0	2	0.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Le	ead								
Lead-Lag Optimize?	Yes	Yes	Y	'es								
Vehicle Extension (s)	3.0	3.0		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max	No	ne	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	35.0	35.0		0.3	57.3		17.3	17.3	17.3	17.3	17.3	17.3
Actuated g/C Ratio	0.40	0.40	0	.69	0.65		0.20	0.20	0.20	0.20	0.20	0.20
v/c Ratio	0.61	0.81	0	.88	0.42		0.60	0.58	0.48	0.20	0.30	0.24
Control Delay	38.5	30.5	4	2.5	8.6		42.3	40.8	7.2	30.5	31.3	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	30.5	4	2.5	8.6		42.3	40.8	7.2	30.5	31.3	7.8
LOS	D	С		D	Α		D	D	Α	С	С	Α
Approach Delay		31.4			18.7			26.0			22.6	
Approach LOS		С			В			С			С	
Queue Length 50th (m)	18.0	90.1	4	8.4	36.0		22.9	24.1	0.0	6.6	16.4	0.0
Queue Length 95th (m)	#51.3	#151.9	#11	4.6	64.7		41.5	43.0	16.9	15.4	30.0	10.9
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0		9	5.0			25.0			15.0		10.0
Base Capacity (vph)	221	1419	Ę	509	2352		401	436	690	388	638	595
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	0.61	0.81	0	.82	0.42		0.35	0.34	0.35	0.12	0.18	0.15

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 87.6

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 24.8

Intersection Capacity Utilization 81.2%

Intersection LOS: C
ICU Level of Service D

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ሻ	^	ሻ	7
Traffic Volume (vph)	488	183	310	361	70	160
Future Volume (vph)	488	183	310	361	70	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	J.1	0.0	180.0	3.1	90.0	0.0
		0.0				1
Storage Lanes		U	1		1	ı
Taper Length (m)	0.05	0.05	80.0	0.05	80.0	4.00
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.959					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	2999	0	1620	3093	1471	1426
FIt Permitted			0.331		0.950	
Satd. Flow (perm)	2999	0	564	3093	1471	1426
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	93					176
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	17%	16%	4%	18%	20%	12%
	536	201	341	397	77	176
Adj. Flow (vph)	550	201	J 4 I	391	11	170
Shared Lane Traffic (%)	727	٥	244	207	77	176
Lane Group Flow (vph)	737	0	341	397	77	176
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.01
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
rum rype	INA		ριτι⊤μι	INA	riot	r CIIII

	-	•	•	•	1	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	39.0		55.5	50.0	10.8	10.8
Actuated g/C Ratio	0.52		0.74	0.66	0.14	0.14
v/c Ratio	0.46		0.63	0.19	0.36	0.50
Control Delay	11.4		9.1	5.3	34.5	10.4
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	11.4		9.1	5.3	34.5	10.4
LOS	В		Α	Α	С	В
Approach Delay	11.4			7.1	17.7	
Approach LOS	В			Α	В	
Queue Length 50th (m)	27.8		11.9	9.4	10.1	0.0
Queue Length 95th (m)	45.3		24.5	16.5	21.9	15.6
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)			180.0		90.0	
Base Capacity (vph)	1595		555	2050	292	424
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	0.46		0.61	0.19	0.26	0.42
Intersection Summary						

Area Type: Other

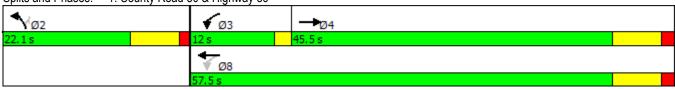
Cycle Length: 79.6 Actuated Cycle Length: 75.4 Natural Cycle: 70

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.63

Intersection Signal Delay: 10.5 Intersection LOS: B
Intersection Capacity Utilization 70.2% ICU Level of Service C

Analysis Period (min) 15

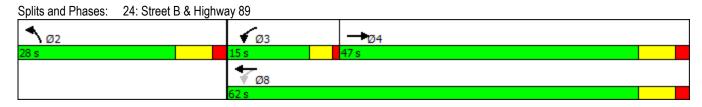
Splits and Phases: 1: County Road 50 & Highway 89



	•	→	+	•	\	✓
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41₽	∱ }		N/	
Traffic Volume (veh/h)	14	613	621	18	40	64
Future Volume (Veh/h)	14	613	621	18	40	64
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	16	681	690	20	44	71
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)		110110				
Upstream signal (m)		200				
pX, platoon unblocked		200			0.94	
vC, conflicting volume	710				1072	355
vC1, stage 1 conf vol	710				1012	000
vC2, stage 2 conf vol						
vCu, unblocked vol	710				956	355
tC, single (s)	4.3				6.8	6.9
	4.3				0.0	0.9
tC, 2 stage (s)	2.3				3.5	3.3
tF (s)	2.3 98				3.5 82	
p0 queue free %						89
cM capacity (veh/h)	828				240	647
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	243	454	460	250	115	
Volume Left	16	0	0	0	44	
Volume Right	0	0	0	20	71	
cSH	828	1700	1700	1700	393	
Volume to Capacity	0.02	0.27	0.27	0.15	0.29	
Queue Length 95th (m)	0.4	0.0	0.0	0.0	9.1	
Control Delay (s)	0.8	0.0	0.0	0.0	17.9	
Lane LOS	Α				С	
Approach Delay (s)	0.3		0.0		17.9	
Approach LOS					С	
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utiliza	ntion		39.8%	IC	U Level o	f Service
Analysis Period (min)			15	.0		
analysis i shou (iiiii)			10			

	→	\rightarrow	•	•	•	/
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†		ኘ	^	W	.,,,,,,,
Traffic Volume (vph)	644	142	137	540	14	34
Future Volume (vph)	644	142	137	540	14	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	1300	0.0	15.0	1300	0.0	0.0
Storage Lanes		0.0	13.0		1	0.0
		U	60.0		2.5	U
Taper Length (m) Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
	0.95	0.95	1.00	0.95		1.00
Frt	0.973		0.050		0.905	
Fit Protected	2400	^	0.950	2570	0.985	^
Satd. Flow (prot)	3482	0	1789	3579	1679	0
Flt Permitted	0.100		0.281	0	0.985	
Satd. Flow (perm)	3482	0	529	3579	1679	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	38				38	
Link Speed (k/h)	80			80	50	
Link Distance (m)	649.1			73.4	107.5	
Travel Time (s)	29.2			3.3	7.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	716	158	152	600	16	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	874	0	152	600	54	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7	ragin	LOIL	3.7	3.7	ragni
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
` ,	1.0			1.0	1.0	
Two way Left Turn Lane	0.00	0.00	0.00	0.00	0.00	0.00
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	_	14	24		24	14
Number of Detectors	2		1	2	1	
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	Cl+Ex		Cl+Ex	CI+Ex	CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7		0.0	28.7	0.0	
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type						
	CI+Ex			CI+Ex		
Detector 2 Channel	0.0			0.0		
Detector 2 Extend (s)	0.0			0.0	5 .	
Turn Type	NA		pm+pt	NA	Prot	
Protected Phases	4		3	8	2	
Permitted Phases			8			

	→	•	•	←	•	/		
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR		
Detector Phase	4		3	8	2			
Switch Phase	•			-	_			
Minimum Initial (s)	5.0		5.0	5.0	5.0			
Minimum Split (s)	25.0		9.5	25.0	25.0			
Total Split (s)	47.0		15.0	62.0	28.0			
Total Split (%)	52.2%		16.7%	68.9%	31.1%			
Maximum Green (s)	40.0		11.0	55.0	21.0			
Yellow Time (s)	5.0		3.0	5.0	5.0			
All-Red Time (s)	2.0		1.0	2.0	2.0			
Lost Time Adjust (s)	0.0		0.0	0.0	0.0			
Total Lost Time (s)	7.0		4.0	7.0	7.0			
Lead/Lag	Lag		Lead					
Lead-Lag Optimize?	Yes		Yes					
Vehicle Extension (s)	3.0		3.0	3.0	3.0			
Recall Mode	Max		None	Max	None			
Walk Time (s)	7.0			7.0	7.0			
Flash Dont Walk (s)	11.0			11.0	11.0			
Pedestrian Calls (#/hr)	0			0	0			
Act Effct Green (s)	48.3		62.2	62.1	6.6			
Actuated g/C Ratio	0.65		0.83	0.83	0.09			
v/c Ratio	0.39		0.27	0.20	0.29			
Control Delay	7.9		3.3	2.8	20.0			
Queue Delay	0.0		0.0	0.0	0.0			
Total Delay	7.9		3.3	2.8	20.0			
LOS	A		A	A	C			
Approach Delay	7.9			2.9	20.0			
Approach LOS	A			A	C			
Queue Length 50th (m)	31.0		3.9	11.3	2.2			
Queue Length 95th (m)	49.6		9.0	18.9	11.8			
Internal Link Dist (m)	625.1		3.0	49.4	83.5			
Turn Bay Length (m)	520.1		15.0	.0. 1	30.0			
Base Capacity (vph)	2267		626	2977	500			
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	0.39		0.24	0.20	0.11			
	0.00		0.2.	0.20	0			
Intersection Summary								
Area Type:	Other							
Cycle Length: 90								
Actuated Cycle Length: 74	4.7							
Natural Cycle: 60								
Control Type: Semi Act-U	ncoord							
Maximum v/c Ratio: 0.39								
Intersection Signal Delay:			Intersection LOS: A					
Intersection Capacity Utili			IC	CU Level o	of Service A			



Lane Configurations		۶	→	•	•	+	•	•	†	~	/	↓	✓
Traffic Volume (vph)	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	Lane Configurations	7	∱ 1≽		ሻ	∱ Ъ			4			4	
Future Volume (vph)				34			80	11		55	74		31
Ideal Flow (rephip)		31	584	34	52	470	80	11	10	55	74	9	31
Storage Langth (m) 100.0 0.0 70.0 0.0	` ' '	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Lanes				0.0	70.0		0.0	0.0		0.0	0.0		0.0
Taper Length (m)	• • • · · ·	1		0	1		0	0		0	0		
Lane Util. Factor		100.0			100.0						7.6		
File Protected 0.950		1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot) 1825 3158 0 1772 3164 0 0 1721 0 0 1745 0	Frt		0.992			0.978			0.902			0.963	
Fit Permitted 0.426 0.396 0.944 0.773 Satt. Flow (perm) 818 3158 0 739 3164 0 0 1636 0 0 1392 0 Neght Turn on Red Yes	Flt Protected	0.950			0.950				0.993			0.969	
Satd. Flow (perm) 818 3158 7es 7	Satd. Flow (prot)	1825	3158	0	1772	3164	0	0	1721	0	0	1745	0
Night Turn on Red Yes Ye	FIt Permitted	0.426			0.396				0.944			0.773	
Satd. Flow (RTOR)	Satd. Flow (perm)	818	3158	0	739	3164	0	0	1636	0	0	1392	0
Satid. Flow (RTOR)				Yes			Yes			Yes			Yes
Link Speed (k/h)			13			42			60			19	
Link Distance (m)			60			60			60			50	
Peak Hour Factor 0.92 0.93 0.	. ,					133.1						107.2	
Peak Hour Factor 0.92 0.93 0.	. ,		18.9			8.0			13.1			7.7	
Adj. Flow (vph) 34 635 37 57 511 87 12 11 60 80 10 34 Shared Lane Traffic (%) Lane Group Flow (vph) 34 672 0 57 598 0 0 83 0 0 124 0 Enter Blocked Intersection No		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) 34 635 37 57 511 87 12 11 60 80 10 34 Shared Lane Traffic (%) Lane Group Flow (vph) 34 672 0 57 598 0 0 83 0 0 124 0 Enter Blocked Intersection No	Heavy Vehicles (%)	0%	15%	9%	3%	14%	6%	0%	0%	0%	0%	0%	10%
Shared Lane Traffic (%) Lane Group Flow (vph) 34 672 0 57 598 0 0 83 0 0 124 0 0 0 0 0 0 0 0 0	•	34	635	37	57	511	87	12	11	60		10	
Lane Group Flow (vph) 34 672 0 57 598 0 0 83 0 0 124 0													
Enter Blocked Intersection No No No No No No No		34	672	0	57	598	0	0	83	0	0	124	0
Median Width(m) 3.7 3.7 0.0 0.0 Link Offset(m) 0.0 0.0 0.0 0.0 Crosswalk Width(m) 4.9 4.9 4.9 4.9 Two way Left Turn Lane Headway Factor 0.99 0		No	No	No	No	No	No	No	No	No	No	No	No
Median Width(m) 3.7 3.7 0.0 0.0 Link Offset(m) 0.0 0.0 0.0 0.0 Crosswalk Width(m) 4.9 4.9 4.9 4.9 Two way Left Turn Lane Headway Factor 0.99 0	Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Link Offset(m) 0.0 0.0 0.0 0.0 Crosswalk Width(m) 4.9 4.9 4.9 4.9 Two way Left Turn Lane Headway Factor 0.99			3.7	, i		3.7			0.0			0.0	
Crosswalk Width(m) 4.9 4.9 4.9 4.9 4.9 Two way Left Turn Lane Headway Factor 0.99			0.0			0.0			0.0			0.0	
Headway Factor 0.99	Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Turning Speed (k/h) 24 14 14 24 14 14 24 14 14 24 14 14 14 24 14 14 14 14 14 14 14 14 24 14 14 14 14 14 14 14 14 14 14 14 14 14	Two way Left Turn Lane												
Number of Detectors 1 2 1	Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Number of Detectors 1 2 1	Turning Speed (k/h)	24		14	24		14	24		14	24		14
Leading Detector (m) 6.1 30.5 6.1 30.5 6.1 30.5 6.1 30.5 Trailing Detector (m) 0.0		1	2		1	2		1	2		1	2	
Trailing Detector (m) 0.0	Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Trailing Detector (m) 0.0	Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Detector 1 Size(m) 6.1 1.8 6.1 1.8 6.1 1.8 Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex Detector 1 Channel Detector 1 Extend (s) 0.0	Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Type CI+Ex	Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Channel Detector 1 Extend (s) 0.0 <	Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Extend (s) 0.0	Detector 1 Type	CI+Ex	Cl+Ex		CI+Ex	Cl+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Queue (s) 0.0 Turn Type Perm NA Perm NA Perm NA Perm NA	Detector 1 Channel												
Detector 1 Delay (s) 0.0 Turn Type Perm NA Perm NA Perm NA Perm NA	Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m) 28.7 28.7 28.7 28.7 Detector 2 Size(m) 1.8 1.8 1.8 1.8 Detector 2 Type CI+Ex CI+Ex CI+Ex CI+Ex Detector 2 Channel Detector 2 Extend (s) 0.0 0.0 0.0 0.0 Turn Type Perm NA Perm NA Perm NA	Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m) 28.7 28.7 28.7 28.7 Detector 2 Size(m) 1.8 1.8 1.8 1.8 Detector 2 Type Cl+Ex Cl+Ex Cl+Ex Cl+Ex Detector 2 Channel Detector 2 Extend (s) 0.0 0.0 0.0 0.0 Turn Type Perm NA Perm NA Perm NA	Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Type CI+Ex CI+Ex CI+Ex Detector 2 Channel 0.0 0.0 0.0 Detector 2 Extend (s) 0.0 0.0 0.0 Turn Type Perm NA Perm NA Perm NA	Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Type CI+Ex CI+Ex CI+Ex Detector 2 Channel 0.0 0.0 0.0 Detector 2 Extend (s) 0.0 0.0 0.0 Turn Type Perm NA Perm NA Perm NA			1.8			1.8			1.8			1.8	
Detector 2 Channel 0.0													
Detector 2 Extend (s) 0.0 0.0 0.0 0.0 Turn Type Perm NA Perm NA Perm NA													
Turn Type Perm NA Perm NA Perm NA Perm NA			0.0			0.0			0.0			0.0	
	. ,	Perm			Perm			Perm			Perm		
Protected Phases 4 8 2 6	Protected Phases		4			8			2			6	

	٠	→	•	•	+	•	•	†	~	/	↓	√
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	64.0	64.0		64.0	64.0		26.0	26.0		26.0	26.0	
Total Split (%)	71.1%	71.1%		71.1%	71.1%		28.9%	28.9%		28.9%	28.9%	
Maximum Green (s)	57.0	57.0		57.0	57.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	60.3	60.3		60.3	60.3			12.0			12.0	
Actuated g/C Ratio	0.70	0.70		0.70	0.70			0.14			0.14	
v/c Ratio	0.06	0.30		0.11	0.27			0.30			0.59	
Control Delay	5.5	5.8		6.0	5.3			15.5			39.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	5.5	5.8		6.0	5.3			15.5			39.9	
LOS	Α	Α		Α	Α			В			D	
Approach Delay		5.8			5.4			15.5			39.9	
Approach LOS		Α			Α			В			D	
Queue Length 50th (m)	1.5	18.2		2.6	14.7			3.2			15.6	
Queue Length 95th (m)	5.3	32.8		8.0	27.4			14.6			31.9	
Internal Link Dist (m)		290.7			109.1			194.7			83.2	
Turn Bay Length (m)	100.0			70.0								
Base Capacity (vph)	570	2208		516	2221			407			322	
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	0.06	0.30		0.11	0.27			0.20			0.39	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 86	.3											
Natural Cycle: 50												
Control Type: Semi Act-Un	ncoord											
Maximum v/c Ratio: 0.59												
Intersection Signal Delay: 8	8.8			lr	ntersection	LOS: A						
Intersection Capacity Utiliz	ation 52.0%			IC	CU Level o	of Service	Α					
Analysis Period (min) 15												

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			4	î»	
Traffic Volume (veh/h)	51	6	22	68	88	143
Future Volume (Veh/h)	51	6	22	68	88	143
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	57	7	24	76	98	159
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				110110	110110	
Upstream signal (m)					219	
pX, platoon unblocked					213	
vC, conflicting volume	302	178	257			
vC1, stage 1 conf vol	302	170	201			
vC2, stage 2 conf vol						
vCu, unblocked vol	302	178	257			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	0.4	0.2	4.1			
	3.5	3.3	2.2			
tF (s) p0 queue free %	92	99	98			
	677	866	1308			
cM capacity (veh/h)						
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	64	100	257			
Volume Left	57	24	0			
Volume Right	7	0	159			
cSH	694	1308	1700			
Volume to Capacity	0.09	0.02	0.15			
Queue Length 95th (m)	2.3	0.4	0.0			
Control Delay (s)	10.7	2.0	0.0			
Lane LOS	В	Α				
Approach Delay (s)	10.7	2.0	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			2.1			
Intersection Capacity Util	ization		31.5%	IC	U Level c	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	∱ }		7	^	7		4			4	7
Traffic Volume (vph)	42	741	1	9	790	74	0	1	1	56	3	53
Future Volume (vph)	42	741	1	9	790	74	0	1	1	56	3	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt						0.850		0.932				0.850
Flt Protected	0.950			0.950							0.955	
Satd. Flow (prot)	1644	3259	0	1372	3230	1570	0	1790	0	0	1751	1396
FIt Permitted	0.339			0.356							0.735	
Satd. Flow (perm)	587	3259	0	513	3230	1570	0	1790	0	0	1348	1396
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						133		1				133
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Confl. Peds. (#/hr)			4	4								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	11%	12%	0%	33%	13%	4%	0%	0%	0%	5%	0%	17%
Adj. Flow (vph)	44	780	1	9	832	78	0	1	1	59	3	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	781	0	9	832	78	0	2	0	0	62	56
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	Cl+Ex		Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			Cl+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Free		NA		Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	58.0	58.0		58.0	58.0		32.0	32.0		32.0	32.0	
Total Split (%)	64.4%	64.4%		64.4%	64.4%		35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	51.0	51.0		51.0	51.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	66.0	66.0		66.0	66.0	80.2		8.6			9.0	80.2
Actuated g/C Ratio	0.82	0.82		0.82	0.82	1.00		0.11			0.11	1.00
v/c Ratio	0.09	0.29		0.02	0.31	0.05		0.01			0.41	0.04
Control Delay	4.5	3.9		4.3	4.0	0.1		27.0			41.6	0.1
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	4.5	3.9		4.3	4.0	0.1		27.0			41.6	0.1
LOS	Α	Α		Α	Α	Α		С			D	Α
Approach Delay		3.9			3.7			27.0			21.9	
Approach LOS		Α			Α			С			С	
Queue Length 50th (m)	1.7	19.7		0.3	21.5	0.0		0.1			10.2	0.0
Queue Length 95th (m)	5.5	32.1		1.8	34.8	0.0		m1.7			19.2	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	483	2684		422	2660	1570		562			423	1396
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.09	0.29		0.02	0.31	0.05		0.00			0.15	0.04

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 80.2

Natural Cycle: 50

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.41 Intersection Signal Delay: 4.9

Intersection Capacity Utilization 53.4%

Intersection LOS: A

ICU Level of Service A

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Elizabeth Street/Concession Road 7 & Highway 89



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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† ‡			414	W	
Traffic Volume (veh/h)	816	1	3	892	0	16
Future Volume (Veh/h)	816	1	3	892	0	16
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	877	1	3	959	0	17
Pedestrians	• • • • • • • • • • • • • • • • • • • •	•			•	
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)	110110			140110		
Upstream signal (m)	249					
pX, platoon unblocked	2-10		0.96		0.96	0.96
vC, conflicting volume			878		1363	439
vC1, stage 1 conf vol			0/0		1000	400
vC2, stage 2 conf vol						
vCu, unblocked vol			778		1286	319
tC, single (s)			4.1		6.8	7.1
tC, 2 stage (s)			7.1		0.0	7.1
tF (s)			2.2		3.5	3.4
p0 queue free %			100		100	97
cM capacity (veh/h)			809		151	627
						021
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	585	293	323	639	17	
Volume Left	0	0	3	0	0	
Volume Right	0	1	0	0	17	
cSH	1700	1700	809	1700	627	
Volume to Capacity	0.34	0.17	0.00	0.38	0.03	
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.6	
Control Delay (s)	0.0	0.0	0.1	0.0	10.9	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.0		10.9	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliz	ation		36.7%	IC	U Level c	f Service
Analysis Period (min)			15	,,		. 3030
raidy old i oliou (Illii)			10			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	ħβ		ች	† }		ሻ	4	7	*	^	7
Traffic Volume (vph)	38	661	186	272	679	10	197	26	104	10	36	21
Future Volume (vph)	38	661	186	272	679	10	197	26	104	10	36	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		-
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.967	0.00		0.998				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.963		0.950		
Satd. Flow (prot)	1825	3169	0	1807	3465	0	1387	1474	1617	1825	1779	1633
FIt Permitted	0.370			0.221			0.732	0.750		0.675		
Satd. Flow (perm)	711	3169	0	420	3465	0	1069	1148	1617	1297	1779	1633
Right Turn on Red		0.00	Yes	0	0.00	Yes			Yes			Yes
Satd. Flow (RTOR)		39	100		2	100			112			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	5%	34%	1%	5%	14%	25%	0%	1%	0%	8%	0%
Adj. Flow (vph)	41	711	200	292	730	11	212	28	112	11	39	23
Shared Lane Traffic (%)	71	, , , ,	200	202	700	- ''	44%	20	112		00	20
Lane Group Flow (vph)	41	911	0	292	741	0	119	121	112	11	39	23
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	Loit	3.7	rugiit	Loit	3.7	rugiit	Loit	3.7	rugiit	Loit	3.7	rugiit
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		7.0			7.0			4.0			4.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	0	2	17	1	2	17	1	1	1	1	1	0
Detector Template	U	Thru			Thru		'			ı	·	U
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		Cl+Ex	Cl+Ex		CI+Ex	CI+Ex	CI+Ex	Cl+Ex	Cl+Ex	CI+Ex
Detector 1 Channel	OIILX	OIILX		OIILX	OITEX		OIILX	OITEX	OIILX	OITEX	OIILX	OIILX
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Size(m)		1.8			1.8							
		Cl+Ex			Cl+Ex							
Detector 2 Type Detector 2 Channel		OI+ĽX			OI+EX							
		0.0			0.0							
Detector 2 Extend (s)	Dorm			nm · nt			Dorm	NΙΛ	Dorm	Dorm	NΙΛ	Dorm
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%	2	24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	41.2	41.2		60.2	57.2		16.1	16.1	16.1	16.1	16.1	16.1
Actuated g/C Ratio	0.48	0.48		0.70	0.66		0.19	0.19	0.19	0.19	0.19	0.19
v/c Ratio	0.12	0.59		0.60	0.32		0.60	0.57	0.29	0.05	0.12	0.06
Control Delay	18.1	19.9		11.2	7.3		44.7	42.3	7.8	27.8	28.9	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	19.9		11.2	7.3		44.7	42.3	7.8	27.8	28.9	0.3
LOS	В	В		В	Α		D	D	Α	С	С	Α
Approach Delay		19.8			8.4			32.1			19.8	
Approach LOS		В			Α			С			В	
Queue Length 50th (m)	3.4	50.2		14.5	23.6		19.0	19.2	0.0	1.5	5.4	0.0
Queue Length 95th (m)	12.8	99.1		32.9	43.4		36.5	36.5	12.1	5.7	13.1	0.0
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	339	1534		615	2296		360	386	619	437	599	608
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	0.12	0.59		0.47	0.32		0.33	0.31	0.18	0.03	0.07	0.04

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 86.3

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 16.7

Intersection Capacity Utilization 66.3%

Intersection LOS: B ICU Level of Service C

Analysis Period (min) 15

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ሻ	^	ች	7
Traffic Volume (vph)	471	70	204	863	248	386
Future Volume (vph)	471	70	204	863	248	386
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.1	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	100.0		30.0	1
Taper Length (m)		U	80.0		80.0	'
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.93	0.30	1.00	0.90	1.00	0.850
Flt Protected	0.301		0.950		0.950	0.000
	3208	0	1532	3444	1665	921
Satd. Flow (prot)	3208	U	0.406	3444	0.950	921
Flt Permitted	2000	0		2444		004
Satd. Flow (perm)	3208	0	655	3444	1665	921
Right Turn on Red	-00	Yes				Yes
Satd. Flow (RTOR)	28			22	22	409
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	12%	9%	10%	6%	6%	4%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	506	75	219	928	267	415
Shared Lane Traffic (%)						
Lane Group Flow (vph)	581	0	219	928	267	415
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0	5		3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane	7.0			7.5	7.5	
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
	0.33	14	24	0.55	24	1.09
Turning Speed (k/h)	0	14		2		
Number of Detectors	2 Thru		1	2 Thru	1	1 Diabt
Detector Template	Thru		40.0	Thru	40.0	Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	OITEX			OI LX		
Detector 2 Extend (s)	0.0			0.0		
Detector Z Extend (S)	U.U			U.U		

	-	*	•	•	7	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	1	om+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	39.7		55.5	50.0	14.6	14.6
Actuated g/C Ratio	0.50		0.70	0.63	0.18	0.18
v/c Ratio	0.36		0.40	0.43	0.87	0.83
Control Delay	12.5		6.5	8.2	61.0	19.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	12.5		6.5	8.2	61.0	19.5
LOS	В		Α	Α	Е	В
Approach Delay	12.5			7.8	35.8	
Approach LOS	В			Α	D	
Queue Length 50th (m)	25.4		9.8	33.3	39.4	0.8
Queue Length 95th (m)	37.9		17.1	44.7	#78.6	#48.1
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)			180.0		90.0	
Base Capacity (vph)	1620		569	2175	315	506
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		0.38	0.43	0.85	0.82

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 79.2 Natural Cycle: 75

ivaluiai Cycle. 75

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.87 Intersection Signal Delay: 16.9 Intersection Capacity Utilization 69.7%

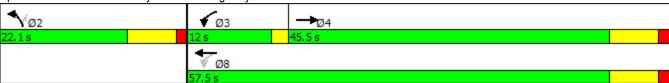
Intersection LOS: B
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 50 & Highway 89



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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	∱ }		W	
Traffic Volume (veh/h)	51	803	1037	72	22	27
Future Volume (Veh/h)	51	803	1037	72	22	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	55	863	1115	77	24	29
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.92	
vC, conflicting volume	1192				1695	596
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1192				1584	596
tC, single (s)	4.1				7.0	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	91				69	94
cM capacity (veh/h)	593				78	452
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	343	575	743	449	53	
Volume Left	55	0	0	0	24	
Volume Right	0	0	0	77	29	
cSH	593	1700	1700	1700	143	
Volume to Capacity	0.09	0.34	0.44	0.26	0.37	
Queue Length 95th (m)	2.3	0.0	0.0	0.0	11.8	
Control Delay (s)	3.0	0.0	0.0	0.0	44.4	
Lane LOS	Α				Е	
Approach Delay (s)	1.1		0.0		44.4	
Approach LOS					Е	
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization	on		68.0%	IC	U Level c	of Service
Analysis Period (min)			15			

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†		ኘ	^	W	, tort
Traffic Volume (vph)	806	42	68	1013	95	132
Future Volume (vph)	806	42	68	1013	95	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	1500	0.0	15.0	1000	0.0	0.0
Storage Lanes		0.0	13.0		1	0.0
Taper Length (m)			60.0		2.5	U
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.93	0.33	1.00	0.30	0.922	1.00
Flt Protected	0.000		0.950		0.922	
Satd. Flow (prot)	3553	0	1789	3579	1700	0
Flt Permitted	3333	U	0.232	3313	0.979	U
	3553	0	437	3579	1700	0
Satd. Flow (perm)	აეეა	Yes	431	3318	1700	Yes
Right Turn on Red	0	res			77	168
Satd. Flow (RTOR)	8			00		
Link Speed (k/h)	80			80	50	
Link Distance (m)	648.3			78.2	150.4	
Travel Time (s)	29.2	0.00	0.00	3.5	10.8	0.00
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	896	47	76	1126	106	147
Shared Lane Traffic (%)	0.10	•		4400	0=0	•
Lane Group Flow (vph)	943	0	76	1126	253	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	J. L A			J. L A		
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	
Protected Phases	4		3	8	2	
	4			O	2	
Permitted Phases			8			

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4		3	8	2	
Switch Phase	•		J		_	
Minimum Initial (s)	5.0		5.0	5.0	5.0	
Minimum Split (s)	25.0		9.5	25.0	25.0	
Total Split (s)	48.0		10.0	58.0	32.0	
Total Split (%)	53.3%		11.1%	64.4%	35.6%	
Maximum Green (s)	41.0		7.0	51.0	25.0	
Yellow Time (s)	5.0		3.0	5.0	5.0	
All-Red Time (s)	2.0		0.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.0		3.0	7.0	7.0	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Max		Max	None	None	
Walk Time (s)	7.0		max	7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	41.2		55.2	51.2	13.7	
Actuated g/C Ratio	0.52		0.70	0.65	0.17	
v/c Ratio	0.51		0.18	0.49	0.70	
Control Delay	14.1		5.7	8.7	32.0	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	14.1		5.7	8.7	32.0	
LOS	В		Α	Α	02.0 C	
Approach Delay	14.1		71	8.5	32.0	
Approach LOS	В			Α	02.0 C	
Queue Length 50th (m)	44.8		3.0	39.7	24.7	
Queue Length 95th (m)	72.6		8.8	68.8	47.4	
Internal Link Dist (m)	624.3		0.0	54.2	126.4	
Turn Bay Length (m)	027.0		15.0	J7.2	120.7	
Base Capacity (vph)	1855		425	2319	592	
Starvation Cap Reductn	0		0	2319	0	
Spillback Cap Reductn	0		0	0	0	
Storage Cap Reductin	0		0	0	0	
Reduced v/c Ratio	0.51		0.18	0.49	0.43	
Neudodu Wo Naliu	0.51		0.10	0.49	0.43	
Intersection Summary						
Area Type:	Other					
Cycle Length: 90						
Actuated Cycle Length: 79	9					
Natural Cycle: 60						
Control Type: Semi Act-U	ncoord					
Maximum v/c Ratio: 0.70						
Intersection Signal Delay:	13.2			lr	ntersection	LOS: B
Intersection Capacity Utiliz	zation 56.2%			IC	CU Level o	f Service B



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	∱ }		ሻ	∱ }			4			4	
Traffic Volume (vph)	30	887	23	160	940	65	130	15	213	49	9	38
Future Volume (vph)	30	887	23	160	940	65	130	15	213	49	9	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.990			0.920			0.947	
Flt Protected	0.950			0.950				0.982			0.975	
Satd. Flow (prot)	1825	3297	0	1825	3391	0	0	1681	0	0	1774	0
FIt Permitted	0.219			0.255				0.838			0.633	
Satd. Flow (perm)	421	3297	0	490	3391	0	0	1434	0	0	1152	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			12			85			38	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		310.5			133.1			218.4			107.2	
Travel Time (s)		18.6			8.0			13.1			7.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	10%	20%	0%	7%	0%	9%	0%	0%	0%	0%	0%
Adj. Flow (vph)	32	934	24	168	989	68	137	16	224	52	9	40
Shared Lane Traffic (%)	- U	00 1		100	000					02		
Lane Group Flow (vph)	32	958	0	168	1057	0	0	377	0	0	101	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		1.0			1.0			1.0			1.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	1	2		1	2	• •	1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	OI · LX	OI · LX		OI LX	OI · LX		OI LX	OI · LX		OI · LX	OI · LX	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	28.7		0.0	28.7	
Detector 2 Fosition(m) Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel		OLITEX			OLITEX			OLITEX			OLITEX	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
` '	Dorm	NA		Dorm	NA		Perm	NA		Dorm	NA	
Turn Type	Perm			Perm			reilli			Perm		
Protected Phases		4			8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	55.0	55.0		55.0	55.0		35.0	35.0		35.0	35.0	
Total Split (%)	61.1%	61.1%		61.1%	61.1%		38.9%	38.9%		38.9%	38.9%	
Maximum Green (s)	48.0	48.0		48.0	48.0		28.0	28.0		28.0	28.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	48.2	48.2		48.2	48.2			22.2			22.2	
Actuated g/C Ratio	0.57	0.57		0.57	0.57			0.26			0.26	
v/c Ratio	0.13	0.51		0.60	0.54			0.86			0.31	
Control Delay	12.0	13.0		25.4	13.3			42.4			18.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	12.0	13.0		25.4	13.3			42.4			18.4	
LOS	В	В		С	В			D			В	
Approach Delay		12.9			15.0			42.4			18.4	
Approach LOS		В			В			D			В	
Queue Length 50th (m)	2.3	47.6		17.2	53.6			45.4			7.9	
Queue Length 95th (m)	7.8	70.5		#51.7	78.9			#86.6			20.2	
Internal Link Dist (m)		286.5			109.1			194.4			83.2	
Turn Bay Length (m)	100.0			70.0								
Base Capacity (vph)	240	1884		279	1941			534			409	
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	0.51		0.60	0.54			0.71			0.25	
Internation Commons												

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 84.5

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 18.2

Intersection Capacity Utilization 75.4%

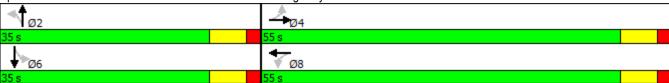
Intersection LOS: B
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Concession Road 7/Dean Drive & Highway 89



None Configurations Control
Traffic Volume (veh/h) 226 24 9 132 121 72 Future Volume (Veh/h) 226 24 9 132 121 72 Sign Control Stop Free Free Free Grade 0% 0% 0% 0.90 Peak Hour Factor 0.90 0.9
Traffic Volume (veh/h)
Sign Control Stop Free Free Grade 0% 0% 0% Peak Hour Factor 0.90 0.90 0.90 0.90 0.90 Hourly flow rate (vph) 251 27 10 147 134 80 Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median storage veh) Wedian storage veh) Upstream signal (m) 219 pX, platoon unblocked vol, conflicting volume vC2, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC4, unblocked vol vC4, single (s) 333 164 205 tC, 2 stage (s) 15 (s) 3.5 3.3 2.2 20 p0 queue free % 62 97 99 20 20 20 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 278 157 214 Volume Right 27 0 80 68 68 69 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6
Sign Control Stop Free Free Grade 0% 0% 0% Peak Hour Factor 0.90 0.90 0.90 0.90 0.90 Hourly flow rate (vph) 251 27 10 147 134 80 Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Percent Blockage Percent Blockage Percent Blockage None None None None None None Median storage veh) Upstream signal (m) 219 Popstream signal (m) 219 <
Grade 0% 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0
Hourly flow rate (vph) 251 27 10 147 134 80 Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type
Hourly flow rate (vph) 251 27 10 147 134 80 Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None None Median storage veh) Upstream signal (m) pX, platoon unblocked 0.99 0.99 0.99 vC, conflicting volume 341 174 214 vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC4, unblocked vol 333 164 205 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 62 97 99 cM capacity (veh/h) 653 874 1357 Direction, Lane # EB1 NB1 SB1 Volume Total 278 157 214 Volume Left 251 10 0 Volume Right 27 0 80 cSH 669 1357 1700 Volume Right 27 0 80 cSH 669 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 0.0 Lane LOS B
Pedestrians Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None Median storage veh) Upstream signal (m) pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol tC, single (s) tC, single (s) tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 62 97 99 cM capacity (veh/h) 653 874 1357 Direction, Lane # EB 1 Volume Total Volume Right 27 0 80 cSH 669 1357 1700 Volume to Capacity 0.42 0.01 Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type None Median storage veh) Upstream signal (m) 219 pX, platoon unblocked 0.99 0.99 vC, conflicting volume 341 174 214 vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 333 164 205 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 62 97 99 cM capacity (veh/h) 653 874 1357 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 278 157 214 Volume Left 251 10 0 Volume Right 27 0 80 cSH 669 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5
Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median type Median storage veh) Upstream signal (m) pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vC4, unblocked vol tC, single (s) tC, 2 stage (s) tF (s)
Percent Blockage Right turn flare (veh) Median type Median storage veh) Upstream signal (m) pX, platoon unblocked vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC4, unblocked vol tC, single (s) tC, 2 stage (s) tF (s)
Right turn flare (veh) Median type Median storage veh) Upstream signal (m) pX, platoon unblocked vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, unblocked vol tC, single (s) tF (s) go queue free % cM capacity (veh/h) Direction, Lane # EB 1 NB 1 SB 1 Volume Total Volume Right 27 0 80 cSH Volume to Capacity Volume to Capacity Veb (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 O.99 0.99
Median type None None Median storage veh) Upstream signal (m) 219 pX, platoon unblocked 0.99 0.99 0.99 vC, conflicting volume 341 174 214 vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 333 164 205 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 62 97 99 cM capacity (veh/h) 653 874 1357 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 278 157 214 Volume Left 251 10 0 Volume Right 27 0 80 cSH 669 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
Median storage veh) Upstream signal (m) 219 pX, platoon unblocked 0.99 0.99 0.99 vC, conflicting volume 341 174 214 vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 333 164 205 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 62 97 99 cM capacity (veh/h) 653 874 1357 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 278 157 214 Volume Left 251 10 0 Volume Right 27 0 80 cSH 669 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
Upstream signal (m) 219 pX, platoon unblocked 0.99 0.99 0.99 vC, conflicting volume 341 174 214 vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 333 164 205 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 62 97 99 cM capacity (veh/h) 653 874 1357 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 278 157 214 Volume Left 251 10 0 Volume Right 27 0 80 cSH 669 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
pX, platoon unblocked
VC, conflicting volume 341 174 214 vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 333 164 205 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) 5 3.5 3.3 2.2 p0 queue free % 62 97 99 cM capacity (veh/h) 653 874 1357 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 278 157 214 Volume Left 251 10 0 Volume Right 27 0 80 cSH 669 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 333 164 205 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 62 97 99 cM capacity (veh/h) 653 874 1357 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 278 157 214 Volume Left 251 10 0 Volume Right 27 0 80 cSH 669 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
vC2, stage 2 conf vol vCu, unblocked vol 333 164 205 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) 4.1 4.1 4.1 tF (s) 3.5 3.3 2.2 4.2 5.2 p0 queue free % 62 97 99 90 99 99 90 99
vCu, unblocked vol 333 164 205 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) 4.1 5.2 4.1 tF (s) 3.5 3.3 2.2 p0 queue free % 62 97 99 cM capacity (veh/h) 653 874 1357 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 278 157 214 Volume Left 251 10 0 Volume Right 27 0 80 cSH 669 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
tC, single (s) tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 62 97 99 cM capacity (veh/h) 653 874 1357 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 278 157 214 Volume Left 251 10 0 Volume Right 27 0 80 cSH 669 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) Lane LOS B A
tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 62 97 99 cM capacity (veh/h) 653 874 1357 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 278 157 214 Volume Left 251 10 0 Volume Right 27 0 80 cSH 669 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
tF (s) 3.5 3.3 2.2 p0 queue free % 62 97 99 cM capacity (veh/h) 653 874 1357 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 278 157 214 Volume Left 251 10 0 Volume Right 27 0 80 cSH 669 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
p0 queue free % 62 97 99 cM capacity (veh/h) 653 874 1357 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 278 157 214 Volume Left 251 10 0 Volume Right 27 0 80 cSH 669 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
CM capacity (veh/h) 653 874 1357 Direction, Lane # EB 1 NB 1 SB 1 Volume Total 278 157 214 Volume Left 251 10 0 Volume Right 27 0 80 cSH 669 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
Direction, Lane # EB 1 NB 1 SB 1 Volume Total 278 157 214 Volume Left 251 10 0 Volume Right 27 0 80 cSH 669 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
Volume Total 278 157 214 Volume Left 251 10 0 Volume Right 27 0 80 cSH 669 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
Volume Left 251 10 0 Volume Right 27 0 80 cSH 669 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
Volume Right cSH 27 0 80 cSH 669 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
CSH 669 1357 1700 Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
Volume to Capacity 0.42 0.01 0.13 Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
Queue Length 95th (m) 15.6 0.2 0.0 Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
Control Delay (s) 14.1 0.5 0.0 Lane LOS B A
Lane LOS B A
Approach Dolay (c) $1/11 = 0.5 = 0.0$
11 (1)
Approach LOS B
Intersection Summary
Average Delay 6.2
Intersection Capacity Utilization 35.0% ICU Level of Service
Analysis Period (min) 15

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ ⊅		ሻ	^	7		4			4	7
Traffic Volume (vph)	84	1091	9	19	1054	121	0	0	10	101	1	63
Future Volume (vph)	84	1091	9	19	1054	121	0	0	10	101	1	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.865				0.850
Flt Protected	0.950			0.950							0.953	
Satd. Flow (prot)	1706	3378	0	1825	3444	1633	0	1662	0	0	1813	1633
Flt Permitted	0.238			0.224							0.721	
Satd. Flow (perm)	427	3378	0	430	3444	1633	0	1662	0	0	1372	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				133		103				133
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	8%	0%	0%	6%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	88	1148	9	20	1109	127	0	0	11	106	1	66
Shared Lane Traffic (%)									• •		•	
Lane Group Flow (vph)	88	1157	0	20	1109	127	0	11	0	0	107	66
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	2010	3.7	rugiit	2010	3.7	rugiit	20.0	0.0	rugiit	20.0	0.0	. ugiit
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		1.0			1.0			1.0			1.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex		Cl+Ex	Cl+Ex	Cl+Ex	CI+Ex	CI+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel	OITEX	OITEX		OIILX	OIILX	OIILX	OITEX	OIILX		OIILX	OIILX	OIILX
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	0.0	28.7		0.0	28.7	0.0	0.0	28.7		0.0	28.7	0.0
, ,		1.8			1.8			1.8			1.8	
Detector 2 Size(m)												
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel		0.0			0.0			0.0			0.0	
Detector 2 Extend (s)	Darres	0.0		Dar	0.0	Γ		0.0		Daves	0.0	Г
Turn Type	Perm	NA		Perm	NA	Free		NA		Perm	NA	Free
Protected Phases		4			8			2			6	

4: Elizabeth Street/Concession Road 7 & Highway 89

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	65.0	65.0		65.0	65.0		25.0	25.0		25.0	25.0	
Total Split (%)	72.2%	72.2%		72.2%	72.2%		27.8%	27.8%		27.8%	27.8%	
Maximum Green (s)	58.0	58.0		58.0	58.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	66.9	66.9		66.9	66.9	88.5		11.9			12.1	88.5
Actuated g/C Ratio	0.76	0.76		0.76	0.76	1.00		0.13			0.14	1.00
v/c Ratio	0.27	0.45		0.06	0.43	0.08		0.04			0.57	0.04
Control Delay	8.7	6.5		5.7	6.3	0.1		0.2			47.1	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	8.7	6.5		5.7	6.3	0.1		0.2			47.1	0.0
LOS	Α	Α		Α	Α	Α		Α			D	Α
Approach Delay		6.7			5.7			0.2			29.2	
Approach LOS		Α			Α			Α			С	
Queue Length 50th (m)	4.7	39.4		0.9	36.7	0.0		0.0			17.4	0.0
Queue Length 95th (m)	14.8	64.5		3.8	59.8	0.0		m0.0			31.5	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	322	2552		324	2602	1633		421			280	1633
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.27	0.45		0.06	0.43	0.08		0.03			0.38	0.04

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 88.5

Natural Cycle: 60

Control Type: Semi Act-Uncoord

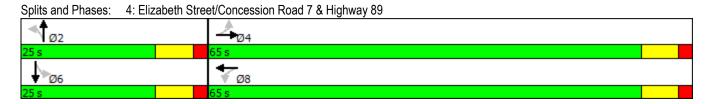
Maximum v/c Ratio: 0.57

Intersection Signal Delay: 7.6

Intersection Capacity Utilization 64.4%

Intersection LOS: A ICU Level of Service C

Analysis Period (min) 15 m Volume for 95th percentile queue is metered by upstream signal.



	-	\rightarrow	•	←	•	/
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑			414	**	
Traffic Volume (veh/h)	1172	5	6	1245	0	15
Future Volume (Veh/h)	1172	5	6	1245	0	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	1208	5	6	1284	0	15
Pedestrians					3	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	249					
pX, platoon unblocked			0.87		0.87	0.87
vC, conflicting volume			1216		1868	610
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			942		1693	242
tC, single (s)			4.1		6.8	7.5
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.6
p0 queue free %			99		100	97
cM capacity (veh/h)			636		73	588
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	805	408	434	856	15	
Volume Left	0	0	6	0	0	
Volume Right	0	5	0	0	15	
cSH	1700	1700	636	1700	588	
Volume to Capacity	0.47	0.24	0.01	0.50	0.03	
Queue Length 95th (m)	0.0	0.0	0.2	0.0	0.6	
Control Delay (s)	0.0	0.0	0.3	0.0	11.3	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		11.3	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliza	ation		48.6%	IC	U Level o	f Service
Analysis Period (min)			15			

	۶	→	•	•	←	4	•	†	<i>></i>	/	↓	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	ħβ		ች	ተ ኈ		ሻ	4	7	ሻ	^	7
Traffic Volume (vph)	54	869	319	277	770	30	429	45	203	27	54	81
Future Volume (vph)	54	869	319	277	770	30	429	45	203	27	54	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99			1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.960			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.961		0.950		
Satd. Flow (prot)	1825	3277	0	1825	3557	0	1534	1579	1617	1722	1921	1601
FIt Permitted	0.338			0.092			0.720	0.728		0.456		
Satd. Flow (perm)	649	3277	0	177	3557	0	1160	1193	1588	823	1921	1577
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		57			7				211			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	1	• • • • • • • • • • • • • • • • • • • •	8	8		1	3		6	6		3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	17%	0%	2%	0%	13%	3%	1%	6%	0%	2%
Adj. Flow (vph)	56	905	332	289	802	31	447	47	211	28	56	84
Shared Lane Traffic (%)						<u> </u>	45%					
Lane Group Flow (vph)	56	1237	0	289	833	0	246	248	211	28	56	84
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru		•	Thru		•	•	•	•	•	•
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel	OI · LX	OI · LX		OI · LX	OI · LX		OI LX	OI LX	OI · LX	OI · LX	OI LX	OI LX
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			Cl+Ex							
		CITEX			CITEX							
Detector 2 Channel		0.0			0.0							
Detector 2 Extend (s)		0.0			0.0							

	•	-	•	•	•	•	1	†		-	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	39.3	39.3		60.2	57.2		25.0	25.0	25.0	25.0	25.0	25.0
Actuated g/C Ratio	0.41	0.41		0.63	0.60		0.26	0.26	0.26	0.26	0.26	0.26
v/c Ratio	0.21	0.89		0.82	0.39		0.81	0.79	0.37	0.13	0.11	0.18
Control Delay	24.8	36.9		40.0	11.1		54.1	51.9	5.8	27.7	26.5	6.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	36.9		40.0	11.1		54.1	51.9	5.8	27.7	26.5	6.5
LOS	С	D		D	В		D	D	Α	С	С	Α
Approach Delay		36.3			18.5			38.8			16.7	
Approach LOS		D			В			D			В	
Queue Length 50th (m)	7.0	113.6		36.6	42.8		44.4	44.5	0.0	3.9	7.8	0.0
Queue Length 95th (m)	18.1	#179.1		62.8	55.6		#81.1	#80.0	15.8	10.7	16.8	9.9
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	267	1385		459	2139		354	364	632	251	587	543
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	0.21	0.89		0.63	0.39		0.69	0.68	0.33	0.11	0.10	0.15

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 95.2

Natural Cycle: 90

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.89

Intersection Signal Delay: 29.8 Intersection Capacity Utilization 84.5% Intersection LOS: C
ICU Level of Service E

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



	→	\rightarrow	•	•	4	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ሻ	^	ሻ	7
Traffic Volume (vph)	603	88	219	728	163	236
Future Volume (vph)	603	88	219	728	163	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.1	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	100.0		1	1
Taper Length (m)		U	80.0		80.0	ı
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.981	0.00	1.00	0.00	1.00	0.850
FIt Protected	0.301		0.950		0.950	0.000
Satd. Flow (prot)	3467	0	1668	3544	1713	949
Flt Permitted	3407	U	0.341	3344	0.950	343
	2467	0		2511		040
Satd. Flow (perm)	3467	0	599	3544	1713	949
Right Turn on Red	-00	Yes				Yes
Satd. Flow (RTOR)	28			22	22	243
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	12%	1%	3%	3%	1%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	622	91	226	751	168	243
Shared Lane Traffic (%)						
Lane Group Flow (vph)	713	0	226	751	168	243
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0	3		3.0	3.4	3
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane	7.0			7.5	7.0	
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)	0.33	14	24	0.99	24	1.09
- , , ,	2	14	1	2	1	
Number of Detectors			I		I	1 Dight
Detector Template	Thru		40.0	Thru	40.0	Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	OITEX			OITEX		
	0.0			0.0		
Detector 2 Extend (s)	0.0			0.0		

	-	*	•	•	1	
Lane Group	EBT	EBR V	VBL	WBT	NBL	NBR
Turn Type	NA		ı+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5	•	2.0	57.5	22.1	22.1
Total Split (%)	57.2%	15	.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		0.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag	L	ead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max	N	one	Max	None	None
Act Effct Green (s)	40.0		5.5	50.0	12.7	12.7
Actuated g/C Ratio	0.52).72	0.65	0.16	0.16
v/c Ratio	0.39).42	0.33	0.60	0.68
Control Delay	12.2		6.3	6.8	39.5	14.8
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	12.2		6.3	6.8	39.5	14.8
LOS	В		Α	Α	D	В
Approach Delay	12.2			6.7	24.9	
Approach LOS	В			Α	С	
Queue Length 50th (m)	29.9		8.8	22.6	23.1	0.0
Queue Length 95th (m)	46.8		7.1	34.0	41.4	21.8
Internal Link Dist (m)	976.2			176.3	613.9	
Turn Bay Length (m)		18	30.0		90.0	
Base Capacity (vph)	1808		568	2294	332	380
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	0.39	().40	0.33	0.51	0.64
Intersection Summary						

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 77.3

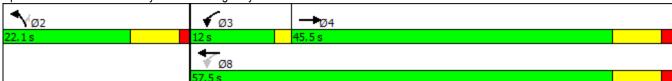
Natural Cycle: 70

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.68 Intersection Signal Delay: 12.1

Intersection Capacity Utilization 65.8%

Intersection LOS: B
ICU Level of Service C

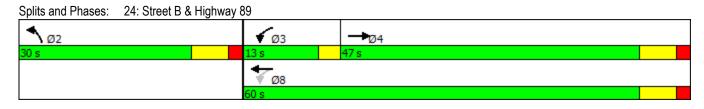
Splits and Phases: 1: County Road 50 & Highway 89



	•	→	←	4	/	1
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4₽	∱ ∱		¥	
Traffic Volume (veh/h)	14	765	777	51	33	13
Future Volume (Veh/h)	14	765	777	51	33	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	832	845	55	36	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.90	
vC, conflicting volume	900				1318	450
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	900				1128	450
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				80	98
cM capacity (veh/h)	763				177	562
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	292	555	563	337	50	
Volume Left	15	0	0	0	36	
Volume Right	0	0	0	55	14	
cSH	763	1700	1700	1700	219	
Volume to Capacity	0.02	0.33	0.33	0.20	0.23	
Queue Length 95th (m)	0.5	0.0	0.0	0.0	6.5	
Control Delay (s)	0.7	0.0	0.0	0.0	26.2	
Lane LOS	A	0.0	0.0	3.0	D	
Approach Delay (s)	0.2		0.0		26.2	
Approach LOS	U.E		0.0		D	
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utiliza	ation		41.1%	10	III ovol s	of Service
	auOH			IU	O Level C	JI SELVICE
Analysis Period (min)			15			

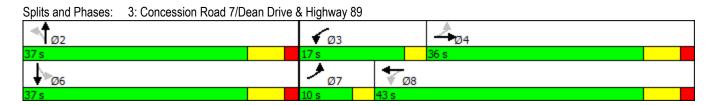
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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†		ኘ	^	W	
Traffic Volume (vph)	782	73	107	844	81	109
Future Volume (vph)	782	73	107	844	81	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	1000	0.0	15.0	1000	0.0	0.0
Storage Lanes		0.0	13.0		1	0.0
Taper Length (m)		U	60.0		2.5	J
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.987	0.00	1.00	0.00	0.923	1.00
Flt Protected	0.301		0.950		0.979	
Satd. Flow (prot)	3532	0	1789	3579	1702	0
Flt Permitted	JJJZ	U	0.243	3313	0.979	U
	3532	0	458	3579	1702	0
Satd. Flow (perm)	JJJ2		400	35/9	1702	Yes
Right Turn on Red	4.4	Yes			70	res
Satd. Flow (RTOR)	14			00	72 50	
Link Speed (k/h)	80			80	50	
Link Distance (m)	649.7			75.0	97.7	
Travel Time (s)	29.2	0.00	0.00	3.4	7.0	0.00
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	869	81	119	938	90	121
Shared Lane Traffic (%)	0=0	•	440	000	011	_
Lane Group Flow (vph)	950	0	119	938	211	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7		0.0	28.7	0.0	
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			Cl+Ex		
Detector 2 Channel	OI! LX			OI LX		
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		nm±nt	NA	Prot	
Protected Phases	1NA 4		pm+pt ੨	1NA 8	2	
	4		3	0	2	
Permitted Phases			8			

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Lane Group	EBT	EBR WBL	WBT	NBL	NBR
Detector Phase	4	3		2	
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	
Minimum Split (s)	25.0	9.5	25.0	25.0	
Total Split (s)	47.0	13.0		30.0	
Total Split (%)	52.2%	14.4%	66.7%	33.3%	
Maximum Green (s)	40.0	10.0	53.0	23.0	
Yellow Time (s)	5.0	3.0	5.0	5.0	
All-Red Time (s)	2.0	0.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	3.0	7.0	7.0	
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	
Recall Mode	Max	None	Max	None	
Walk Time (s)	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0		0	0	
Act Effct Green (s)	46.1	58.6	54.6	12.1	
Actuated g/C Ratio	0.57	0.73	0.68	0.15	
v/c Ratio	0.47	0.26	0.39	0.67	
Control Delay	12.5	5.5	6.8	31.2	
Queue Delay	0.0	0.0	0.0	0.0	
Total Delay	12.5	5.5	6.8	31.2	
LOS	В	А	Α	С	
Approach Delay	12.5		6.7	31.2	
Approach LOS	В		Α	С	
Queue Length 50th (m)	42.4	4.3	28.1	19.5	
Queue Length 95th (m)	72.4	11.4	49.1	39.9	
Internal Link Dist (m)	625.7		51.0	73.7	
Turn Bay Length (m)		15.0			
Base Capacity (vph)	2023	497	2420	537	
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	0.47	0.24	0.39	0.39	
Intersection Summary					
Area Type:	Other				
Cycle Length: 90					
Actuated Cycle Length: 80).7				
Natural Cycle: 60					
Control Type: Semi Act-Ur	ncoord				
Maximum v/c Ratio: 0.67					
Intersection Signal Delay:	11.5		lı	ntersection	LOS: B
Intersection Capacity Utiliz					of Service B



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	∱ ∱		ሻ	↑ ↑			4			4	
Traffic Volume (vph)	44	826	24	191	868	168	101	14	224	133	34	46
Future Volume (vph)	44	826	24	191	868	168	101	14	224	133	34	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.976			0.911			0.971	
Flt Protected	0.950			0.950				0.985			0.970	
Satd. Flow (prot)	1825	3566	0	1789	3475	0	0	1724	0	0	1798	0
FIt Permitted /	0.191			0.153				0.835			0.551	
Satd. Flow (perm)	367	3566	0	288	3475	0	0	1461	0	0	1021	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			30			117			16	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		312.3			133.1			219.3			107.2	
Travel Time (s)		18.7			8.0			13.2			7.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	0%	2%	3%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	46	869	25	201	914	177	106	15	236	140	36	48
Shared Lane Traffic (%)		000		20.	011		100		200	1.0		.0
Lane Group Flow (vph)	46	894	0	201	1091	0	0	357	0	0	224	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		1.0			1.0			1.0			1.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	1	2		1	2	• •	1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	OI · LX	OI · LX		OI LX	OI · LX		OI LX	OI · LX		OI LX	OI · LX	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	28.7		0.0	28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			CI+Ex			CI+Ex	
Detector 2 Channel		OLILA			OLITEA			OLITEX			OLITEX	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
	nmunt	NA		nmint	NA		Dorm	NA		Dorm	NA	
Turn Type Protected Phases	pm+pt			pm+pt			Perm			Perm		
Frotected Phases	7	4		3	8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	25.0		9.5	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	10.0	36.0		17.0	43.0		37.0	37.0		37.0	37.0	
Total Split (%)	11.1%	40.0%		18.9%	47.8%		41.1%	41.1%		41.1%	41.1%	
Maximum Green (s)	7.0	29.0		14.0	36.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	3.0	5.0		3.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	0.0	2.0		0.0	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)	3.0	7.0		3.0	7.0			7.0			7.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	None		Max	None		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	35.7	24.4		45.9	31.6			20.1			20.1	
Actuated g/C Ratio	0.47	0.32		0.60	0.41			0.26			0.26	
v/c Ratio	0.15	0.78		0.44	0.75			0.76			0.80	
Control Delay	9.7	29.8		12.1	23.1			28.3			46.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	9.7	29.8		12.1	23.1			28.3			46.0	
LOS	Α	С		В	С			С			D	
Approach Delay		28.8			21.4			28.3			46.0	
Approach LOS		С			С			С			D	
Queue Length 50th (m)	2.5	60.8		12.0	66.9			32.7			28.8	
Queue Length 95th (m)	8.0	95.1		29.7	106.9			63.9			55.6	
Internal Link Dist (m)		288.3			109.1			195.3			83.2	
Turn Bay Length (m)	100.0			70.0								
Base Capacity (vph)	308	1392		455	1697			659			421	
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	0.15	0.64		0.44	0.64			0.54			0.53	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 76	6.3											
Natural Cycle: 60												
Control Type: Semi Act-U	ncoord											
Maximum v/c Ratio: 0.80												
Intersection Signal Delay:	26.7			Ir	ntersection	LOS: C						
Intersection Capacity Utiliz				IC	CU Level o	of Service	C					
Analysis Daried (min) 15												



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W/			4	ĵ.	
Traffic Volume (veh/h)	192	21	18	145	136	112
Future Volume (Veh/h)	192	21	18	145	136	112
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	213	23	20	161	151	124
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					219	
pX, platoon unblocked	0.95	0.95	0.95			
vC, conflicting volume	414	213	275			
vC1, stage 1 conf vol			,			
vC2, stage 2 conf vol						
vCu, unblocked vol	361	150	215			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	64	97	98			
cM capacity (veh/h)	599	854	1292			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	236	181	275			
Volume Left	213	20	0			
Volume Right	23	0	124			
cSH	617	1292	1700			
Volume to Capacity	0.38	0.02	0.16			
Queue Length 95th (m)	13.6	0.4	0.0			
Control Delay (s)	14.4	1.0	0.0			
Lane LOS	В	Α	0.0			
Approach Delay (s)	14.4	1.0	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			5.2			
Intersection Capacity Utili	ization		41.3%	IC	CU Level c	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ }		ř	^	7		4			4	7
Traffic Volume (vph)	78	1161	6	27	1182	160	1	6	10	155	5	67
Future Volume (vph)	78	1161	6	27	1182	160	1	6	10	155	5	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt		0.999				0.850		0.917				0.850
Flt Protected	0.950			0.950				0.997			0.954	
Satd. Flow (prot)	1789	3575	0	1825	3579	1601	0	1756	0	0	1781	1555
FIt Permitted	0.187			0.192				0.982			0.719	
Satd. Flow (perm)	352	3575	0	369	3579	1601	0	1730	0	0	1342	1555
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				145		11				133
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	0%	0%	2%	2%	0%	0%	0%	3%	0%	5%
Adj. Flow (vph)	82	1222	6	28	1244	168	1	6	11	163	5	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	1228	0	28	1244	168	0	18	0	0	168	71
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			Cl+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Free	Perm	NA		Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	63.0	63.0		63.0	63.0		27.0	27.0		27.0	27.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	56.0	56.0		56.0	56.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	59.6	59.6		59.6	59.6	89.2		15.6			15.6	89.2
Actuated g/C Ratio	0.67	0.67		0.67	0.67	1.00		0.17			0.17	1.00
v/c Ratio	0.35	0.51		0.11	0.52	0.10		0.06			0.71	0.05
Control Delay	12.9	9.0		8.0	9.1	0.1		17.8			51.0	0.1
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	12.9	9.0		8.0	9.1	0.1		17.8			51.0	0.1
LOS	В	Α		Α	Α	Α		В			D	Α
Approach Delay		9.2			8.0			17.8			35.9	
Approach LOS		Α			Α			В			D	
Queue Length 50th (m)	5.4	49.4		1.5	50.5	0.0		1.0			25.9	0.0
Queue Length 95th (m)	17.0	74.4		5.6	75.9	0.0		m5.9			46.3	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	235	2387		246	2389	1601		396			301	1555
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.35	0.51		0.11	0.52	0.10		0.05			0.56	0.05
Intersection Summary												

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 89.2

Natural Cycle: 60

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.71

Intersection Signal Delay: 10.8

Intersection Capacity Utilization 70.0%

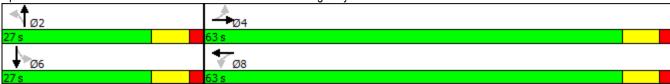
Intersection LOS: B
ICU Level of Service C

09/21/2017

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Elizabeth Street/Concession Road 7 & Highway 89



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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	∱ 1>			414	W	
Traffic Volume (veh/h)	1352	3	6	1364	0	9
Future Volume (Veh/h)	1352	3	6	1364	0	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1438	3	6	1451	0	10
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	249					
pX, platoon unblocked	210		0.82		0.82	0.82
vC, conflicting volume			1441		2177	720
vC1, stage 1 conf vol						120
vC2, stage 2 conf vol						
vCu, unblocked vol			1088		1990	204
tC, single (s)			4.1		6.8	7.2
tC, 2 stage (s)			7.1		0.0	1.2
tF (s)			2.2		3.5	3.5
p0 queue free %			99		100	98
cM capacity (veh/h)			529		44	618
						010
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	959	482	490	967	10	
Volume Left	0	0	6	0	0	
Volume Right	0	3	0	0	10	
cSH	1700	1700	529	1700	618	
Volume to Capacity	0.56	0.28	0.01	0.57	0.02	
Queue Length 95th (m)	0.0	0.0	0.3	0.0	0.4	
Control Delay (s)	0.0	0.0	0.3	0.0	10.9	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		10.9	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilizat	tion		51.9%	IC	U Level o	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ 1≽		ሻ	† }		7	ર્ન	7	*	1	7
Traffic Volume (vph)	145	1027	188	451	993	35	258	56	260	51	123	100
Future Volume (vph)	145	1027	188	451	993	35	258	56	260	51	123	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00			1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.977			0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.968		0.950		
Satd. Flow (prot)	1807	3522	0	1825	3594	0	1683	1733	1617	1772	1921	1633
Flt Permitted	0.258			0.108			0.673	0.724		0.576		
Satd. Flow (perm)	490	3522	0	207	3594	0	1188	1293	1593	1072	1921	1607
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			6				280			92
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	3		1	1		3	4		3	3		4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	0%	6%	0%	1%	0%	3%	0%	1%	3%	0%	0%
Adj. Flow (vph)	156	1104	202	485	1068	38	277	60	280	55	132	108
Shared Lane Traffic (%)							41%					
Lane Group Flow (vph)	156	1306	0	485	1106	0	163	174	280	55	132	108
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR WBI	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	pm+p	t NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4	(8			2			6	
Permitted Phases	4		}	}		2		2	6		6
Detector Phase	4	4	3	8		2	2	2	6	6	6
Switch Phase											
Minimum Initial (s)	18.0	18.0	8.0			10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0	12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0	24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%	24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0	20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0	4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	0.0	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)	7.0	7.0	4.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead	ł							
Lead-Lag Optimize?	Yes	Yes	Yes	6							
Vehicle Extension (s)	3.0	3.0	2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max	None	e Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0		20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0		13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0		0	0	0	0	0	0
Act Effct Green (s)	33.2	33.2	60.3	57.3		19.1	19.1	19.1	19.1	19.1	19.1
Actuated g/C Ratio	0.37	0.37	0.67	0.64		0.21	0.21	0.21	0.21	0.21	0.21
v/c Ratio	0.86	0.99	0.96	0.48		0.64	0.63	0.50	0.24	0.32	0.26
Control Delay	70.2	51.9	58.2	2 10.1		43.7	42.2	6.8	30.8	31.0	9.7
Queue Delay	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.2	51.9	58.2	2 10.1		43.7	42.2	6.8	30.8	31.0	9.7
LOS	Е	D	E			D	D	Α	С	С	Α
Approach Delay		53.9		24.8			26.5			23.2	
Approach LOS		D		С			С			С	
Queue Length 50th (m)	24.2	113.2	64.2	46.0		26.9	28.6	0.0	7.8	19.2	2.2
Queue Length 95th (m)	#68.4	#190.4	#147.3	80.3		47.5	49.6	17.7	17.6	33.8	14.1
Internal Link Dist (m)		493.5		593.4			364.4			46.8	
Turn Bay Length (m)	80.0		95.0)		25.0			15.0		10.0
Base Capacity (vph)	181	1320	503	3 2303		387	421	707	349	625	585
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
Reduced v/c Ratio	0.86	0.99	0.96	0.48		0.42	0.41	0.40	0.16	0.21	0.18

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 89.5

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 35.7

Intersection Capacity Utilization 99.0%

Intersection LOS: D

ICU Level of Service F

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ሻ	^	ሻ	7
Traffic Volume (vph)	545	212	359	415	81	185
Future Volume (vph)	545	212	359	415	81	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
` ,	3.1	0.0	180.0	3.1	90.0	0.0
Storage Length (m)						1
Storage Lanes		0	1		1	ı
Taper Length (m)	0.05	0.05	80.0	0.05	80.0	4.00
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.958					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	2996	0	1620	3093	1471	1426
FIt Permitted			0.283		0.950	
Satd. Flow (perm)	2996	0	483	3093	1471	1426
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	98					203
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	17%	16%	4%	18%	20%	12%
, ,	599	233	395	456	89	203
Adj. Flow (vph)	599	233	১৬৩	400	09	203
Shared Lane Traffic (%)	000	0	205	450	00	000
Lane Group Flow (vph)	832	0	395	456	89	203
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.01
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		,	Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
	0.0				-1.0	6.0
Trailing Detector (m)			-1.0	0.0		
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	OI. EX			O. LA		
Detector 2 Extend (s)	0.0			0.0		
()			nm±nt		Drot	Dorm
Turn Type	NA		pm+pt	NA	Prot	Perm

	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead	7.0		
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	38.2		55.5	50.0	11.2	11.2
Actuated g/C Ratio	0.50		0.73	0.66	0.15	0.15
v/c Ratio	0.53		0.79	0.22	0.41	0.53
Control Delay	12.9		18.0	5.6	35.4	10.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	12.9		18.0	5.6	35.4	10.2
LOS	12.3 B		В	3.0 A	D	В
Approach Delay	12.9			11.4	17.9	<u> </u>
Approach LOS	12.3 B			В	17.3 B	
Queue Length 50th (m)	33.6		14.5	11.1	11.7	0.0
Queue Length 95th (m)	54.8		#44.2	19.9	24.6	16.5
Internal Link Dist (m)	976.2		#44.2	176.3	613.9	10.5
Turn Bay Length (m)	910.2		180.0	170.5	90.0	
Base Capacity (vph)	1556		503	2042	291	444
. , , ,	0		0	2042	291	0
Starvation Cap Reductn				0		0
Spillback Cap Reductn	0		0		0	
Storage Cap Reductn	0 53		0.70	0.22	0.31	0.46
Reduced v/c Ratio	0.53		0.79	0.22	0.31	0.46

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 75.8

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.79

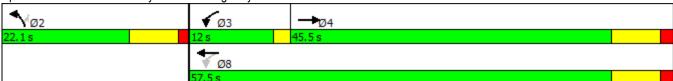
Intersection Signal Delay: 13.0 Intersection LOS: B
Intersection Capacity Utilization 72.9% ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

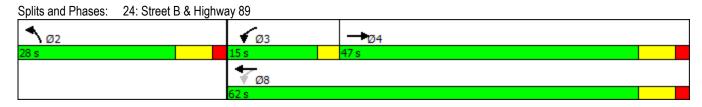
Splits and Phases: 1: County Road 50 & Highway 89



	•	→	—	•	\	4
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4₽	∱ }		W	
Traffic Volume (veh/h)	16	690	716	20	44	74
Future Volume (Veh/h)	16	690	716	20	44	74
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	767	796	22	49	82
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked		200			0.92	
vC, conflicting volume	818				1226	409
vC1, stage 1 conf vol	010				1220	100
vC2, stage 2 conf vol						
vCu, unblocked vol	818				1063	409
tC, single (s)	4.3				6.8	6.9
tC, 2 stage (s)	т.0				0.0	0.5
tF (s)	2.3				3.5	3.3
p0 queue free %	98				75	86
cM capacity (veh/h)	751				198	597
		50.0	11/5 4	14/5.0		551
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	274	511	531	287	131	
Volume Left	18	0	0	0	49	
Volume Right	0	0	0	22	82	
cSH	751	1700	1700	1700	340	
Volume to Capacity	0.02	0.30	0.31	0.17	0.38	
Queue Length 95th (m)	0.6	0.0	0.0	0.0	13.4	
Control Delay (s)	0.9	0.0	0.0	0.0	22.0	
Lane LOS	Α				С	
Approach Delay (s)	0.3		0.0		22.0	
Approach LOS					С	
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utiliza	ition		44.2%	IC	U Level c	f Service
Analysis Period (min)			15			

	→	•	•	•	•	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ Ъ	LDIX	YVDL	↑	₩.	HUIT
Traffic Volume (vph)	747	142	137	721	14	34
Future Volume (vph)	747	142	137	721	14	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	1300	0.0	15.0	1300	0.0	0.0
		0.0	15.0		1	0.0
Storage Lanes		U	60.0		2.5	U
Taper Length (m)	0.05	0.05		0.05		1.00
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.976		0.050		0.905	
Flt Protected	0440	_	0.950	0004	0.985	•
Satd. Flow (prot)	3143	0	1610	3221	1511	0
Flt Permitted			0.248		0.985	
Satd. Flow (perm)	3143	0	420	3221	1511	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	31				38	
Link Speed (k/h)	80			80	50	
Link Distance (m)	650.1			72.2	109.1	
Travel Time (s)	29.3			3.2	7.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	830	158	152	801	16	38
Shared Lane Traffic (%)	300	100	102	301	10	- 00
Lane Group Flow (vph)	988	0	152	801	54	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.13	1.13	1.13	1.13	1.13	1.13
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	CI+Ex	
Detector 1 Channel	OI LX		OI - LA	OI · LX	O1 · LX	
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
. ,						
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	
Protected Phases	4		3	8	2	
Permitted Phases			8			

	→	•	•	←	4	/	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Detector Phase	4		3	8	2		
Switch Phase	•						
Minimum Initial (s)	5.0		5.0	5.0	5.0		
Minimum Split (s)	25.0		9.5	25.0	25.0		
Total Split (s)	47.0		15.0	62.0	28.0		
Total Split (%)	52.2%		16.7%	68.9%	31.1%		
Maximum Green (s)	40.0		12.0	55.0	21.0		
Yellow Time (s)	5.0		3.0	5.0	5.0		
All-Red Time (s)	2.0		0.0	2.0	2.0		
Lost Time Adjust (s)	0.0		0.0	0.0	0.0		
Total Lost Time (s)	7.0		3.0	7.0	7.0		
Lead/Lag	Lag		Lead	1.0	1.0		
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	3.0		3.0	3.0	3.0		
Recall Mode	Max		None	Max	None		
Walk Time (s)	7.0		INOHE	7.0	7.0		
Flash Dont Walk (s)	11.0			11.0	11.0		
Pedestrian Calls (#/hr)	0			0	0		
Act Effet Green (s)	49.4		63.4	62.3	6.8		
Actuated g/C Ratio	0.66		0.85	02.3	0.09		
v/c Ratio	0.47		0.83	0.83	0.09		
Control Delay	8.7		3.8	3.3	20.8		
•	0.0		0.0	0.0	0.0		
Queue Delay			3.8				
Total Delay LOS	8.7		3.0 A	3.3	20.8		
	Α		А	Α	C		
Approach Delay	8.7			3.4	20.8		
Approach LOS	Α		2.0	A	С		
Queue Length 50th (m)	37.4		3.6	16.8	2.2		
Queue Length 95th (m)	61.6		8.8	28.1	11.9		
Internal Link Dist (m)	626.1		4= 0	48.2	85.1		
Turn Bay Length (m)	0000		15.0	00	,		
Base Capacity (vph)	2082		546	2675	451		
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	0.47		0.28	0.30	0.12		
Intersection Summary							
Area Type:	CBD						
Cycle Length: 90							
Actuated Cycle Length: 75							
Natural Cycle: 60							
Control Type: Semi Act-Un	coord						
Maximum v/c Ratio: 0.47							
Intersection Signal Delay: 6	6.5			Ir	ntersection	LOS: A	
Intersection Capacity Utiliza	ation 55.6%			IC	CU Level o	of Service B	3



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ħβ		ሻ	ħβ			4			4	
Traffic Volume (vph)	36	706	39	195	676	93	24	12	93	86	10	36
Future Volume (vph)	36	706	39	195	676	93	24	12	93	86	10	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.982			0.903			0.963	
Flt Protected	0.950			0.950				0.991			0.969	
Satd. Flow (prot)	1825	3157	0	1772	3171	0	0	1719	0	0	1745	0
FIt Permitted	0.327			0.338				0.912			0.720	
Satd. Flow (perm)	628	3157	0	630	3171	0	0	1582	0	0	1297	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			33			101			19	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		314.7			133.1			218.1			107.2	
Travel Time (s)		18.9			8.0			13.1			7.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	15%	9%	3%	14%	6%	0%	0%	0%	0%	0%	10%
Adj. Flow (vph)	39	767	42	212	735	101	26	13	101	93	11	39
Shared Lane Traffic (%)			·-									
Lane Group Flow (vph)	39	809	0	212	836	0	0	140	0	0	143	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	• •	1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	OI ZX	OI LX		OI - EX	OI - EX		OI - EX	OI LX		OI - EX	OI LX	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	28.7		0.0	28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel		O1 · L∧			ΟΙ· L Λ			Ο1 · LΛ			O1 · L∧	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	I CIIII	4		I CIIII	8		i eiiii	2		I CIIII	6	
FIOLECIEU FIIASES		4			0						U	

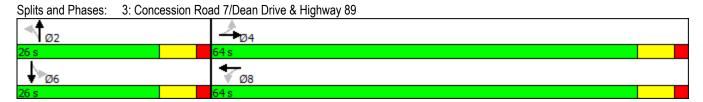
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	64.0	64.0		64.0	64.0		26.0	26.0		26.0	26.0	
Total Split (%)	71.1%	71.1%		71.1%	71.1%		28.9%	28.9%		28.9%	28.9%	
Maximum Green (s)	57.0	57.0		57.0	57.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	59.3	59.3		59.3	59.3			13.2			13.2	
Actuated g/C Ratio	0.69	0.69		0.69	0.69			0.15			0.15	
v/c Ratio	0.09	0.37		0.49	0.38			0.43			0.67	
Control Delay	6.4	6.8		12.5	6.7			15.2			44.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.4	6.8		12.5	6.7			15.2			44.7	
LOS	Α	Α		В	Α			В			D	
Approach Delay		6.8			7.8			15.2			44.7	
Approach LOS		Α			Α			В			D	
Queue Length 50th (m)	1.9	25.2		14.3	25.4			5.5			18.9	
Queue Length 95th (m)	6.3	43.0		38.8	43.6			20.5			37.0	
Internal Link Dist (m)		290.7			109.1			194.1			83.2	
Turn Bay Length (m)	100.0			70.0								
Base Capacity (vph)	430	2167		431	2183			426			299	
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	0.09	0.37		0.49	0.38			0.33			0.48	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 86	5.5											
Natural Cycle: 60												
Control Type: Semi Act-Ur	ncoord											

Intersection Capacity Utilization 63.2%

Maximum v/c Ratio: 0.67 Intersection Signal Delay: 10.3

Analysis Period (min) 15

Intersection LOS: B ICU Level of Service B



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			ર્ન	^	
Traffic Volume (veh/h)	51	6	22	79	102	143
Future Volume (Veh/h)	51	6	22	79	102	143
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	57	7	24	88	113	159
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				140110	140110	
Upstream signal (m)					218	
pX, platoon unblocked	1.00	1.00	1.00		210	
vC, conflicting volume	328	192	272			
vC1, stage 1 conf vol	320	132	212			
vC2, stage 2 conf vol						
vCu, unblocked vol	324	187	267			
tC, single (s)	6.4	6.2	4.1			
	0.4	0.2	4.1			
tC, 2 stage (s)	3.5	3.3	2.2			
tF (s)	91	3.3 99	98			
p0 queue free %						
cM capacity (veh/h)	655	851	1292			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	64	112	272			
Volume Left	57	24	0			
Volume Right	7	0	159			
cSH	672	1292	1700			
Volume to Capacity	0.10	0.02	0.16			
Queue Length 95th (m)	2.4	0.4	0.0			
Control Delay (s)	10.9	1.8	0.0			
Lane LOS	В	Α				
Approach Delay (s)	10.9	1.8	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			2.0			
Intersection Capacity Utilizat	ion		32.8%	IC	CU Level o	f Service
Analysis Period (min)			15	10	20 201010	. 55, 1100
Alialysis Fellou (Illill)			13			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	∱ }		7	^	7		4			4	7
Traffic Volume (vph)	49	849	1	10	873	86	0	1	1	65	3	60
Future Volume (vph)	49	849	1	10	873	86	0	1	1	65	3	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt						0.850		0.932				0.850
Flt Protected	0.950			0.950							0.954	
Satd. Flow (prot)	1644	3259	0	1372	3230	1570	0	1790	0	0	1749	1396
Flt Permitted	0.304			0.313							0.734	
Satd. Flow (perm)	526	3259	0	451	3230	1570	0	1790	0	0	1346	1396
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						133		1				133
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Confl. Peds. (#/hr)			4	4								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	11%	12%	0%	33%	13%	4%	0%	0%	0%	5%	0%	17%
Adj. Flow (vph)	52	894	1	11	919	91	0	1	1	68	3	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	895	0	11	919	91	0	2	0	0	71	63
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7	_		0.0	_		0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	Cl+Ex		CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			Cl+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

4: Elizabeth Street/Concession Road 7 & Highway 89

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Free		NA		Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	58.0	58.0		58.0	58.0		32.0	32.0		32.0	32.0	
Total Split (%)	64.4%	64.4%		64.4%	64.4%		35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	51.0	51.0		51.0	51.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	63.5	63.5		63.5	63.5	82.8		9.6			9.7	82.8
Actuated g/C Ratio	0.77	0.77		0.77	0.77	1.00		0.12			0.12	1.00
v/c Ratio	0.13	0.36		0.03	0.37	0.06		0.01			0.46	0.05
Control Delay	5.4	5.0		4.7	5.1	0.1		26.0			42.9	0.1
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	5.4	5.0		4.7	5.1	0.1		26.0			42.9	0.1
LOS	Α	Α		Α	Α	Α		С			D	Α
Approach Delay		5.1			4.7			26.0			22.8	
Approach LOS		Α			Α			С			С	
Queue Length 50th (m)	2.2	24.7		0.4	25.7	0.0		0.1			11.7	0.0
Queue Length 95th (m)	6.9	39.3		2.1	41.0	0.0		m1.5			21.1	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	403	2499		345	2477	1570		544			408	1396
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.13	0.36		0.03	0.37	0.06		0.00			0.17	0.05

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 82.8

Natural Cycle: 50

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.46

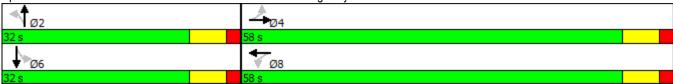
Intersection Signal Delay: 6.0
Intersection Capacity Utilization 56.2%

Intersection LOS: A

ICU Level of Service B

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Elizabeth Street/Concession Road 7 & Highway 89



09/21/2017

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑			414	W	
Traffic Volume (veh/h)	935	1	3	991	0	19
Future Volume (Veh/h)	935	1	3	991	0	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1005	1	3	1066	0	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	249					
pX, platoon unblocked			0.92		0.92	0.92
vC, conflicting volume			1006		1544	503
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			834		1419	288
tC, single (s)			4.1		6.8	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			100		100	97
cM capacity (veh/h)			744		119	634
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	670	336	358	711	20	
Volume Left	0	0	3	0	0	
Volume Right	0	1	0	0	20	
cSH	1700	1700	744	1700	634	
Volume to Capacity	0.39	0.20	0.00	0.42	0.03	
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.7	
Control Delay (s)	0.0	0.0	0.1	0.0	10.9	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.0		10.9	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliza	ition		39.5%	IC	U Level c	f Service
Analysis Period (min)			15			

	۶	→	•	•	+	•	•	†	~	/	↓	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ħβ		ች	ħβ		ሻ	4	7	*	+	7
Traffic Volume (vph)	44	756	215	315	745	12	228	30	121	12	42	24
Future Volume (vph)	44	756	215	315	745	12	228	30	121	12	42	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0		•	5.0		-
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt	,,,,,,	0.967	0.00		0.998				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.963		0.950		
Satd. Flow (prot)	1643	2851	0	1626	3118	0	1248	1326	1455	1643	1601	1470
FIt Permitted	0.345			0.139			0.728	0.745		0.654		
Satd. Flow (perm)	597	2851	0	238	3118	0	957	1026	1455	1131	1601	1470
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			3				130			88
Link Speed (k/h)		60			50			50	100		50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	5%	34%	1%	5%	14%	25%	0%	1%	0%	8%	0%
Adj. Flow (vph)	47	813	231	339	801	13	245	32	130	13	45	26
Shared Lane Traffic (%)	.,	010	201	000	001		44%	UL.	100	10	10	
Lane Group Flow (vph)	47	1044	0	339	814	0	137	140	130	13	45	26
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	Loit	3.7	rugiit	Loit	3.7	rugiit	Loit	3.7	rugiit	Loit	3.7	ragne
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		7.0			7.0			7.0			4.0	
Headway Factor	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
Turning Speed (k/h)	24	1.10	14	24	1.10	14	24	1.10	14	24	1.10	1.10
Number of Detectors	0	2	17	1	2	17	1	1	1	1	1	0
Detector Template	U	Thru			Thru					ı		U
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		Cl+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex	Cl+Ex
Detector 1 Channel	OIILX	OIILX		OIILX	OIILX		OITEX	OIILX	OIILX	OITEX	OITEX	OIILX
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Type Detector 2 Channel		OITEX			OITEX							
		0.0			0.0							
Detector 2 Extend (s)	Dorse			nm			Dorse	NIA	Dorse	Dares	NI A	Dares
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	

	•	-	•	•	•	•	1	†	/	-	↓	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	36.8	36.8		60.3	57.3		19.0	19.0	19.0	19.0	19.0	19.0
Actuated g/C Ratio	0.41	0.41		0.68	0.64		0.21	0.21	0.21	0.21	0.21	0.21
v/c Ratio	0.19	0.87		0.81	0.41		0.67	0.65	0.32	0.05	0.13	0.07
Control Delay	24.0	35.6		33.1	9.4		48.8	45.6	7.2	26.8	28.1	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	35.6		33.1	9.4		48.8	45.6	7.2	26.8	28.1	0.3
LOS	С	D		С	Α		D	D	Α	С	С	Α
Approach Delay		35.1			16.4			34.4			19.3	
Approach LOS		D			В			С			В	
Queue Length 50th (m)	5.2	85.3		31.6	31.3		22.7	23.0	0.0	1.8	6.3	0.0
Queue Length 95th (m)	16.0	#154.5		#83.7	57.6		42.6	42.4	12.8	6.2	14.6	0.0
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	245	1197		472	2000		312	334	562	369	522	538
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	0.19	0.87		0.72	0.41		0.44	0.42	0.23	0.04	0.09	0.05

Area Type: CBD

Cycle Length: 99

Actuated Cycle Length: 89.3

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 26.6
Intersection Capacity Utilization 79.0%

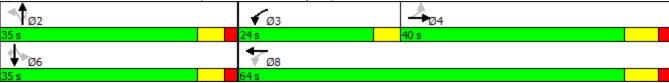
Intersection LOS: C
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ኘ	^	ሻ	7
Traffic Volume (vph)	541	81	236	976	287	447
Future Volume (vph)	541	81	236	976	287	447
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.7	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	100.0		1	1
Taper Length (m)		J	80.0		80.0	'
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.980	0.00	1.00	0.00	1.00	0.850
FIt Protected	0.900		0.950		0.950	0.000
Satd. Flow (prot)	3205	0	1532	3444	1665	921
Flt Permitted	3203	U	0.356	3444	0.950	3Z I
	2205	0		2///		024
Satd. Flow (perm)	3205	0	574	3444	1665	921
Right Turn on Red	00	Yes				Yes
Satd. Flow (RTOR)	28			22	22	368
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	12%	9%	10%	6%	6%	4%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	582	87	254	1049	309	481
Shared Lane Traffic (%)						
Lane Group Flow (vph)	669	0	254	1049	309	481
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane					-1.0	
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)	0.00	14	24	0.00	24	1.03
Number of Detectors	2	17	1	2	1	1
Detector Template	Thru			Thru		
·	30.5		12.0	30.5	12.0	Right 12.0
Leading Detector (m)					12.0	
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	Cl+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
DOTOGO Z EXTORIO (3)	0.0			0.0		

	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	45.5		12.0	57.5	22.1	22.1
Total Split (%)	57.2%		15.1%	72.2%	27.8%	27.8%
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead	7.0	7.1	7.1
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	39.2		55.5	50.0	15.0	15.0
Actuated g/C Ratio	0.49		0.70	0.63	0.19	0.19
v/c Ratio	0.43		0.70	0.03	0.19	1.02
Control Delay	13.6		8.1	8.9	83.1	58.0
Queue Delay	0.0		0.0	0.9	0.0	0.0
Total Delay	13.6		8.1	8.9	83.1	58.0
LOS	13.0 B		Α	0.9 A	03.1 F	36.0 E
Approach Delay	13.6		А	8.7	67.8	E
Approach LOS	13.6 B			8.7 A	67.8 E	
			11.6			22.7
Queue Length 50th (m)	31.1		11.6	39.5	47.0	~22.7
Queue Length 95th (m)	44.7		19.8	52.6	#94.6	#84.2
Internal Link Dist (m)	976.2		400.0	176.3	613.9	
Turn Bay Length (m)			180.0		90.0	
Base Capacity (vph)	1593		520	2163	313	472
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	0.42		0.49	0.48	0.99	1.02
latara atian Our						

Area Type: Other

Cycle Length: 79.6

Actuated Cycle Length: 79.6

Natural Cycle: 80

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 1.02 Intersection Signal Delay: 26.8 Intersection Capacity Utilization 73.6%

Intersection LOS: C
ICU Level of Service D

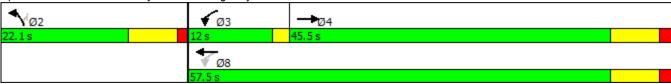
Analysis Period (min) 15

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.

Splits and Phases: 1: County Road 50 & Highway 89



	٠	→	+	4	/	4
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	∱ }		¥	
Traffic Volume (veh/h)	59	926	1177	79	25	31
Future Volume (Veh/h)	59	926	1177	79	25	31
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	63	996	1266	85	27	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.90	
vC, conflicting volume	1351				1932	676
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1351				1809	676
tC, single (s)	4.1				7.0	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	88				48	92
cM capacity (veh/h)	516				52	401
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	395	664	844	507	60	
Volume Left	63	0	0	0	27	
Volume Right	0	0	0	85	33	
cSH	516	1700	1700	1700	99	
Volume to Capacity	0.12	0.39	0.50	0.30	0.61	
Queue Length 95th (m)	3.1	0.0	0.0	0.0	22.0	
Control Delay (s)	3.7	0.0	0.0	0.0	85.8	
Lane LOS	Α				F	
Approach Delay (s)	1.4		0.0		85.8	
Approach LOS					F	
Intersection Summary						
Average Delay			2.7			
Intersection Capacity Utiliza	ation		75.7%	IC	U Level o	of Service
	-			,,		
Analysis Period (min)			15			

	→	\rightarrow	•	←	•	/
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ች	^	N/	
Traffic Volume (vph)	936	42	68	1161	95	132
Future Volume (vph)	936	42	68	1161	95	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	. 500	0.0	15.0	. 300	0.0	0.0
Storage Lanes		0.0	10.0		1	0.0
Taper Length (m)			60.0		2.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.994	0.00	1.00	0.55	0.922	1.00
Flt Protected	0.007		0.950		0.979	
Satd. Flow (prot)	3557	0	1789	3579	1700	0
Flt Permitted	5551	U	0.192	5513	0.979	U
Satd. Flow (perm)	3557	0	362	3579	1700	0
Right Turn on Red	3331	Yes	302	3318	1700	Yes
•	7	168			77	168
Satd. Flow (RTOR)				00	50	
Link Speed (k/h)	80			80		
Link Distance (m)	648.5			78.0	78.8	
Travel Time (s)	29.2	0.00	0.00	3.5	5.7	0.00
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1040	47	76	1290	106	147
Shared Lane Traffic (%)	400=	•	=-	4000	050	•
Lane Group Flow (vph)	1087	0	76	1290	253	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	CI+Ex	
Detector 1 Channel	·		- · · · · · · · · · · · · · · · · · · ·			
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7		0.0	28.7	0.0	
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	OITEX			OITEX		
Detector 2 Extend (s)	0.0			0.0		
()	NA		nm : nt		Prot	
Turn Type			pm+pt	NA		
Protected Phases	4		3	8	2	
Permitted Phases			8			

	→	\rightarrow	•	•	•	<i>></i>
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4		3	8	2	
Switch Phase			-	-	_	
Minimum Initial (s)	5.0		5.0	5.0	5.0	
Minimum Split (s)	25.0		9.5	25.0	25.0	
Total Split (s)	48.0		10.0	58.0	32.0	
Total Split (%)	53.3%		11.1%	64.4%	35.6%	
Maximum Green (s)	41.0		7.0	51.0	25.0	
Yellow Time (s)	5.0		3.0	5.0	5.0	
All-Red Time (s)	2.0		0.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.0		3.0	7.0	7.0	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Max		None	Max	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	44.5		56.2	52.1	13.8	
Actuated g/C Ratio	0.56		0.70	0.65	0.17	
v/c Ratio	0.55		0.21	0.55	0.71	
Control Delay	14.1		6.1	9.4	32.3	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	14.1		6.1	9.4	32.3	
LOS	В		Α	Α	С	
Approach Delay	14.1			9.3	32.3	
Approach LOS	В			Α	С	
Queue Length 50th (m)	53.8		3.0	48.6	24.7	
Queue Length 95th (m)	87.8		8.8	84.0	47.4	
Internal Link Dist (m)	624.5			54.0	54.8	
Turn Bay Length (m)			15.0			
Base Capacity (vph)	1981		379	2332	585	
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	0.55		0.20	0.55	0.43	
Intersection Summary						
Area Type:	Other					
Cycle Length: 90	- u.u.					
Actuated Cycle Length: 80)					
Natural Cycle: 60						
Control Type: Semi Act-U	ncoord					
Maximum v/c Ratio: 0.71						
Intersection Signal Delay:	13.4			lr	ntersection	LOS: B
Intersection Capacity Utiliz						f Service B



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	∱ }		ሻ	∱ }			4			4	
Traffic Volume (vph)	35	1009	27	133	1080	75	135	17	227	57	10	44
Future Volume (vph)	35	1009	27	133	1080	75	135	17	227	57	10	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.990			0.919			0.947	
Flt Protected	0.950			0.950				0.983			0.975	
Satd. Flow (prot)	1825	3297	0	1825	3392	0	0	1682	0	0	1774	0
FIt Permitted	0.165			0.204				0.847			0.614	
Satd. Flow (perm)	317	3297	0	392	3392	0	0	1449	0	0	1117	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			12			77			38	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		310.5			133.1			220.4			107.2	
Travel Time (s)		18.6			8.0			13.2			7.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	10%	20%	0%	7%	0%	9%	0%	0%	0%	0%	0%
Adj. Flow (vph)	37	1062	28	140	1137	79	142	18	239	60	11	46
Shared Lane Traffic (%)	Ŭ.	1002			1101			.0	200		• • •	
Lane Group Flow (vph)	37	1090	0	140	1216	0	0	399	0	0	117	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		1.0			1.0			1.0			1.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	1	2		1	2	• •	1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	OI · LX	OI · LX		OI LX	OI · LX		OI LX	OI · LX		OI LX	OI · LX	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	28.7		0.0	28.7	
Detector 2 Fosition(m) Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel		OLITEX			OLITEX			OLITEX			OLITEX	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
. ,	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Turn Type Protected Phases	reilli			Pellii			Pellii	NA 2		Pellii		
Fiolected Filases		4			8						6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	55.0	55.0		55.0	55.0		35.0	35.0		35.0	35.0	
Total Split (%)	61.1%	61.1%		61.1%	61.1%		38.9%	38.9%		38.9%	38.9%	
Maximum Green (s)	48.0	48.0		48.0	48.0		28.0	28.0		28.0	28.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	48.1	48.1		48.1	48.1			23.6			23.6	
Actuated g/C Ratio	0.56	0.56		0.56	0.56			0.28			0.28	
v/c Ratio	0.21	0.59		0.64	0.64			0.88			0.35	
Control Delay	14.7	14.7		31.4	15.4			45.4			19.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	14.7	14.7		31.4	15.4			45.4			19.9	
LOS	В	В		С	В			D			В	
Approach Delay		14.7			17.1			45.4			19.9	
Approach LOS		В			В			D			В	
Queue Length 50th (m)	3.1	62.3		15.9	72.1			51.3			10.1	
Queue Length 95th (m)	9.6	84.5		#48.1	96.9			#97.1			23.9	
Internal Link Dist (m)		286.5			109.1			196.4			83.2	
Turn Bay Length (m)	100.0			70.0								
Base Capacity (vph)	178	1852		220	1908			526			390	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.21	0.59		0.64	0.64			0.76			0.30	
Internation Comment												

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 85.8

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.88

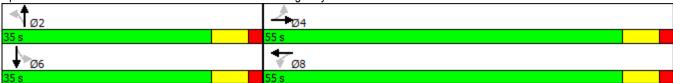
Intersection Signal Delay: 20.0 Intersection LOS: C
Intersection Capacity Utilization 78.9% ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Concession Road 7/Dean Drive & Highway 89



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			ર્ન	1>	
Traffic Volume (veh/h)	226	24	9	153	141	72
Future Volume (Veh/h)	226	24	9	153	141	72
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	251	27	10	170	157	80
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					220	
pX, platoon unblocked						
vC, conflicting volume	387	197	237			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	387	197	237			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	• • • • • • • • • • • • • • • • • • • •					
tF (s)	3.5	3.3	2.2			
p0 queue free %	59	97	99			
cM capacity (veh/h)	612	844	1330			
Direction, Lane # Volume Total	EB 1	NB 1	SB 1 237			
	278	180				
Volume Left	251	10	0			
Volume Right	27	0	80			
cSH	629	1330	1700			
Volume to Capacity	0.44	0.01	0.14			
Queue Length 95th (m)	17.2	0.2	0.0			
Control Delay (s)	15.2	0.5	0.0			
Lane LOS	С	A				
Approach Delay (s)	15.2	0.5	0.0			
Approach LOS	С					
Intersection Summary						
Average Delay			6.2			
Intersection Capacity Utilization	on		36.1%	IC	CU Level o	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ ∱		ሻ	^	7		4			र्स	7
Traffic Volume (vph)	95	1227	10	22	1202	140	0	0	12	117	1	73
Future Volume (vph)	95	1227	10	22	1202	140	0	0	12	117	1	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.865				0.850
Flt Protected	0.950			0.950							0.953	
Satd. Flow (prot)	1706	3378	0	1825	3444	1633	0	1662	0	0	1813	1633
FIt Permitted	0.189			0.179							0.719	
Satd. Flow (perm)	339	3378	0	344	3444	1633	0	1662	0	0	1368	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				133		75				133
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	8%	0%	0%	6%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	100	1292	11	23	1265	147	0	0	13	123	1	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	1303	0	23	1265	147	0	13	0	0	124	77
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	Cl+Ex		CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			Cl+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Free		NA		Perm	NA	Free
Protected Phases		4			8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	65.0	65.0		65.0	65.0		25.0	25.0		25.0	25.0	
Total Split (%)	72.2%	72.2%		72.2%	72.2%		27.8%	27.8%		27.8%	27.8%	
Maximum Green (s)	58.0	58.0		58.0	58.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	63.8	63.8		63.8	63.8	91.0		13.2			13.2	91.0
Actuated g/C Ratio	0.70	0.70		0.70	0.70	1.00		0.15			0.15	1.00
v/c Ratio	0.42	0.55		0.10	0.52	0.09		0.04			0.63	0.05
Control Delay	13.8	8.3		6.7	7.9	0.1		0.2			49.2	0.1
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	13.8	8.3		6.7	7.9	0.1		0.2			49.2	0.1
LOS	В	Α		Α	Α	Α		Α			D	Α
Approach Delay		8.7			7.1			0.3			30.4	
Approach LOS		Α			Α			Α			С	
Queue Length 50th (m)	6.3	49.6		1.1	47.0	0.0		0.0			19.6	0.0
Queue Length 95th (m)	22.1	78.9		4.5	74.3	0.0		m0.0			35.8	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	237	2367		241	2412	1633		389			271	1633
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.42	0.55		0.10	0.52	0.09		0.03			0.46	0.05

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 91

Natural Cycle: 65

Control Type: Semi Act-Uncoord

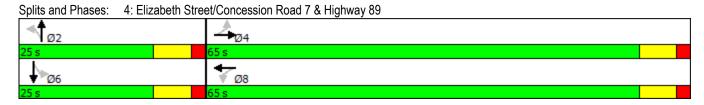
Maximum v/c Ratio: 0.63

Intersection Signal Delay: 9.3
Intersection Capacity Utilization 69.2%

Intersection LOS: A ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.



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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† 1>			414	W	
Traffic Volume (veh/h)	1321	6	7	1423	0	17
Future Volume (Veh/h)	1321	6	7	1423	0	17
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	1362	6	7	1467	0	18
Pedestrians					3	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	249					
pX, platoon unblocked			0.82		0.82	0.82
vC, conflicting volume			1371		2116	687
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1001		1915	162
tC, single (s)			4.1		6.8	7.5
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.6
p0 queue free %			99		100	97
cM capacity (veh/h)			568		49	628
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	908	460	496	978	18	
Volume Left	0	0	7	0	0	
Volume Right	0	6	0	0	18	
cSH	1700	1700	568	1700	628	
Volume to Capacity	0.53	0.27	0.01	0.58	0.03	
Queue Length 95th (m)	0.0	0.0	0.3	0.0	0.7	
Control Delay (s)	0.0	0.0	0.4	0.0	10.9	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		10.9	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliza	ation		54.2%	IC	U Level c	f Service
Analysis Period (min)	A		15	10	2 20001 0	. 00, 100
Analysis i Gilou (IIIIII)			10			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ }		ሻ	∱ }		ሻ	4	7	ሻ	1	7
Traffic Volume (vph)	63	765	365	321	795	35	496	52	235	31	63	94
Future Volume (vph)	63	765	365	321	795	35	496	52	235	31	63	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.952			0.994				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.961		0.950		
Satd. Flow (prot)	1825	3219	0	1825	3557	0	1534	1578	1617	1722	1921	1601
Flt Permitted	0.328		•	0.097		•	0.714	0.721		0.403		
Satd. Flow (perm)	630	3219	0	186	3557	0	1150	1182	1588	728	1921	1577
Right Turn on Red	000	0210	Yes	100	0001	Yes	1100	1102	Yes	, 20	1021	Yes
Satd. Flow (RTOR)		87			7				245			98
Link Speed (k/h)		60			50			50	2.0		50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	1	01.1	8	8	11.0	1	3	20.0	6	6	0.1	3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	17%	0%	2%	0%	13%	3%	1%	6%	0%	2%
Adj. Flow (vph)	66	797	380	334	828	36	517	54	245	32	66	98
Shared Lane Traffic (%)			000	00.	020		45%	Ų.	2.0	02		
Lane Group Flow (vph)	66	1177	0	334	864	0	284	287	245	32	66	98
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	Loit	3.7	rugiit	Loit	3.7	rugiit	Loit	3.7	rugiit	LOIL	3.7	rugiit
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		7.0			7.0			7.0			7.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	0.00	14	24	0.00	14	24	0.00	14	24	0.00	14
Number of Detectors	0	2	17	1	2	17	1	1	1	1	1	0
Detector Template	0	Thru		•	Thru		•			•	'	J
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	Cl+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel	OITEX	OITEX		OITEX	OIILX		OIILX	OITEX	OIILX	OITEX	OIILX	OIILX
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
	0.0			0.0	28.7		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7										
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			Cl+Ex							
Detector 2 Channel		0.0			0.0							
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	37.2	37.2		60.1	57.1		27.1	27.1	27.1	27.1	27.1	27.1
Actuated g/C Ratio	0.38	0.38		0.62	0.59		0.28	0.28	0.28	0.28	0.28	0.28
v/c Ratio	0.27	0.92		0.87	0.41		0.89	0.87	0.40	0.16	0.12	0.19
Control Delay	27.9	40.5		46.2	11.9		63.3	60.4	5.6	28.5	26.5	6.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	40.5		46.2	11.9		63.3	60.4	5.6	28.5	26.5	6.6
LOS	С	D		D	В		Е	Е	Α	С	С	Α
Approach Delay		39.8			21.5			45.0			16.9	
Approach LOS		D			С			D			В	
Queue Length 50th (m)	9.0	108.8		44.8	45.2		53.5	53.8	0.0	4.5	9.2	0.0
Queue Length 95th (m)	21.1	#163.5		#81.6	58.4		#100.4	#100.1	16.8	12.0	19.2	11.1
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	241	1285		452	2091		343	353	646	217	573	540
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	0.27	0.92		0.74	0.41		0.83	0.81	0.38	0.15	0.12	0.18

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 97.2

Natural Cycle: 90

MNF

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 33.4

Intersection Capacity Utilization 87.3%

Intersection LOS: C
ICU Level of Service E

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



	-	•	•	←	1	/
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ኘ	^	ሻ	7
Traffic Volume (vph)	692	102	254	824	189	274
Future Volume (vph)	692	102	254	824	189	274
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	5.1	0.0	180.0	5.1	90.0	0.0
Storage Lanes		0.0	100.0		30.0	1
Taper Length (m)		U	80.0		80.0	ı
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.93	0.95	1.00	0.95	1.00	0.850
	0.901		0.050		0.950	0.000
Flt Protected	2407	٥	0.950	2544		040
Satd. Flow (prot)	3467	0	1668	3544	1713	949
Flt Permitted	0.40=	•	0.289	0544	0.950	0.40
Satd. Flow (perm)	3467	0	507	3544	1713	949
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	28					282
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	637.9	
Travel Time (s)	45.0			9.0	28.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	12%	1%	3%	3%	1%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	713	105	262	849	195	282
Shared Lane Traffic (%)						
Lane Group Flow (vph)	818	0	262	849	195	282
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0	, agric	Loit	3.0	3.4	i dgiit
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
\ /	4.9			4.9	4.9	
Two way Left Turn Lane	0.00	0.00	1.00	0.00	1.02	1.00
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)	•	14	24		24	14
Number of Detectors	_ 2		1	_ 2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	Cl+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7		0.0	28.7	0.0	0.0
Detector 2 Size(m)	1.8			1.8		
` '	CI+Ex			Cl+Ex		
Detector 2 Type	UI+EX			OI+EX		
Detector 2 Channel	0.0			0.0		
Detector 2 Extend (s)	0.0			0.0		

	-	*	•	•	1		
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Turn Type	NA	р	m+pt	NA	Prot	Perm	
Protected Phases	4		3	8	2		
Permitted Phases			8			2	
Detector Phase	4		3	8	2	2	
Switch Phase							
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0	
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1	
Total Split (s)	45.5		12.0	57.5	22.1	22.1	
Total Split (%)	57.2%	1	5.1%	72.2%	27.8%	27.8%	
Maximum Green (s)	38.0		10.0	50.0	15.0	15.0	
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9	
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1	
Lead/Lag	Lag		Lead				
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0	
Recall Mode	Max		None	Max	None	None	
Act Effct Green (s)	39.6		55.5	50.0	13.2	13.2	
Actuated g/C Ratio	0.51		0.71	0.64	0.17	0.17	
v/c Ratio	0.46		0.54	0.37	0.67	0.72	
Control Delay	13.4		8.3	7.3	42.6	15.5	
Queue Delay	0.0		0.0	0.0	0.0	0.0	
Total Delay	13.4		8.3	7.3	42.6	15.5	
LOS	В		Α	Α	D	В	
Approach Delay	13.4			7.5	26.6		
Approach LOS	В			Α	С		
Queue Length 50th (m)	38.5		11.4	28.2	27.2	0.0	
Queue Length 95th (m)	55.3		19.9	39.4	47.6	#31.0	
Internal Link Dist (m)	976.2			176.3	613.9		
Turn Bay Length (m)		•	180.0		90.0		
Base Capacity (vph)	1776		511	2279	330	410	
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	0.46		0.51	0.37	0.59	0.69	
			-	-			

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 77.8

Natural Cycle: 70

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.72 Intersection Signal Delay: 13.3

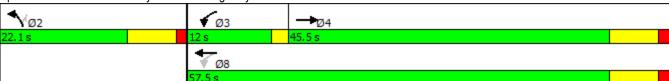
Intersection Signal Delay: 13.3 Intersection LOS: B
Intersection Capacity Utilization 69.2% ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

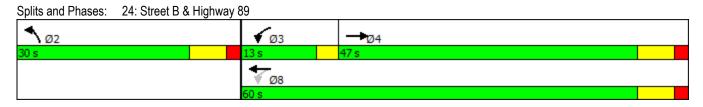
Splits and Phases: 1: County Road 50 & Highway 89



	•	→	←	4	/	4
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4₽	∱ ∱		¥	
Traffic Volume (veh/h)	15	840	845	54	36	14
Future Volume (Veh/h)	15	840	845	54	36	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	913	918	59	39	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.88	
vC, conflicting volume	977				1436	488
vC1, stage 1 conf vol	• • •					
vC2, stage 2 conf vol						
vCu, unblocked vol	977				1215	488
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					3.3	
tF(s)	2.2				3.5	3.3
p0 queue free %	98				74	97
cM capacity (veh/h)	714				151	531
		ED 0	WD 1	WD 0		
Direction, Lane # Volume Total	EB 1 320	EB 2	WB 1 612	WB 2	SB 1	
	320 16	609		365	54 39	
Volume Left		0	0	0		
Volume Right	0	0	1700	59	15	
cSH	714	1700	1700	1700	189	
Volume to Capacity	0.02	0.36	0.36	0.21	0.29	
Queue Length 95th (m)	0.5	0.0	0.0	0.0	8.6	
Control Delay (s)	0.8	0.0	0.0	0.0	31.5	
Lane LOS	A				D	
Approach Delay (s)	0.3		0.0		31.5	
Approach LOS					D	
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utiliza	tion		43.9%	IC	U Level c	of Service
Analysis Period (min)			15			

Lane Group EBT EBR WBL WBT NBL NBR Lane Configurations ↑↑ ↑
Lane Configurations 15 16 17 17 Traffic Volume (vph) 910 73 107 969 81 109 Future Volume (vph) 910 73 107 969 81 109 Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 Storage Length (m) 0.0 15.0 0.0 0.0 0.0 Storage Lanes 0 1 1 0 Taper Length (m) 60.0 2.5 0.95 Lane Util. Factor 0.95 0.95 1.00 1.00 Frt 0.989 0.950 0.979
Traffic Volume (vph) 910 73 107 969 81 109 Future Volume (vph) 910 73 107 969 81 109 Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 Storage Length (m) 0.0 15.0 0.0 0.0 Storage Lanes 0 1 1 0 Taper Length (m) 60.0 2.5 Lane Util. Factor 0.95 0.95 1.00 0.95 Frt 0.989 0.923 Flt Protected 0.950 0.979
Future Volume (vph) 910 73 107 969 81 109 Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 Storage Length (m) 0.0 15.0 0.0 0.0 Storage Lanes 0 1 1 0 Taper Length (m) 60.0 2.5 Lane Util. Factor 0.95 0.95 1.00 0.95 Frt 0.989 0.923 Fit Protected 0.950 0.979
Ideal Flow (vphpl) 1900
Storage Length (m) 0.0 15.0 0.0 0.0 Storage Lanes 0 1 1 0 Taper Length (m) 60.0 2.5 Lane Util. Factor 0.95 0.95 1.00 0.95 1.00 Frt 0.989 0.923 Fit Protected 0.950 0.979
Storage Lanes 0 1 1 0 Taper Length (m) 60.0 2.5 Lane Util. Factor 0.95 0.95 1.00 0.95 1.00 Frt 0.989 0.923 Fit Protected 0.950 0.979
Taper Length (m) 60.0 2.5 Lane Util. Factor 0.95 0.95 1.00 0.95 1.00 1.00 Frt 0.989 0.923 Fit Protected 0.950 0.979
Lane Util. Factor 0.95 0.95 1.00 0.95 1.00 1.00 Frt 0.989 0.923 Fit Protected 0.950 0.979
Frt 0.989 0.923 Flt Protected 0.950 0.979
Flt Protected 0.950 0.979
Satd. Flow (prot) 3539 0 1789 3579 1702 0
Flt Permitted 0.195 0.979
Satd. Flow (perm) 3539 0 367 3579 1702 0
Right Turn on Red Yes Yes
Satd. Flow (RTOR) 12 72
Link Speed (k/h) 80 80 50
Link Distance (m) 647.5 77.2 111.5
Travel Time (s) 29.1 3.5 8.0
Peak Hour Factor 0.90 0.90 0.90 0.90 0.90 0.90
Adj. Flow (vph) 1011 81 119 1077 90 121
Shared Lane Traffic (%)
Enter Blocked Intersection No No No No No No
Lane Alignment Left Right Left Left Right
Median Width(m) 3.7 3.7
Link Offset(m) 0.0 0.0 0.0
Crosswalk Width(m) 1.6 1.6 1.6
Two way Left Turn Lane
Headway Factor 0.99 0.99 0.99 0.99 0.99
Turning Speed (k/h) 14 24 24 14
Number of Detectors 2 1 2 1
Detector Template Thru Left Thru Left
Leading Detector (m) 30.5 6.1 30.5 6.1
Trailing Detector (m) 0.0 0.0 0.0 0.0
Detector 1 Position(m) 0.0 0.0 0.0 0.0
Detector 1 Size(m) 1.8 6.1 1.8 6.1
Detector 1 Type CI+Ex CI+Ex CI+Ex
Detector 1 Channel
Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.
Detector 1 Delay (s) 0.0 0.0 0.0 0.0
Detector 2 Position(m) 28.7 28.7
Detector 2 Size(m) 1.8 1.8
Detector 2 Type CI+Ex CI+Ex
Detector 2 Channel
Detector 2 Extend (s) 0.0 0.0
Turn Type NA pm+pt NA Prot
Protected Phases 4 3 8 2
Permitted Phases 8

	→	•	€	←	•	/
Lane Group	EBT	EBR \	WBL	WBT	NBL	NBR
Detector Phase	4		3	8	2	
Switch Phase			-			
Minimum Initial (s)	5.0		5.0	5.0	5.0	
Minimum Split (s)	25.0		9.5	25.0	25.0	
Total Split (s)	47.0		13.0	60.0	30.0	
Total Split (%)	52.2%		1.4%	66.7%	33.3%	
Maximum Green (s)	40.0		10.0	53.0	23.0	
Yellow Time (s)	5.0		3.0	5.0	5.0	
All-Red Time (s)	2.0		0.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.0		3.0	7.0	7.0	
Lead/Lag	Lag		ead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Max	N	lone	Max	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	46.1		58.6	54.6	12.1	
Actuated g/C Ratio	0.57		0.73	0.68	0.15	
v/c Ratio	0.54		0.30	0.45	0.67	
Control Delay	13.4		6.0	7.3	31.2	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	13.4		6.0	7.3	31.2	
LOS	В		Α	Α	С	
Approach Delay	13.4			7.2	31.2	
Approach LOS	В			Α	С	
Queue Length 50th (m)	51.7		4.3	34.0	19.5	
Queue Length 95th (m)	87.6		11.4	59.0	39.9	
Internal Link Dist (m)	623.5			53.2	87.5	
Turn Bay Length (m)			15.0			
Base Capacity (vph)	2027		442	2420	537	
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	0.54		0.27	0.45	0.39	
Intersection Summary						
Area Type:	Other					
Cycle Length: 90						
Actuated Cycle Length: 80	0.7					
Natural Cycle: 60						
Control Type: Semi Act-U	ncoord					
Maximum v/c Ratio: 0.67						
Intersection Signal Delay:	11.9			Ir	ntersection	LOS: B
Intersection Capacity Utiliz						of Service B



	۶	→	•	•	—	•	•	†	~	>	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	∱ β		Ţ	ħβ			4			4	
Traffic Volume (vph)	51	943	28	204	993	195	104	16	243	154	39	53
Future Volume (vph)	51	943	28	204	993	195	104	16	243	154	39	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m) 1	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m) 1	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.975			0.910			0.971	
Fit Protected 0	0.950			0.950				0.986			0.970	
Satd. Flow (prot)	1825	3566	0	1789	3472	0	0	1724	0	0	1798	0
FIt Permitted 0	0.138			0.136				0.828			0.532	
Satd. Flow (perm)	265	3566	0	256	3472	0	0	1448	0	0	986	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			30			122			17	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		312.3			133.1			218.3			107.2	
Travel Time (s)		18.7			8.0			13.1			7.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	0%	2%	3%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	54	993	29	215	1045	205	109	17	256	162	41	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	1022	0	215	1250	0	0	382	0	0	259	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7	- J		0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex		Cl+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
. ,	m+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	

	•	-	•	•	←	*	1	†	/	-	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	25.0		9.5	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	10.0	36.0		17.0	43.0		37.0	37.0		37.0	37.0	
Total Split (%)	11.1%	40.0%		18.9%	47.8%		41.1%	41.1%		41.1%	41.1%	
Maximum Green (s)	7.0	29.0		14.0	36.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	3.0	5.0		3.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	0.0	2.0		0.0	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)	3.0	7.0		3.0	7.0			7.0			7.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	Max		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	40.7	30.2		47.7	38.2			23.7			23.7	
Actuated g/C Ratio	0.50	0.37		0.59	0.47			0.29			0.29	
v/c Ratio	0.21	0.77		0.62	0.76			0.75			0.87	
Control Delay	11.4	29.4		19.7	24.0			27.8			54.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	11.4	29.4		19.7	24.0			27.8			54.4	
LOS	В	С		В	С			С			D	
Approach Delay		28.5			23.3			27.8			54.4	
Approach LOS		С			С			С			D	
Queue Length 50th (m)	3.6	75.8		15.7	93.2			38.0			36.9	
Queue Length 95th (m)	9.0	#123.3		36.2				70.2			#75.6	
Internal Link Dist (m)		288.3			109.1			194.3			83.2	
Turn Bay Length (m)	100.0			70.0								
Base Capacity (vph)	270	1322		416	1642			617			378	
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	0.77		0.52	0.76			0.62			0.69	

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 81.5

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 28.2

Intersection Capacity Utilization 80.8%

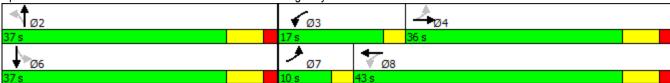
Intersection LOS: C
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Concession Road 7/Dean Drive & Highway 89



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			4	f	
Traffic Volume (veh/h)	192	21	18	169	158	112
Future Volume (Veh/h)	192	21	18	169	158	112
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	213	23	20	188	176	124
Pedestrians	210	20	20	100	170	127
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				INUITE	INOHE	
ŭ ,					218	
Upstream signal (m)	0.05	0.05	0.95		∠10	
pX, platoon unblocked	0.95 466	0.95 238	300			
vC, conflicting volume	400	230	300			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol	440	170	025			
vCu, unblocked vol	410	170	235			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	2.5	2.2	2.2			
tF (s)	3.5	3.3	2.2			
p0 queue free %	62	97	98			
cM capacity (veh/h)	558	829	1264			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	236	208	300			
Volume Left	213	20	0			
Volume Right	23	0	124			
cSH	576	1264	1700			
Volume to Capacity	0.41	0.02	0.18			
Queue Length 95th (m)	15.1	0.4	0.0			
Control Delay (s)	15.5	0.9	0.0			
Lane LOS	С	Α				
Approach Delay (s)	15.5	0.9	0.0			
Approach LOS	С					
Intersection Summary						
Average Delay			5.2			
Intersection Capacity Utiliz	zation		42.5%	IC	CU Level c	f Service
Analysis Period (min)			15		. 5 _5.07 0	. 55.7100
Analysis i Gilou (IIIII)			10			

Lane Group EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT SBR Lane Configurations 1		۶	→	•	•	—	•	•	†	<i>></i>	/	+	-√
Traffic Volume (vph) 89 1316 7 31 1340 185 1 7 12 180 6 77 Future Volume (vph) 89 1316 7 31 1340 185 1 7 12 180 6 77 Ideal Flow (vphpl) 1900	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph) 89 1316 7 31 1340 185 1 7 12 180 6 77 Future Volume (vph) 89 1316 7 31 1340 185 1 7 12 180 6 77 Ideal Flow (vphpl) 1900	Lane Configurations	*	† 1>		ሻ	^	7		4			ર્ની	7
Future Volume (vph) 89 1316 7 31 1340 185 1 7 12 180 6 77 Ideal Flow (vphpl) 1900		89		7			185	1		12	180		
Ideal Flow (vphpl) 1900 <td>\ . <i>,</i></td> <td>89</td> <td>1316</td> <td>7</td> <td>31</td> <td>1340</td> <td>185</td> <td>1</td> <td>7</td> <td>12</td> <td>180</td> <td>6</td> <td>77</td>	\ . <i>,</i>	89	1316	7	31	1340	185	1	7	12	180	6	77
Storage Length (m) 110.0 0.0 35.0 100.0 0.0 0.0 0.0 70.0 Storage Lanes 1 0 1 1 0 0 0 1 Taper Length (m) 100.0 70.0 7.6 7.6 7.6 Lane Util. Factor 1.00 0.95 1.00 0.95 1.00	,	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Lanes 1 0 1 1 0 0 0 1 Taper Length (m) 100.0 70.0 7.6 7.6 7.6 Lane Util. Factor 1.00 0.95 1.00 0.95 1.00 <	(, , ,	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Taper Length (m) 100.0 70.0 7.6 7.6 Lane Util. Factor 1.00 0.95 0.95 1.00 0.95 1.00		1		0	1		1	0		0	0		1
Ped Bike Factor 1.00 1.00 Frt 0.999 0.850 0.916 0.850 Fit Protected 0.950 0.998 0.954 Satd. Flow (prot) 1789 3575 0 1825 3579 1601 0 1756 0 0 1781 1555 Flt Permitted 0.142 0.147 0.984 0.717 Satd. Flow (perm) 267 3575 0 282 3579 1601 0 1732 0 0 1339 1555 Right Turn on Red Yes Yes Yes Yes Yes Satd. Flow (RTOR) 1 149 13 133 Link Speed (k/h) 60 60 50 60 Link Distance (m) 204.7 248.7 28.0 126.5		100.0			70.0			7.6			7.6		
Frt 0.999 0.850 0.916 0.850 Flt Protected 0.950 0.950 0.998 0.954 Satd. Flow (prot) 1789 3575 0 1825 3579 1601 0 1756 0 0 1781 1555 Flt Permitted 0.142 0.147 0.984 0.717 Satd. Flow (perm) 267 3575 0 282 3579 1601 0 1732 0 0 1339 1555 Right Turn on Red Yes Yes Yes Yes Yes Satd. Flow (RTOR) 1 149 13 133 Link Speed (k/h) 60 60 50 60 Link Distance (m) 204.7 248.7 28.0 126.5	Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected 0.950 0.950 0.998 0.954 Satd. Flow (prot) 1789 3575 0 1825 3579 1601 0 1756 0 0 1781 1555 Fit Permitted 0.142 0.147 0.984 0.717 Satd. Flow (perm) 267 3575 0 282 3579 1601 0 1732 0 0 1339 1555 Right Turn on Red Yes Yes Yes Yes Yes Satd. Flow (RTOR) 1 149 13 133 Link Speed (k/h) 60 60 50 60 Link Distance (m) 204.7 248.7 28.0 126.5	Ped Bike Factor		1.00		1.00								
Satd. Flow (prot) 1789 3575 0 1825 3579 1601 0 1756 0 0 1781 1555 Flt Permitted 0.142 0.147 0.984 0.717 Satd. Flow (perm) 267 3575 0 282 3579 1601 0 1732 0 0 1339 1555 Right Turn on Red Yes Yes Yes Yes Yes Yes Satd. Flow (RTOR) 1 149 13 133 133 Link Speed (k/h) 60 60 50 60 Link Distance (m) 204.7 248.7 28.0 126.5	Frt		0.999				0.850		0.916				0.850
Fit Permitted 0.142 0.147 0.984 0.717 Satd. Flow (perm) 267 3575 0 282 3579 1601 0 1732 0 0 1339 1555 Right Turn on Red Yes Yes Yes Satd. Flow (RTOR) 1 149 13 133 Link Speed (k/h) 60 60 50 50 60 Link Distance (m) 204.7 248.7 28.0 126.5	Flt Protected	0.950			0.950				0.998			0.954	
Satd. Flow (perm) 267 3575 0 282 3579 1601 0 1732 0 0 1339 1555 Right Turn on Red Yes Yes Yes Yes Yes Satd. Flow (RTOR) 1 149 13 133 Link Speed (k/h) 60 60 50 60 Link Distance (m) 204.7 248.7 28.0 126.5	Satd. Flow (prot)	1789	3575	0	1825	3579	1601	0	1756	0	0	1781	1555
Right Turn on Red Yes Yes Yes Yes Satd. Flow (RTOR) 1 149 13 133 Link Speed (k/h) 60 60 50 60 Link Distance (m) 204.7 248.7 28.0 126.5	Flt Permitted	0.142			0.147				0.984			0.717	
Satd. Flow (RTOR) 1 149 13 133 Link Speed (k/h) 60 60 50 60 Link Distance (m) 204.7 248.7 28.0 126.5	Satd. Flow (perm)	267	3575	0	282	3579	1601	0	1732	0	0	1339	1555
Satd. Flow (RTOR) 1 149 13 133 Link Speed (k/h) 60 60 50 60 Link Distance (m) 204.7 248.7 28.0 126.5	Right Turn on Red			Yes			Yes			Yes			Yes
Link Distance (m) 204.7 248.7 28.0 126.5			1				149		13				133
Link Distance (m) 204.7 248.7 28.0 126.5	Link Speed (k/h)		60			60			50			60	
			204.7			248.7			28.0			126.5	
			12.3			14.9			2.0				
Confl. Peds. (#/hr) 1 1	Confl. Peds. (#/hr)			1	1								
Peak Hour Factor 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%) 2% 2% 0% 0% 2% 2% 0% 0% 0% 3% 0% 5%	Heavy Vehicles (%)	2%	2%	0%	0%	2%	2%	0%	0%	0%	3%	0%	5%
Adj. Flow (vph) 94 1385 7 33 1411 195 1 7 13 189 6 81	, ,		1385	7	33	1411	195	1		13			
Shared Lane Traffic (%)													
Lane Group Flow (vph) 94 1392 0 33 1411 195 0 21 0 0 195 81	` ,	94	1392	0	33	1411	195	0	21	0	0	195	81
Enter Blocked Intersection No	,	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment Left Left Right Left Right Left Right Left Right	Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m) 3.7 3.7 0.0 0.0			3.7						0.0			0.0	
Link Offset(m) 0.0 0.0 0.0	Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m) 4.9 4.9 4.9 4.9	Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane	Two way Left Turn Lane												
Headway Factor 0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.9		0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h) 24 14 24 14 24 14 14 14	Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors 1 2 1 2 1 1 2 1 2 1	Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template Left Thru Left Thru Right Left Thru Left Thru Right		Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m) 6.1 30.5 6.1 30.5 6.1 30.5 6.1	Leading Detector (m)												
Trailing Detector (m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.											0.0		
Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.													
Detector 1 Size(m) 6.1 1.8 6.1 1.8 6.1 1.8 6.1 1.8 6.1					6.1						6.1		
Detector 1 Type CI+Ex	. ,												
Detector 1 Channel	7 1												
Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.		0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	` '												
Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	. ,												
Detector 2 Position(m) 28.7 28.7 28.7 28.7	• ()												
Detector 2 Size(m) 1.8 1.8 1.8	` '												
Detector 2 Type CI+Ex CI+Ex CI+Ex CI+Ex													
Detector 2 Channel			·						- - ,			- · -·	
Detector 2 Extend (s) 0.0 0.0 0.0			0.0			0.0			0.0			0.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Free	Perm	NA		Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	63.0	63.0		63.0	63.0		27.0	27.0		27.0	27.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	56.0	56.0		56.0	56.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	58.8	58.8		58.8	58.8	89.7		16.9			16.9	89.7
Actuated g/C Ratio	0.66	0.66		0.66	0.66	1.00		0.19			0.19	1.00
v/c Ratio	0.54	0.59		0.18	0.60	0.12		0.06			0.77	0.05
Control Delay	24.2	10.5		10.0	10.7	0.2		17.2			54.9	0.1
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	24.2	10.5		10.0	10.7	0.2		17.2			54.9	0.1
LOS	С	В		В	В	Α		В			D	Α
Approach Delay		11.4			9.4			17.3			38.8	
Approach LOS		В			Α			В			D	
Queue Length 50th (m)	8.0	65.7		2.1	67.3	0.0		1.1			30.9	0.0
Queue Length 95th (m)	#33.8	90.3		7.1	92.3	0.0		m6.1			#57.1	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	175	2343		184	2345	1601		396			298	1555
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.54	0.59		0.18	0.60	0.12		0.05			0.65	0.05
Intersection Summary												

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 89.7

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 12.7

Intersection Capacity Utilization 76.4%

Intersection LOS: B

ICU Level of Service D

- # 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: 4: Elizabeth Street/Concession Road 7 & Highway 89



	-	\rightarrow	•	←	•	/
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† ‡			414	W	
Traffic Volume (veh/h)	1538	3	7	1551	0	10
Future Volume (Veh/h)	1538	3	7	1551	0	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1636	3	7	1650	0	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	249					
pX, platoon unblocked			0.76		0.76	0.76
vC, conflicting volume			1639		2476	820
vC1, stage 1 conf vol			1000		0	020
vC2, stage 2 conf vol						
vCu, unblocked vol			1209		2311	131
tC, single (s)			4.1		6.8	7.2
tC, 2 stage (s)					0.0	1.2
tF (s)			2.2		3.5	3.5
p0 queue free %			98		100	98
cM capacity (veh/h)			444		25	645
				=		040
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	1091	548	557	1100	11	
Volume Left	0	0	7	0	0	
Volume Right	0	3	0	0	11	
cSH	1700	1700	444	1700	645	
Volume to Capacity	0.64	0.32	0.02	0.65	0.02	
Queue Length 95th (m)	0.0	0.0	0.4	0.0	0.4	
Control Delay (s)	0.0	0.0	0.5	0.0	10.7	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.2		10.7	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliza	ation		57.8%	IC	U Level o	f Service
Analysis Period (min)			15			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	ħβ		ř	∱ }		Ĭ	ર્ન	7	*		7
Traffic Volume (vph)	168	1161	217	523	1121	41	299	65	301	59	143	116
Future Volume (vph)	168	1161	217	523	1121	41	299	65	301	59	143	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00			1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.976			0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.968		0.950		
Satd. Flow (prot)	1807	3517	0	1825	3594	0	1683	1733	1617	1772	1921	1633
Flt Permitted	0.223			0.108			0.642	0.693		0.527		
Satd. Flow (perm)	424	3517	0	207	3594	0	1134	1238	1593	981	1921	1607
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			6				324			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	3		1	1		3	4		3	3		4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	0%	6%	0%	1%	0%	3%	0%	1%	3%	0%	0%
Adj. Flow (vph)	181	1248	233	562	1205	44	322	70	324	63	154	125
Shared Lane Traffic (%)							41%					
Lane Group Flow (vph)	181	1481	0	562	1249	0	190	202	324	63	154	125
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7	J		3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		Cl+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	33.1	33.1		60.3	57.2		21.8	21.8	21.8	21.8	21.8	21.8
Actuated g/C Ratio	0.36	0.36		0.65	0.62		0.24	0.24	0.24	0.24	0.24	0.24
v/c Ratio	1.19	1.16		1.15	0.56		0.71	0.69	0.52	0.27	0.34	0.28
Control Delay	164.6	109.1		116.1	12.2		46.9	44.5	6.4	30.9	30.6	11.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	164.6	109.1		116.1	12.2		46.9	44.5	6.4	30.9	30.6	11.7
LOS	F	F		F	В		D	D	Α	С	С	В
Approach Delay		115.1			44.4			27.9			23.7	
Approach LOS		F			D			С			С	
Queue Length 50th (m)	~39.8	~167.5		-104.0	63.4		32.4	34.3	0.0	9.1	22.7	5.1
Queue Length 95th (m)	#85.2	#229.2	#	‡181.7	95.7		56.5	58.5	19.0	19.9	38.7	18.2
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	152	1280		488	2236		358	391	725	310	607	568
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	1.19	1.16		1.15	0.56		0.53	0.52	0.45	0.20	0.25	0.22

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 92.1

Natural Cycle: 150

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 66.2

Intersection LOS: E

Intersection Capacity Utilization 108.8% ICU Level of Service G

- ~ 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.

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



	→	•	•	←	•	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†	LDIX	YVDL	↑	NDL T	TIDIX
Traffic Volume (vph)	545	295	428	415	96	200
Future Volume (vph)	545	295	428	415	96	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
. ,	3.1	0.0	180.0	3.1	90.0	0.0
Storage Length (m)						
Storage Lanes		0	1		1	1
Taper Length (m)	2.25	0.05	80.0	0.05	80.0	4.00
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.947					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	2963	0	1620	3093	1471	1426
Flt Permitted			0.226		0.950	
Satd. Flow (perm)	2963	0	385	3093	1471	1426
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	161					220
Link Speed (k/h)	80			80	80	
Link Distance (m)	1000.2			200.3	311.5	
Travel Time (s)	45.0			9.0	14.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	17%	16%	4%	18%	20%	12%
. ,						
Adj. Flow (vph)	599	324	470	456	105	220
Shared Lane Traffic (%)	000	•	470	450	405	222
Lane Group Flow (vph)	923	0	470	456	105	220
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.01
Turning Speed (k/h)	3.00	14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		· · ·	Thru	'	Right
·	30.5		12.0	30.5	12.0	12.0
Leading Detector (m)	0.0					
Trailing Detector (m)			-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	J			J		
Detector 2 Extend (s)	0.0			0.0		
			nm i nt		Drot	Dorm
Turn Type	NA		pm+pt	NA	Prot	Perm

	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	42.5		18.0	60.5	19.1	19.1
Total Split (%)	53.4%		22.6%	76.0%	24.0%	24.0%
Maximum Green (s)	35.0		16.0	53.0	12.0	12.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead	-		
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	36.1		58.5	53.0	11.0	11.0
Actuated g/C Ratio	0.46		0.74	0.67	0.14	0.14
v/c Ratio	0.64		0.90	0.22	0.51	0.57
Control Delay	15.9		33.5	5.3	40.8	11.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	15.9		33.5	5.3	40.8	11.1
LOS	В		С	Α	D	В
Approach Delay	15.9			19.6	20.7	
Approach LOS	В			В	С	
Queue Length 50th (m)	44.5		30.4	11.6	14.7	0.0
Queue Length 95th (m)	65.7		#85.6	17.8	29.4	18.0
Internal Link Dist (m)	976.2			176.3	287.5	
Turn Bay Length (m)			180.0		90.0	
Base Capacity (vph)	1449		538	2086	224	404
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	0.64		0.87	0.22	0.47	0.54

Intersection Summary

Area Type: Other

Cycle Length: 79.6
Actuated Cycle Length: 78.6

Natural Cycle: 80

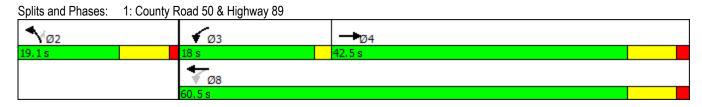
Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.90

Intersection Signal Delay: 18.2 Intersection LOS: B
Intersection Capacity Utilization 76.7% 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.



	•		+	4	_	J
		-			-	7
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4∱	↑ ⊅		M	
Traffic Volume (veh/h)	18	703	776	20	44	83
Future Volume (Veh/h)	18	703	776	20	44	83
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	20	781	862	22	49	92
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked						
vC, conflicting volume	884				1304	442
vC1, stage 1 conf vol						· · · -
vC2, stage 2 conf vol						
vCu, unblocked vol	884				1304	442
tC, single (s)	4.3				6.8	6.9
tC, 2 stage (s)	7.0				0.0	0.5
tF (s)	2.3				3.5	3.3
p0 queue free %	97				67	84
•	707				150	569
cM capacity (veh/h)						509
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	280	521	575	309	141	
Volume Left	20	0	0	0	49	
Volume Right	0	0	0	22	92	
cSH	707	1700	1700	1700	289	
Volume to Capacity	0.03	0.31	0.34	0.18	0.49	
Queue Length 95th (m)	0.7	0.0	0.0	0.0	19.1	
Control Delay (s)	1.0	0.0	0.0	0.0	28.8	
Lane LOS	Α				D	
Approach Delay (s)	0.4		0.0		28.8	
Approach LOS					D	
Intersection Summary			0.4			
Average Delay			2.4			
Intersection Capacity Utilization	on		46.6%	IC	U Level o	of Service
Analysis Period (min)			15			

Lane Group EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT Lane Configurations 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SBR
Lane Configurations X At. X At.	
Luno Connigurations Try Try W	
Traffic Volume (vph) 36 732 39 225 796 93 24 12 106 86 10	36
Future Volume (vph) 36 732 39 225 796 93 24 12 106 86 10	36
Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 190	1900
Storage Length (m) 100.0 0.0 70.0 0.0 0.0 0.0 0.0	0.0
Storage Lanes 1 0 1 0 0 0 0	0
Taper Length (m) 100.0 100.0 7.6 7.6	
Lane Util. Factor 1.00 0.95 0.95 1.00 0.95 1.00 1.00 1.00 1.00 1.00	1.00
Frt 0.992 0.984 0.899 0.963	
Flt Protected 0.950 0.950 0.992 0.969	
Satd. Flow (prot) 1825 3157 0 1772 3174 0 0 1713 0 0 1745	0
Flt Permitted 0.278 0.326 0.919 0.683	
Satd. Flow (perm) 534 3157 0 608 3174 0 0 1587 0 0 1230	0
Right Turn on Red Yes Yes Yes	Yes
Satd. Flow (RTOR) 12 28 115 19	
Link Speed (k/h) 60 60 50	
Link Distance (m) 314.7 133.1 218.1 107.2	
Travel Time (s) 18.9 8.0 13.1 7.7	
	0.92
Heavy Vehicles (%) 0% 15% 9% 3% 14% 6% 0% 0% 0% 0%	10%
Adj. Flow (vph) 39 796 42 245 865 101 26 13 115 93 11	39
Shared Lane Traffic (%)	
Lane Group Flow (vph) 39 838 0 245 966 0 0 154 0 0 143	0
Enter Blocked Intersection No No No No No No No No No	No
	Right
Median Width(m) 3.7 3.7 0.0 0.0	J
Link Offset(m) 0.0 0.0 0.0	
Crosswalk Width(m) 4.9 4.9 4.9 4.9	
Two way Left Turn Lane	
	0.99
Turning Speed (k/h) 24 14 24 14 24 14 24	14
Number of Detectors 1 2 1 2 1 2	
Detector Template Left Thru Left Thru Left Thru Left Thru	
Leading Detector (m) 6.1 30.5 6.1 30.5 6.1 30.5	
Trailing Detector (m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
Detector 1 Position(m) 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
Detector 1 Size(m) 6.1 1.8 6.1 1.8 6.1 1.8	
Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex	
Detector 1 Channel	
Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	
Detector 2 Position(m) 28.7 28.7 28.7 28.7	
Detector 2 Size(m) 1.8 1.8 1.8	
Detector 2 Type CI+Ex CI+Ex CI+Ex CI+Ex	
Detector 2 Channel	
Detector 2 Extend (s) 0.0 0.0 0.0 0.0	
Turn Type Perm NA Perm NA Perm NA Perm NA	
Protected Phases 4 8 2 6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	65.0	65.0		65.0	65.0		25.0	25.0		25.0	25.0	
Total Split (%)	72.2%	72.2%		72.2%	72.2%		27.8%	27.8%		27.8%	27.8%	
Maximum Green (s)	58.0	58.0		58.0	58.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	59.8	59.8		59.8	59.8			13.3			13.3	
Actuated g/C Ratio	0.69	0.69		0.69	0.69			0.15			0.15	
v/c Ratio	0.11	0.39		0.59	0.44			0.45			0.70	
Control Delay	6.5	6.8		15.6	7.2			14.9			48.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.5	6.8		15.6	7.2			14.9			48.3	
LOS	Α	Α		В	Α			В			D	
Approach Delay		6.8			8.9			14.9			48.3	
Approach LOS		Α			Α			В			D	
Queue Length 50th (m)	1.9	27.0		18.8	32.2			5.6			19.3	
Queue Length 95th (m)	6.3	43.2		51.0	51.2			21.5			38.0	
Internal Link Dist (m)		290.7			109.1			194.1			83.2	
Turn Bay Length (m)	100.0			70.0								
Base Capacity (vph)	366	2172		417	2188			419			269	
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	0.11	0.39		0.59	0.44			0.37			0.53	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 87	7.1											
Natural Cycle: 65												
Control Type: Semi Act-U	ncoord											
Maximum v/c Ratio: 0.70												
Intersection Signal Delay:					ntersection							
Intersection Capacity Utiliz	zation 65.6%			IC	CU Level o	of Service	C					
Analysis Period (min) 15												

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0/1	18/20	17

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	† }		ች	^	7		4			ન	7
Traffic Volume (vph)	50	887	1	10	1047	86	0	1	1	65	3	66
Future Volume (vph)	50	887	1	10	1047	86	0	1	1	65	3	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt						0.850		0.932				0.850
Flt Protected	0.950			0.950							0.954	
Satd. Flow (prot)	1644	3259	0	1372	3230	1570	0	1790	0	0	1749	1396
FIt Permitted	0.244			0.299							0.734	
Satd. Flow (perm)	422	3259	0	431	3230	1570	0	1790	0	0	1346	1396
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						133		1				133
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Confl. Peds. (#/hr)			4	4								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	11%	12%	0%	33%	13%	4%	0%	0%	0%	5%	0%	17%
Adj. Flow (vph)	53	934	1	11	1102	91	0	1	1	68	3	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	935	0	11	1102	91	0	2	0	0	71	69
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7	- J		0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex		Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			Cl+Ex			CI+Ex			CI+Ex	
Detector 2 Channel								- / ·			,	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
= =====================================		0.0			0.0			0.0			0.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Free		NA		Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	60.0	60.0		60.0	60.0		30.0	30.0		30.0	30.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	53.0	53.0		53.0	53.0		23.0	23.0		23.0	23.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	65.5	65.5		65.5	65.5	84.9	•	9.8		-	9.8	84.9
Actuated g/C Ratio	0.77	0.77		0.77	0.77	1.00		0.12			0.12	1.00
v/c Ratio	0.16	0.37		0.03	0.44	0.06		0.01			0.46	0.05
Control Delay	6.1	5.1		4.7	5.6	0.1		27.0			44.1	0.1
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	6.1	5.1		4.7	5.6	0.1		27.0			44.1	0.1
LOS	Α	Α		Α	Α	Α		С			D	Α
Approach Delay		5.2			5.2			27.0			22.4	
Approach LOS		Α			Α			С			С	
Queue Length 50th (m)	2.3	26.5		0.4	33.8	0.0		0.2			12.0	0.0
Queue Length 95th (m)	7.6	42.1		2.1	53.2	0.0		m1.6			21.4	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	325	2512		332	2490	1570		488			366	1396
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.16	0.37		0.03	0.44	0.06		0.00			0.19	0.05
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 84	.9											
Natural Cycle: 55												
Control Type: Semi Act-Un	coord											
Maximum v/c Ratio: 0.46												

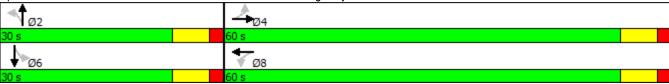
Intersection Signal Delay: 6.2 Intersection Capacity Utilization 61.0% Intersection LOS: A ICU Level of Service B

10/18/2017

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Elizabeth Street/Concession Road 7 & Highway 89



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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑			414	¥	
Traffic Volume (veh/h)	973	1	3	1163	0	19
Future Volume (Veh/h)	973	1	3	1163	0	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1046	1	3	1251	0	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	249					
pX, platoon unblocked	2.0		0.91		0.91	0.91
vC, conflicting volume			1047		1678	524
vC1, stage 1 conf vol			1017		1070	021
vC2, stage 2 conf vol						
vCu, unblocked vol			862		1553	289
tC, single (s)			4.1		6.8	7.1
tC, 2 stage (s)			7.1		0.0	7.1
tF (s)			2.2		3.5	3.4
p0 queue free %			100		100	97
cM capacity (veh/h)			720		97	627
	ED 4	ED 0		MD 0		021
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	697	350	420	834	20	
Volume Left	0	0	3	0	0	
Volume Right	0	1	0	0	20	
cSH	1700	1700	720	1700	627	
Volume to Capacity	0.41	0.21	0.00	0.49	0.03	
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.7	
Control Delay (s)	0.0	0.0	0.1	0.0	10.9	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.0		10.9	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliz	ation		44.2%	IC	U Level c	of Service
Analysis Period (min)			15			
			.,			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	∱ }		ň	∱ }		Ť	ર્ન	7	Ť	†	7
Traffic Volume (vph)	44	793	216	315	916	12	231	30	121	12	42	24
Future Volume (vph)	44	793	216	315	916	12	231	30	121	12	42	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.968			0.998				0.850			0.850
FIt Protected	0.950			0.950			0.950	0.963		0.950		
Satd. Flow (prot)	1643	2860	0	1626	3119	0	1248	1326	1455	1643	1601	1470
FIt Permitted	0.287			0.124			0.728	0.745		0.655		
Satd. Flow (perm)	496	2860	0	212	3119	0	957	1026	1455	1132	1601	1470
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39			2				130			88
Link Speed (k/h)		60			50			50	100		50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	5%	34%	1%	5%	14%	25%	0%	1%	0%	8%	0%
Adj. Flow (vph)	47	853	232	339	985	13	248	32	130	13	45	26
Shared Lane Traffic (%)	7/	000	202	000	303	10	44%	02	100	10	70	20
Lane Group Flow (vph)	47	1085	0	339	998	0	139	141	130	13	45	26
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	LOIL	3.7	rtigitt	Loit	3.7	rtigrit	LOIL	3.7	ragnt	LOIL	3.7	ragiit
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane		7.3			7.3			4.3			4.3	
Headway Factor	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
Turning Speed (k/h)	24	1.10	1.13	24	1.10	1.13	24	1.10	1.13	24	1.10	1.13
Number of Detectors	0	2	17	1	2	17	1	1	1	1	1	0
Detector Template	U	Thru		ı	Thru				·			U
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	Cl+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex	CI+Ex	Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel	CITEX	CITEX		CITEX	CITEX		CITEX	CITEX	CITEX	CITEX	CITEX	CITEX
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
()	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s) Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	0.0	0.0	0.0	0.0	0.0
		1.8			1.8							
Detector 2 Size(m)												
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel		0.0			0.0							
Detector 2 Extend (s)	Derm	0.0		n m 4	0.0		Dema	N I A	Dema	Dema	N I A	Derm
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	43.0	43.0		20.0	63.0		36.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	43.4%	43.4%		20.2%	63.6%		36.4%	36.4%	36.4%	36.4%	36.4%	36.4%
Maximum Green (s)	36.0	36.0		16.0	56.0		30.0	30.0	30.0	30.0	30.0	30.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	36.2	36.2		59.4	56.4		19.2	19.2	19.2	19.2	19.2	19.2
Actuated g/C Ratio	0.41	0.41		0.67	0.64		0.22	0.22	0.22	0.22	0.22	0.22
v/c Ratio	0.23	0.91		0.85	0.50		0.67	0.64	0.31	0.05	0.13	0.07
Control Delay	23.7	37.9		40.6	10.8		47.7	44.4	7.0	26.2	27.5	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.7	37.9		40.6	10.8		47.7	44.4	7.0	26.2	27.5	0.3
LOS	С	D		D	В		D	D	Α	С	С	Α
Approach Delay		37.3			18.3			33.7			18.9	
Approach LOS		D			В			С			В	
Queue Length 50th (m)	5.0	85.2		35.1	41.7		22.8	22.9	0.0	1.8	6.2	0.0
Queue Length 95th (m)	15.9	#154.1		#99.1	78.0		42.4	42.2	12.6	6.1	14.3	0.0
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	202	1192		398	1984		326	349	581	385	545	558
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	0.23	0.91		0.85	0.50		0.43	0.40	0.22	0.03	0.08	0.05

Intersection LOS: C

Intersection Summary

Area Type: CBD

Cycle Length: 99

Actuated Cycle Length: 88.6

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 27.7

Intersection Capacity Utilization 80.2% ICU Level of Service D

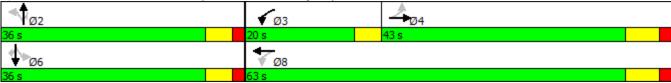
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

10/18/2017

Queue shown is maximum after two cycles.

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89

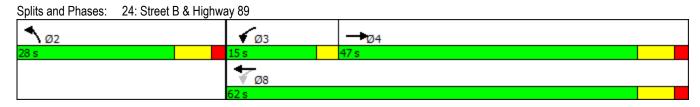


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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			4	1>	
Traffic Volume (veh/h)	64	6	22	79	102	203
Future Volume (Veh/h)	64	6	22	79	102	203
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	71	7	24	88	113	226
Pedestrians		•				
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				INOTIC	TAOTIC	
Upstream signal (m)					218	
pX, platoon unblocked	0.98	0.98	0.98		210	
vC, conflicting volume	362	226	339			
vC1, stage 1 conf vol	302	220	339			
vC2, stage 2 conf vol						
	241	202	317			
vCu, unblocked vol	341	202				
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	2.5	2.0	0.0			
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	99	98			
cM capacity (veh/h)	631	823	1220			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	78	112	339			
Volume Left	71	24	0			
Volume Right	7	0	226			
cSH	644	1220	1700			
Volume to Capacity	0.12	0.02	0.20			
Queue Length 95th (m)	3.1	0.5	0.0			
Control Delay (s)	11.4	1.8	0.0			
Lane LOS	В	Α				
Approach Delay (s)	11.4	1.8	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			2.1			
Intersection Capacity Utiliz	zation		33.8%	IC	CU Level o	of Service
Analysis Period (min)	Lauon		15	IC.	JO LOVOI C	, COI VIOG
Alialysis Fellou (IIIIII)			10			

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ሻ	^	W	
Traffic Volume (vph)	760	142	197	781	14	47
Future Volume (vph)	760	142	197	781	14	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	1000	0.0	15.0	.500	0.0	0.0
Storage Lanes		0.0	10.0		1	0.0
Taper Length (m)		U	60.0		2.5	U
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.93	0.30	1.00	0.33	0.897	1.00
Flt Protected	0.370		0.950		0.037	
	3143	0	1610	3221	1502	0
Satd. Flow (prot) Flt Permitted	3143	U	0.235	JZZ I	0.988	U
	2442	0		2004		0
Satd. Flow (perm)	3143	0	398	3221	1502	0
Right Turn on Red	0.4	Yes				Yes
Satd. Flow (RTOR)	31				52	
Link Speed (k/h)	80			80	50	
Link Distance (m)	650.1			72.2	109.1	
Travel Time (s)	29.3			3.2	7.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	844	158	219	868	16	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1002	0	219	868	68	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7	<u> </u>		3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.13	1.13	1.13	1.13	1.13	1.13
Turning Speed (k/h)	1.10	14	24	1.10	24	1.10
Number of Detectors	2	14	1	2	1	14
Detector Template	Z Thru		Left	Thru	Left	
•						
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel	J. L /(J. L A		
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	
Protected Phases	1NA 4		9111 + 91	8	2	
	4			0	Z	
Permitted Phases			8			

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Lane Group	EBT	EBR V	VBL	WBT	NBL	NBR
Detector Phase	4		3	8	2	
Switch Phase			-			
Minimum Initial (s)	5.0		5.0	5.0	5.0	
Minimum Split (s)	25.0		9.5	25.0	25.0	
Total Split (s)	47.0	1	15.0	62.0	28.0	
Total Split (%)	52.2%		.7%	68.9%	31.1%	
Maximum Green (s)	40.0		12.0	55.0	21.0	
Yellow Time (s)	5.0		3.0	5.0	5.0	
All-Red Time (s)	2.0		0.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.0		3.0	7.0	7.0	
Lead/Lag	Lag	L	ead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Max	N	one	Max	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	46.6	f	61.9	59.3	6.9	
Actuated g/C Ratio	0.61).81	0.78	0.09	
v/c Ratio	0.52).48	0.35	0.37	
Control Delay	10.9		5.9	4.1	19.7	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	10.9		5.9	4.1	19.7	
LOS	В		A	Α	В	
Approach Delay	10.9			4.5	19.7	
Approach LOS	В			A	В	
Queue Length 50th (m)	39.6		5.5	18.7	2.2	
Queue Length 95th (m)	70.5	1	12.9	32.0	13.0	
Internal Link Dist (m)	626.1		,	48.2	85.1	
Turn Bay Length (m)	320.1	1	15.0		55.1	
Base Capacity (vph)	1929		513	2503	451	
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	0.52	().43	0.35	0.15	
	0.02			0.00	0.10	
Intersection Summary						
Area Type:	CBD					
Cycle Length: 90						
Actuated Cycle Length: 76	5.3					
Natural Cycle: 65						
Control Type: Semi Act-U	ncoord					
Maximum v/c Ratio: 0.52						
Intersection Signal Delay:					tersection	
Intersection Capacity Utiliz	zation 59.7%			IC	CU Level o	of Service B

Analysis Period (min) 15



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WBL	WBR	NBT	NBR	SBL	SBT		
W		1>		ሻ	^		
3	30	266	14	152	571		
3	30	266	14	152	571		
Stop		Free			Free		
0%		0%			0%		
0.90	0.90	0.90	0.90	0.90	0.90		
3	33	296	16	169	634		
		None			None		
					312		
1276	304			312			
1276	304			312			
6.4	6.2			4.1			
3.5	3.3			2.2			
98	96			86			
159	736			1248			
WB 1	NB 1	SB 1	SB 2				
36	312	169	634	•	_		
3	0	169	0				
33	16	0	0				
565	1700	1248	1700				
0.06	0.18	0.14	0.37				
1.5	0.0	3.6	0.0				
11.8	0.0	8.3	0.0				
В		Α					
11.8	0.0	1.8					
В							
		1.6					
on			IC	U Level c	f Service		
	3 3 3 Stop 0% 0.90 3 3 1276 6.4 3.5 98 159 WB 1 36 3 3 33 565 0.06 1.5 11.8 B 11.8	WBL WBR 3 30 3 30 3 30 Stop 0% 0.90 0.90 3 33 1276 304 6.4 6.2 3.5 3.3 98 96 159 736 WB 1 NB 1 36 312 3 0 33 16 565 1700 0.06 0.18 1.5 0.0 11.8 0.0 B 11.8 0.0 B	WBL WBR NBT 3 30 266 3 30 266 Stop Free 0% 0% 0.90 0.90 0.90 3 33 296 None 1276 304 6.4 6.2 3.5 3.3 98 96 159 736 WB 1 NB 1 SB 1 36 312 169 3 0 169 3 16 0 565 1700 1248 0.06 0.18 0.14 1.5 0.0 3.6 11.8 0.0 8.3 B A 11.8 0.0 1.8 B	WBL WBR NBT NBR 3 30 266 14 3 30 266 14 Stop Free 0% 0% 0.90 0.90 0.90 0.90 3 33 296 16 None None 1276 304 6.4 6.2 3.5 3.3 98 96 159 736 WB1 NB1 SB1 SB2 36 312 169 634 3 0 169 0 33 16 0 0 565 1700 1248 1700 0.06 0.18 0.14 0.37 1.5 0.0 3.6 0.0 11.8 0.0 8.3 0.0 B A 11.8 0.0 1.8 B 11.8 0.0 1.8 B 11.8 D.0 1.8 B 11.8 D.0 1.8 B 11.6 D.0 1.8 B 11.7 D.0 1.8 B 11.8 D	WBL WBR NBT NBR SBL 3 30 266 14 152 3 30 266 14 152 Stop Free 0% 0% 0.90 0.90 0.90 0.90 0.90 3 33 296 16 169 1276 304 312 4.1 3.5 3.3 2.2 98 96 86 159 736 1248 WB 1 NB 1 SB 1 SB 2 36 312 169 634 3 0 169 0 0 565 1700 1248 1700 0.06 0.18 0.14 0.37 1.5 0.0 3.6 0.0 11.8 0.0 8.3 0.0 0 B A 11.8 0.0 1.8 B B A 11.8 0.0 1.8 B B A 11.8 0.0 1.8 B </td <td>WBL WBR NBT NBR SBL SBT 3 30 266 14 152 571 3 30 266 14 152 571 Stop Free Free Free Free 0% 0% 0% 0% 0.90 0.90 0.90 0.90 0.90 3 33 296 16 169 634 1276 304 312<!--</td--><td>WBL WBR NBT NBR SBL SBT 3 30 266 14 152 571 3 30 266 14 152 571 Stop Free Free Free 0% 0% 0% 0% 0.90 0.90 0.90 0.90 0.90 3 33 296 16 169 634 None None None None None None None 312 1276 304 312 4.1 312 1276 304 312 4.1 312 4.1 3.5 3.3 2.2 98 96 86 159 736 1248 WB 1 NB 1 SB 1 SB 2 36 312 36 312 36 312 36 312 36 312 36 30 30 40 30 30 30 40 30 30 40 30 40 4</td></td>	WBL WBR NBT NBR SBL SBT 3 30 266 14 152 571 3 30 266 14 152 571 Stop Free Free Free Free 0% 0% 0% 0% 0.90 0.90 0.90 0.90 0.90 3 33 296 16 169 634 1276 304 312 </td <td>WBL WBR NBT NBR SBL SBT 3 30 266 14 152 571 3 30 266 14 152 571 Stop Free Free Free 0% 0% 0% 0% 0.90 0.90 0.90 0.90 0.90 3 33 296 16 169 634 None None None None None None None 312 1276 304 312 4.1 312 1276 304 312 4.1 312 4.1 3.5 3.3 2.2 98 96 86 159 736 1248 WB 1 NB 1 SB 1 SB 2 36 312 36 312 36 312 36 312 36 312 36 30 30 40 30 30 30 40 30 30 40 30 40 4</td>	WBL WBR NBT NBR SBL SBT 3 30 266 14 152 571 3 30 266 14 152 571 Stop Free Free Free 0% 0% 0% 0% 0.90 0.90 0.90 0.90 0.90 3 33 296 16 169 634 None None None None None None None 312 1276 304 312 4.1 312 1276 304 312 4.1 312 4.1 3.5 3.3 2.2 98 96 86 159 736 1248 WB 1 NB 1 SB 1 SB 2 36 312 36 312 36 312 36 312 36 312 36 30 30 40 30 30 30 40 30 30 40 30 40 4

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ Ъ		ሻ	^	ኘ	7
Traffic Volume (vph)	541	94	256	976	382	514
Future Volume (vph)	541	94	256	976	382	514
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.7	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	100.0		1	1
Taper Length (m)			80.0		80.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.978	0.50	1.00	0.55	1.00	0.850
Flt Protected	0.010		0.950		0.950	0.000
Satd. Flow (prot)	3200	0	1532	3444	1665	921
Flt Permitted	3200	U	0.332	J 111 1	0.950	321
Satd. Flow (perm)	3200	0	535	3444	1665	921
	3200	Yes	ეაე	3444	1000	Yes
Right Turn on Red	32	1 68				
Satd. Flow (RTOR)				00	00	299
Link Speed (k/h)	80			200.2	80	
Link Distance (m)	1000.2			200.3	433.6	
Travel Time (s)	45.0	0.00	0.00	9.0	19.5	0.00
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	12%	9%	10%	6%	6%	4%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	582	101	275	1049	411	553
Shared Lane Traffic (%)	222		6	40.40	444	
Lane Group Flow (vph)	683	0	275	1049	411	553
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel	 ,					
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7		0.0	28.7	0.0	0.0
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			Cl+Ex		
Detector 2 Channel	OI+EX			CITEX		
	0.0			0.0		
Detector 2 Extend (s)	0.0			0.0		

	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	42.5		8.0	50.5	29.1	29.1
Total Split (%)	53.4%		10.1%	63.4%	36.6%	36.6%
Maximum Green (s)	35.0		6.0	43.0	22.0	22.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		Lead	0		
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max		None	Max	None	None
Act Effct Green (s)	35.0		48.5	43.0	22.0	22.0
Actuated g/C Ratio	0.44		0.61	0.54	0.28	0.28
v/c Ratio	0.48		0.69	0.56	0.89	1.18
Control Delay	16.4		18.6	13.6	52.2	116.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	16.4		18.6	13.6	52.2	116.1
LOS	В		В	В	D	F
Approach Delay	16.4			14.6	88.8	•
Approach LOS	В			В	F	
Queue Length 50th (m)	35.2		17.8	51.3	59.5	~65.8
Queue Length 95th (m)	49.5		#32.0	68.1	#109.2	#124.4
Internal Link Dist (m)	976.2		1102.0	176.3	409.6	// IZT.T
Turn Bay Length (m)	010.2		180.0	170.0	90.0	
Base Capacity (vph)	1424		401	1860	460	470
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	0.48		0.69	0.56	0.89	1.18
Internation Comments	0.70		0.00	0.00	0.00	1.10

Intersection LOS: D

ICU Level of Service D

Intersection Summary

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 79.6

Natural Cycle: 90

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 1.18 Intersection Signal Delay: 39.1

Intersection Signal Delay. 39.1
Intersection Capacity Utilization 80.0%

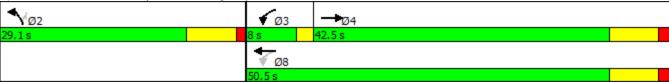
Analysis Period (min) 15

~ 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.

Splits and Phases: 1: County Road 50 & Highway 89



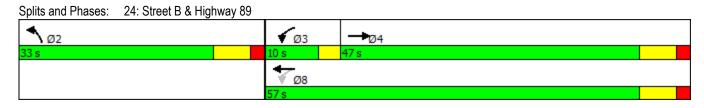
	•	•	†	<i>></i>	\	 	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	N/F		1>		ሻ	†	
Traffic Volume (veh/h)	14	162	734	4	33	317	
Future Volume (Veh/h)	14	162	734	4	33	317	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Hourly flow rate (vph)	16	180	816	4	37	352	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1244	818			820		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1244	818			820		
tC, single (s)	6.4	6.2			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	91	52			95		
cM capacity (veh/h)	184	376			809		
Direction, Lane #	WB 1	NB 1	SB 1	SB 2			
Volume Total	196	820	37	352			
Volume Left	16	0	37	0			
Volume Right	180	4	0	0			
cSH	346	1700	809	1700			
Volume to Capacity	0.57	0.48	0.05	0.21			
Queue Length 95th (m)	25.3	0.0	1.1	0.0			
Control Delay (s)	28.1	0.0	9.7	0.0			
Lane LOS	D		Α				
Approach Delay (s)	28.1	0.0	0.9				
Approach LOS	D						
Intersection Summary							
Average Delay			4.2				
Intersection Capacity Utilization			56.3%	IC	U Level c	f Service	
Analysis Period (min)							

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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	∱ }		¥	
Traffic Volume (veh/h)	76	976	1196	79	25	32
Future Volume (Veh/h)	76	976	1196	79	25	32
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	82	1049	1286	85	27	34
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.88	
vC, conflicting volume	1371				2017	686
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1371				1884	686
tC, single (s)	4.1				7.0	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	84				37	91
cM capacity (veh/h)	507				43	395
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	432	699	857	514	61	
Volume Left	82	0	0	0	27	
Volume Right	0	0	0	85	34	
cSH	507	1700	1700	1700	85	
Volume to Capacity	0.16	0.41	0.50	0.30	0.71	
Queue Length 95th (m)	4.4	0.0	0.0	0.0	26.5	
Control Delay (s)	4.8	0.0	0.0	0.0	115.6	
Lane LOS	Α				F	
Approach Delay (s)	1.8		0.0		115.6	
Approach LOS					F	
Intersection Summary						
Average Delay			3.6			
Intersection Capacity Utiliza	ation		78.1%	IC	CU Level c	f Service
Analysis Period (min)			15			

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ሻ	^	N/	
Traffic Volume (vph)	986	42	87	1180	95	182
Future Volume (vph)	986	42	87	1180	95	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	1000	0.0	15.0	.500	0.0	0.0
Storage Lanes		0.0	10.0		1	0.0
Taper Length (m)		U	60.0		2.5	U
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.994	0.30	1.00	0.33	0.911	1.00
Flt Protected	0.334		0.950		0.983	
	3557	0	1789	3579	1687	0
Satd. Flow (prot)	3331	U		3318		U
Fit Permitted	2557	0	0.168	2570	0.983	0
Satd. Flow (perm)	3557	0	316	3579	1687	0
Right Turn on Red	^	Yes			407	Yes
Satd. Flow (RTOR)	6				107	
Link Speed (k/h)	80			80	50	
Link Distance (m)	648.5			78.0	78.8	
Travel Time (s)	29.2			3.5	5.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1096	47	97	1311	106	202
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1143	0	97	1311	308	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7	<u> </u>		3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	0.00	14	24	0.00	24	14
Number of Detectors	2	17	1	2	1	17
Detector Template	Thru		Left	Thru	Left	
Leading Detector (m)	30.5		6.1	30.5	6.1	
	0.0		0.0	0.0	0.0	
Trailing Detector (m)						
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	
Protected Phases	4		3	8	2	
Permitted Phases			8		_	
- CHIIILEU FIIASES			U			

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4		3	8	2	
Switch Phase	•					
Minimum Initial (s)	5.0		5.0	5.0	5.0	
Minimum Split (s)	25.0		9.5	25.0	25.0	
Total Split (s)	47.0		10.0	57.0	33.0	
Total Split (%)	52.2%		11.1%	63.3%	36.7%	
Maximum Green (s)	40.0		7.0	50.0	26.0	
Yellow Time (s)	5.0		3.0	5.0	5.0	
All-Red Time (s)	2.0		0.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.0		3.0	7.0	7.0	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Max		None	Max	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	42.6		54.2	50.2	15.2	
Actuated g/C Ratio	0.54		0.68	0.63	0.19	
v/c Ratio	0.60		0.29	0.58	0.75	
Control Delay	16.1		7.7	10.7	31.4	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	16.1		7.7	10.7	31.4	
LOS	В		Α	В	С	
Approach Delay	16.1			10.5	31.4	
Approach LOS	В			В	С	
Queue Length 50th (m)	61.4		4.2	53.2	28.5	
Queue Length 95th (m)	100.6		11.9	94.0	54.2	
Internal Link Dist (m)	624.5			54.0	54.8	
Turn Bay Length (m)			15.0			
Base Capacity (vph)	1906		345	2260	625	
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	0.60		0.28	0.58	0.49	
Intersection Summary	Other					
Area Type:	Other					
Cycle Length: 90	_					
Actuated Cycle Length: 79	1.5					
Natural Cycle: 60						
Control Type: Semi Act-Ur	ncoord					
Maximum v/c Ratio: 0.75	45.0					
Intersection Signal Delay:					ntersection	
Intersection Capacity Utiliz	cation 64.9%			10	JU Level c	f Service C

Analysis Period (min) 15



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ħβ		ሻ	ħβ			4			4	
Traffic Volume (vph)	35	1109	27	192	1118	75	135	17	280	57	10	44
Future Volume (vph)	35	1109	27	192	1118	75	135	17	280	57	10	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.991			0.912			0.947	
Flt Protected	0.950			0.950				0.985			0.975	
Satd. Flow (prot)	1825	3298	0	1825	3395	0	0	1679	0	0	1774	0
FIt Permitted	0.158			0.175				0.864			0.556	
Satd. Flow (perm)	304	3298	0	336	3395	0	0	1472	0	0	1012	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			13			74			35	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		310.5			133.1			220.4			107.2	
Travel Time (s)		18.6			8.0			13.2			7.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	10%	20%	0%	7%	0%	9%	0%	0%	0%	0%	0%
Adj. Flow (vph)	37	1167	28	202	1177	79	142	18	295	60	11	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	1195	0	202	1256	0	0	455	0	0	117	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	OI ZX	OI LX		OI - EX	OI - EX		OI - EX	OI LX		OI - EX	OI LA	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	28.7		0.0	28.7	
Detector 2 Fosition(m) Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel		OI - LX			OI - LX			O1 · LX			O1 · LX	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	I CIIII	4		i eiiii	8		I CIIII	2		I CIIII	6	
FIOLECIEU FIIdSES		4			0						U	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	59.0	59.0		59.0	59.0		31.0	31.0		31.0	31.0	
Total Split (%)	65.6%	65.6%		65.6%	65.6%		34.4%	34.4%		34.4%	34.4%	
Maximum Green (s)	52.0	52.0		52.0	52.0		24.0	24.0		24.0	24.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	52.0	52.0		52.0	52.0			24.0			24.0	
Actuated g/C Ratio	0.58	0.58		0.58	0.58			0.27			0.27	
v/c Ratio	0.21	0.63		1.04	0.64			1.02			0.40	
Control Delay	12.9	14.4		100.1	14.4			77.4			23.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	12.9	14.4		100.1	14.4			77.4			23.7	
LOS	В	В		F	В			Е			С	
Approach Delay		14.3			26.3			77.4			23.7	
Approach LOS		В			С			Е			С	
Queue Length 50th (m)	2.9	66.4		~38.1	70.0			~70.8			11.3	
Queue Length 95th (m)	8.6	86.2		#79.2	90.5			#131.2			26.9	
Internal Link Dist (m)		286.5			109.1			196.4			83.2	
Turn Bay Length (m)	100.0			70.0								
Base Capacity (vph)	175	1907		194	1967			446			295	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.21	0.63		1.04	0.64			1.02			0.40	
Internation Commons												

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 28.8

Intersection Capacity Utilization 87.6%

Intersection LOS: C ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

- # 95th percentile volume exceeds capacity, queue may be longer.
- Queue shown is maximum after two cycles.

Splits and Phases: 3: Concession Road 7/Dean Drive & Highway 89



	٠	•	•	†	 	4
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			4	1>	
Traffic Volume (veh/h)	279	24	9	153	141	90
Future Volume (Veh/h)	279	24	9	153	141	90
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	310	27	10	170	157	100
Pedestrians	010		10	170	107	100
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				INUITE	NONE	
					220	
Upstream signal (m)	0.97	0.07	0.97		220	
pX, platoon unblocked	397	0.97 207	257			
vC, conflicting volume	397	207	257			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol	207	474	000			
vCu, unblocked vol	367	171	223			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)		2.0				
tF (s)	3.5	3.3	2.2			
p0 queue free %	49	97	99			
cM capacity (veh/h)	612	849	1310			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	337	180	257			
Volume Left	310	10	0			
Volume Right	27	0	100			
cSH	626	1310	1700			
Volume to Capacity	0.54	0.01	0.15			
Queue Length 95th (m)	24.4	0.2	0.0			
Control Delay (s)	17.3	0.5	0.0			
Lane LOS	С	Α				
Approach Delay (s)	17.3	0.5	0.0			
Approach LOS	С					
Intersection Summary						
Average Delay			7.6			
Intersection Capacity Utiliz	zation		39.0%	ır	CU Level c	f Service
Analysis Period (min)	Lation		15	IC)	, OCIVICE
Analysis Period (min)			10			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Ť	∱ }		7	^	*		4			4	7
Traffic Volume (vph)	103	1372	10	22	1257	140	0	0	12	117	1	74
Future Volume (vph)	103	1372	10	22	1257	140	0	0	12	117	1	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.865				0.850
Flt Protected	0.950			0.950							0.953	
Satd. Flow (prot)	1706	3378	0	1825	3444	1633	0	1662	0	0	1813	1633
FIt Permitted	0.174			0.144							0.719	
Satd. Flow (perm)	312	3378	0	277	3444	1633	0	1662	0	0	1368	1633
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				133		54				133
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	8%	0%	0%	6%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	108	1444	11	23	1323	147	0	0	13	123	1	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	108	1455	0	23	1323	147	0	13	0	0	124	78
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	Cl+Ex		CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			Cl+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel					- · · · · · · · · · · · · · · · · · · ·						- ·	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Free		NA		Perm	NA	Free
Protected Phases	. 51111	4		. 31117	8	. 100		2		, 51111	6	. 100
		7										

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	65.0	65.0		65.0	65.0		25.0	25.0		25.0	25.0	
Total Split (%)	72.2%	72.2%		72.2%	72.2%		27.8%	27.8%		27.8%	27.8%	
Maximum Green (s)	58.0	58.0		58.0	58.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	63.8	63.8		63.8	63.8	91.0		13.2			13.2	91.0
Actuated g/C Ratio	0.70	0.70		0.70	0.70	1.00		0.15			0.15	1.00
v/c Ratio	0.50	0.61		0.12	0.55	0.09		0.05			0.63	0.05
Control Delay	17.4	9.2		7.4	8.2	0.1		0.4			49.2	0.1
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Total Delay	17.4	9.2		7.4	8.2	0.1		0.4			49.2	0.1
LOS	В	Α		Α	Α	Α		Α			D	Α
Approach Delay		9.7			7.4			0.4			30.3	
Approach LOS		Α			Α			Α			С	
Queue Length 50th (m)	7.4	59.8		1.1	50.5	0.0		0.0			19.6	0.0
Queue Length 95th (m)	28.2	95.0		4.8	79.6	0.0		m0.0			35.8	0.0
Internal Link Dist (m)		180.7			224.7			4.0			102.5	
Turn Bay Length (m)	110.0			35.0		100.0						70.0
Base Capacity (vph)	218	2367		194	2412	1633		372			271	1633
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.50	0.61		0.12	0.55	0.09		0.03			0.46	0.05

Intersection LOS: A

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 91

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 9.9

Intersection Capacity Utilization 73.1% ICU Level of Service D

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.





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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† ‡			414	**	
Traffic Volume (veh/h)	1466	6	7	1478	0	17
Future Volume (Veh/h)	1466	6	7	1478	0	17
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	1511	6	7	1524	0	18
Pedestrians					3	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)					•	
Median type	None			None		
Median storage veh)						
Upstream signal (m)	249					
pX, platoon unblocked			0.77		0.77	0.77
vC, conflicting volume			1520		2293	762
vC1, stage 1 conf vol			1020		2200	102
vC2, stage 2 conf vol						
vCu, unblocked vol			1075		2080	88
tC, single (s)			4.1		6.8	7.5
tC, 2 stage (s)			7.1		0.0	7.0
tF (s)			2.2		3.5	3.6
p0 queue free %			99		100	97
cM capacity (veh/h)			503		36	667
						007
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	1007	510	515	1016	18	
Volume Left	0	0	7	0	0	
Volume Right	0	6	0	0	18	
cSH	1700	1700	503	1700	667	
Volume to Capacity	0.59	0.30	0.01	0.60	0.03	
Queue Length 95th (m)	0.0	0.0	0.3	0.0	0.6	
Control Delay (s)	0.0	0.0	0.4	0.0	10.6	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.1		10.6	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliza	ation		55.7%	IC	U Level o	f Service
Analysis Period (min)	ation		15	10	O LCVCI O	1 OCI VICC
Analysis r Gilou (IIIIII)			10			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ř	↑ ↑		ř	↑ ↑		Ť	4	7	ň	+	7
Traffic Volume (vph)	63	1112	372	321	927	35	498	52	235	31	63	94
Future Volume (vph)	63	1112	372	321	927	35	498	52	235	31	63	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99			1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.962			0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.961		0.950		
Satd. Flow (prot)	1825	3294	0	1825	3560	0	1534	1578	1617	1722	1921	1601
Flt Permitted	0.286			0.091			0.714	0.721		0.402		
Satd. Flow (perm)	549	3294	0	175	3560	0	1150	1181	1588	726	1921	1577
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56			6				245			98
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	1		8	8		1	3		6	6		3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	17%	0%	2%	0%	13%	3%	1%	6%	0%	2%
Adj. Flow (vph)	66	1158	388	334	966	36	519	54	245	32	66	98
Shared Lane Traffic (%)							45%					
Lane Group Flow (vph)	66	1546	0	334	1002	0	285	288	245	32	66	98
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7	, i		3.7			3.7	Ţ,		3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	Cl+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	Cl+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel		31. LA			51 · LA							
Detector 2 Extend (s)		0.0			0.0							
Editorio Z Exteria (8)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	47.0	47.0		17.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	47.5%	47.5%		17.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	40.0	40.0		13.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	40.1	40.1		60.1	57.1		27.2	27.2	27.2	27.2	27.2	27.2
Actuated g/C Ratio	0.41	0.41		0.62	0.59		0.28	0.28	0.28	0.28	0.28	0.28
v/c Ratio	0.29	1.11		1.02	0.48		0.89	0.88	0.40	0.16	0.12	0.19
Control Delay	24.6	89.6		81.1	12.7		63.5	60.8	5.6	28.5	26.5	6.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.6	89.6		81.1	12.7		63.5	60.8	5.6	28.5	26.5	6.6
LOS	С	F		F	В		Е	E	Α	С	С	Α
Approach Delay		86.9			29.8			45.2			16.9	
Approach LOS		F			С			D			В	
Queue Length 50th (m)	8.4	~179.5		~52.0	55.4		53.8	54.2	0.0	4.5	9.2	0.0
Queue Length 95th (m)	19.4	#221.8		#105.3	70.6		#100.8	#100.1	16.8	12.0	19.2	11.1
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0	1000		95.0	2021		25.0		212	15.0		10.0
Base Capacity (vph)	225	1389		328	2091		343	352	646	216	573	539
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	0.29	1.11		1.02	0.48		0.83	0.82	0.38	0.15	0.12	0.18
Intersection Summary												

Intersection Summary

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 97.3

Natural Cycle: 110

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.11

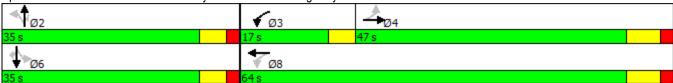
Intersection Signal Delay: 55.6 Intersection Capacity Utilization 97.0% Intersection LOS: E

ICU Level of Service F

Analysis Period (min) 15

- ~ 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.

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ Ъ		ሻ	^	ኘ	7
Traffic Volume (vph)	692	114	272	824	237	308
Future Volume (vph)	692	114	272	824	237	308
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.7	3.7	3.0	3.7	3.4	3.5
Storage Length (m)	0.7	0.0	180.0	0.1	90.0	0.0
Storage Lanes		0.0	1		1	1
Taper Length (m)			80.0		80.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.979	0.50	1.00	0.55	1.00	0.850
Flt Protected	0.010		0.950		0.950	0.000
Satd. Flow (prot)	3455	0	1668	3544	1713	949
Flt Permitted	J400	U	0.273	0044	0.950	343
Satd. Flow (perm)	3455	0	479	3544	1713	949
	3433	Yes	413	3344	1/13	Yes
Right Turn on Red	20	res				
Satd. Flow (RTOR)	30			00	00	296
Link Speed (k/h)	80			200.2	80	
Link Distance (m)	1000.2			200.3	413.9	
Travel Time (s)	45.0	0.07	0.07	9.0	18.6	0.07
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	12%	1%	3%	3%	1%
Bus Blockages (#/hr)	0	0	0	0	0	100
Adj. Flow (vph)	713	118	280	849	244	318
Shared Lane Traffic (%)	004		000	0.40	644	646
Lane Group Flow (vph)	831	0	280	849	244	318
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.0			3.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.09	0.99	1.03	1.89
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru			Thru		Right
Leading Detector (m)	30.5		12.0	30.5	12.0	12.0
Trailing Detector (m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Position(m)	0.0		-1.0	0.0	-1.0	6.0
Detector 1 Size(m)	1.8		13.0	1.8	13.0	6.0
Detector 1 Type	CI+Ex		Cl+Ex	CI+Ex	Cl+Ex	CI+Ex
Detector 1 Channel	J. L A			<u>_</u>		
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7		0.0	28.7	0.0	0.0
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			Cl+Ex		
Detector 2 Channel	OI+EX			CITEX		
	0.0			0.0		
Detector 2 Extend (s)	0.0			0.0		

	→	*	•	•	7	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	pı	n+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	35.0		6.0	35.0	10.0	10.0
Minimum Split (s)	42.5		8.0	42.5	17.1	17.1
Total Split (s)	42.5		11.0	53.5	26.1	26.1
Total Split (%)	53.4%	1;	3.8%	67.2%	32.8%	32.8%
Maximum Green (s)	35.0		9.0	46.0	19.0	19.0
Yellow Time (s)	5.9		2.0	5.9	5.9	5.9
All-Red Time (s)	1.6		0.0	1.6	1.2	1.2
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5		2.0	7.5	7.1	7.1
Lead/Lag	Lag		_ead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	4.5		2.0	4.5	3.0	3.0
Recall Mode	Max	1	lone	Max	None	None
Act Effct Green (s)	35.9		51.6	46.1	15.3	15.3
Actuated g/C Ratio	0.47		0.68	0.61	0.20	0.20
v/c Ratio	0.51		0.62	0.40	0.71	0.74
Control Delay	15.4		11.7	8.9	40.0	16.7
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	15.4		11.7	8.9	40.0	16.7
LOS	В		В	Α	D	В
Approach Delay	15.4			9.6	26.8	
Approach LOS	В			Α	С	
Queue Length 50th (m)	41.4		13.6	30.5	32.8	2.6
Queue Length 95th (m)	61.3		26.1	46.1	55.3	#34.7
Internal Link Dist (m)	976.2			176.3	389.9	
Turn Bay Length (m)		1	80.0		90.0	
Base Capacity (vph)	1645		465	2148	428	459
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	0.51		0.60	0.40	0.57	0.69
_						

Area Type: Other

Cycle Length: 79.6 Actuated Cycle Length: 76.1

Natural Cycle: 70

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 0.74 Intersection Signal Delay: 15.4

Intersection Capacity Utilization 72.9%

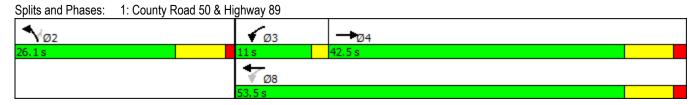
Intersection LOS: B

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.

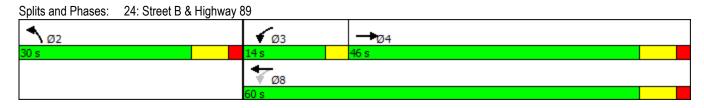


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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		41∱	∱ }		W	
Traffic Volume (veh/h)	23	866	862	54	36	15
Future Volume (Veh/h)	23	866	862	54	36	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	941	937	59	39	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		200				
pX, platoon unblocked					0.86	
vC, conflicting volume	996				1487	498
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	996				1248	498
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				72	97
cM capacity (veh/h)	703				140	523
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	339	627	625	371	55	
Volume Left	25	0	0	0	39	
Volume Right	0	0	0	59	16	
cSH	703	1700	1700	1700	178	
Volume to Capacity	0.04	0.37	0.37	0.22	0.31	
Queue Length 95th (m)	0.8	0.0	0.0	0.0	9.4	
Control Delay (s)	1.2	0.0	0.0	0.0	34.0	
Lane LOS	Α				D	
Approach Delay (s)	0.4		0.0		34.0	
Approach LOS					D	
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilizat	ion		50.5%	IC	U Level c	of Service
Analysis Period (min)			15			

	→	•	•	←	4	-
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	LDIX	YVDL	↑ ↑	NDL W	NDIX
Traffic Volume (vph)	936	73	124	TT 980	'T' 81	135
Future Volume (vph)	936	73	124	980	81	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
(,	1900	0.0	15.0	1900	0.0	0.0
Storage Length (m)						
Storage Lanes		0	1		1	0
Taper Length (m)	0.05	0.05	60.0	0.05	2.5	1.00
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.989		0.050		0.916	
Flt Protected	0500	0	0.950	0.570	0.982	0
Satd. Flow (prot)	3539	0	1789	3579	1694	0
Flt Permitted			0.175		0.982	
Satd. Flow (perm)	3539	0	330	3579	1694	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	11				90	
Link Speed (k/h)	80			80	50	
Link Distance (m)	647.5			77.2	111.5	
Travel Time (s)	29.1			3.5	8.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1040	81	138	1089	90	150
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1121	0	138	1089	240	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7	. ugiit	Lon	3.7	3.7	. ugiit
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane	1.0			1.0	1.0	
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	0.55	14	24	0.33	24	14
Number of Detectors	2	14	1	2	1	14
					Left	
Detector Template	Thru		Left	Thru		
Leading Detector (m)	30.5		6.1	30.5	6.1	
Trailing Detector (m)	0.0		0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	
Detector 1 Size(m)	1.8		6.1	1.8	6.1	
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	
Protected Phases	4		3	8	2	
Permitted Phases	4			O		
remitted Phases			8			

	→	•	•	←	4	/
Lane Group	EBT	EBR \	NBL	WBT	NBL	NBR
Detector Phase	4		3	8	2	
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	
Minimum Split (s)	25.0		9.5	25.0	25.0	
Total Split (s)	46.0		14.0	60.0	30.0	
Total Split (%)	51.1%		5.6%	66.7%	33.3%	
Maximum Green (s)	39.0		11.0	53.0	23.0	
Yellow Time (s)	5.0		3.0	5.0	5.0	
All-Red Time (s)	2.0		0.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.0		3.0	7.0	7.0	
Lead/Lag	Lag	L	ead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Max	N	lone	Max	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	42.6		57.2	53.2	12.7	
Actuated g/C Ratio	0.53		0.72	0.67	0.16	
v/c Ratio	0.59		0.37	0.46	0.70	
Control Delay	15.3		7.2	7.8	30.5	
Queue Delay	0.0		0.0	0.0	0.0	
Total Delay	15.3		7.2	7.8	30.5	
LOS	В		Α	Α	С	
Approach Delay	15.3			7.7	30.5	
Approach LOS	В			Α	С	
Queue Length 50th (m)	55.6		5.2	35.8	21.2	
Queue Length 95th (m)	95.4		13.7	62.8	43.6	
Internal Link Dist (m)	623.5			53.2	87.5	
Turn Bay Length (m)			15.0			
Base Capacity (vph)	1893		437	2382	553	
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	0.59		0.32	0.46	0.43	
				• • • • • • • • • • • • • • • • • • • •		
Intersection Summary						
Area Type:	Other					
Cycle Length: 90	_					
Actuated Cycle Length: 79	9.9					
Natural Cycle: 60						
Control Type: Semi Act-U	ncoord					
Maximum v/c Ratio: 0.70						
Intersection Signal Delay:					ntersection	
Intersection Capacity Utiliz	zation 62.9%			IC	CU Level o	of Service B

Analysis Period (min) 15



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ ⊅		*	∱ ∱			4			4	
Traffic Volume (vph)	51	995	28	221	1027	195	104	16	269	154	39	53
Future Volume (vph)	51	995	28	221	1027	195	104	16	269	154	39	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	70.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	100.0			100.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.976			0.907			0.971	
Flt Protected	0.950			0.950				0.987			0.970	
Satd. Flow (prot)	1825	3566	0	1789	3475	0	0	1720	0	0	1798	0
FIt Permitted	0.124			0.116				0.837			0.509	
Satd. Flow (perm)	238	3566	0	218	3475	0	0	1458	0	0	944	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			29			136			17	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		312.3			133.1			218.3			107.2	
Travel Time (s)		18.7			8.0			13.1			7.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	0%	2%	3%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	54	1047	29	233	1081	205	109	17	283	162	41	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	1076	0	233	1286	0	0	409	0	0	259	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7	J -		3.7			0.0	J -		0.0	J
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	• · · · · · ·	• · · · · ·			• · · · · ·							
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	0.0	28.7		0.0	28.7		0.0	28.7		0.0	28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel		OI LX			O LX			OI LA			OI LA	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8		I GIIII	2		1 GIIII	6	
i iotecteu i iidaea	ı	4		J	U			۷.			U	

Permitted Phases
Detector Phase 7
Switch Phase Minimum Initial (s) 5.0 41.6% <
Minimum Initial (s) 5.0 25.0 27.4 37.6 31.6 30.6 30.6
Minimum Split (s) 9.5 25.0 9.5 25.0 37.4 41.6% 41.6% 41.6% 41.6% 41.6% 41.6% 41.6% 41.6% 41.6% 41.6% 41.6% 41.6% 41.6% 41.6% 41.6% 41.6% 41.6% 41.1
Total Split (s) 9.6 37.4 15.2 43.0 37.4 37.4 37.4 37.4 Total Split (%) 10.7% 41.6% 16.9% 47.8% 41.6% 41.6% 41.6% 41.6% Maximum Green (s) 6.6 30.4 12.2 36.0 30.4 30.4 30.4 30.4 Yellow Time (s) 3.0 5.0 3.0 5.0 5.0 5.0 5.0 5.0 All-Red Time (s) 0.0 2.0 0.0 2.0 2.0 2.0 2.0 2.0 Lost Time (s) 0.0 <t< td=""></t<>
Total Split (%) 10.7% 41.6% 16.9% 47.8% 41.6% 41.6% 41.6% Maximum Green (s) 6.6 30.4 12.2 36.0 30.4 30.4 30.4 30.4 Yellow Time (s) 3.0 5.0 3.0 5.0 5.0 5.0 5.0 5.0 All-Red Time (s) 0.0 2.0 0.0 2.0<
Maximum Green (s) 6.6 30.4 12.2 36.0 30.4 30.0 20.0 2.0
Yellow Time (s) 3.0 5.0 3.0 5.0 5.0 5.0 5.0 5.0 All-Red Time (s) 0.0 2.0 0.0 2.0 </td
All-Red Time (s) 0.0 2.0 0.0 2.0
Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 3.0 7.0 3.0 7.0 7.0 7.0 Lead/Lag Lead Lag Lead Lag Lead-Lag Optimize? Yes Yes Yes Vehicle Extension (s) 3.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0
Total Lost Time (s) 3.0 7.0 3.0 7.0 7.0 7.0 Lead/Lag Lead Lag Lead Lag Lead-Lag Optimize? Yes Yes Yes Vehicle Extension (s) 3.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 <
Lead/Lag Lead Lag Lead Lag Lead-Lag Optimize? Yes Yes Yes Yes Vehicle Extension (s) 3.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0
Lead-Lag Optimize? Yes Yes Yes Yes Vehicle Extension (s) 3.0 7.0 <
Vehicle Extension (s) 3.0 7.0
Recall Mode None Max None None None None Walk Time (s) 7.0 7.0 7.0 7.0 7.0 7.0 Flash Dont Walk (s) 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 12.
Walk Time (s) 7.0 7.0 7.0 7.0 7.0 7.0 7.0 Flash Dont Walk (s) 11.0 <td< td=""></td<>
Flash Dont Walk (s) 11.0
Pedestrian Calls (#/hr) 0 0 0 0 0 0 Act Effct Green (s) 41.1 30.8 48.3 38.9 24.6 24.6 Actuated g/C Ratio 0.50 0.37 0.58 0.47 0.30 0.30
Act Effct Green (s) 41.1 30.8 48.3 38.9 24.6 24.6 Actuated g/C Ratio 0.50 0.37 0.58 0.47 0.30 0.30
Actuated g/C Ratio 0.50 0.37 0.58 0.47 0.30 0.30
v/c Ratio 0.23 0.81 0.72 0.78 0.78 0.89
Control Delay 11.9 31.1 28.3 25.0 28.5 58.5
Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0
Total Delay 11.9 31.1 28.3 25.0 28.5 58.5
LOS B C C C E
Approach Delay 30.2 25.5 28.5 58.5
Approach LOS C C E
Queue Length 50th (m) 3.7 86.1 19.4 100.4 40.6 37.5
Queue Length 95th (m) 9.1 #128.5 #50.7 #149.5 74.3 #77.5
Internal Link Dist (m) 288.3 109.1 194.3 83.2
Turn Bay Length (m) 100.0 70.0
Base Capacity (vph) 246 1326 360 1645 625 360
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 0.22 0.81 0.65 0.78 0.65 0.72

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 83

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 30.0

Intersection Capacity Utilization 84.6%

Intersection LOS: C
ICU Level of Service E

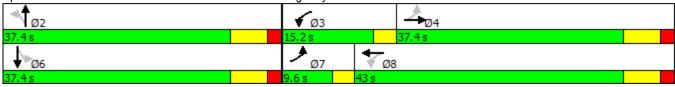
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

10/18/2017

Queue shown is maximum after two cycles.

Splits and Phases: 3: Concession Road 7/Dean Drive & Highway 89



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			4	1>	
Traffic Volume (veh/h)	218	21	18	169	158	129
Future Volume (Veh/h)	218	21	18	169	158	129
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	242	23	20	188	176	143
Pedestrians	272	20	20	100	170	140
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				INUITE	INOHE	
ŭ ,					218	
Upstream signal (m)	0.94	0.94	0.94		∠10	
pX, platoon unblocked	0.94 476	248	319			
vC, conflicting volume	4/0	240	319			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol	400	405	044			
vCu, unblocked vol	408	165	241			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	56	97	98			
cM capacity (veh/h)	553	825	1243			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	265	208	319			
Volume Left	242	20	0			
Volume Right	23	0	143			
cSH	570	1243	1700			
Volume to Capacity	0.47	0.02	0.19			
Queue Length 95th (m)	18.6	0.4	0.0			
Control Delay (s)	16.7	0.9	0.0			
Lane LOS	С	Α				
Approach Delay (s)	16.7	0.9	0.0			
Approach LOS	С					
Intersection Summary						
Average Delay			5.8			
Intersection Capacity Utiliz	ration		43.9%	IC	CU Level c	f Service
Analysis Period (min)			15		. 5 _5.07 0	. 55.7100
Analysis i enou (iiiii)			10			

Lanes, Volumes, Ti 4: Elizabeth Street/		ssion F	Road 7	& Hig			ture To	otal - S	A1 - S	ensitiv		19/2017
	۶	→	•	•	←	•	4	†	/	>	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	↑ ↑		ሻ	^	7		4			ર્ન	7
Traffic Volume (vph)	93	1390	7	31	1389	185	1	7	12	180	6	78
Future Volume (vph)	93	1390	7	31	1389	185	1	7	12	180	6	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		0.0	35.0		100.0	0.0		0.0	0.0		70.0
Storage Lanes	1		0	1		1	0		0	0		1
Taper Length (m)	100.0			70.0			7.6			7.6		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt		0.999				0.850		0.916				0.850
Flt Protected	0.950			0.950				0.998			0.954	
Satd. Flow (prot)	1789	3575	0	1825	3579	1601	0	1756	0	0	1781	1555
Flt Permitted	0.134			0.132				0.984			0.717	
Satd. Flow (perm)	252	3575	0	254	3579	1601	0	1732	0	0	1339	1555
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				144		13				133
Link Speed (k/h)		60			60			50			60	
Link Distance (m)		204.7			248.7			28.0			126.5	
Travel Time (s)		12.3			14.9			2.0			7.6	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	0%	0%	2%	2%	0%	0%	0%	3%	0%	5%
Adj. Flow (vph)	98	1463	7	33	1462	195	1	7	13	189	6	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	1470	0	33	1462	195	0	21	0	0	195	82
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	CI+Ex	Cl+Ex		CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
D-4-44 O / · \	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0

2036 Future Total - SAT - Sensitivity Analysis 06/10/2017 Baseline MNF

0.0

0.0

0.0

0.0

28.7

1.8

0.0

CI+Ex

0.0

0.0

0.0

0.0

1.8

0.0

28.7

CI+Ex

0.0

0.0

0.0

0.0

0.0

0.0

1.8

0.0

28.7

Cl+Ex

Detector 1 Queue (s)

Detector 1 Delay (s)

Detector 2 Size(m)

Detector 2 Channel Detector 2 Extend (s)

Detector 2 Type

Detector 2 Position(m)

0.0

0.0

0.0

28.7

CI+Ex

1.8

0.0

0.0

0.0

0.0

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Free	Perm	NA		Perm	NA	Free
Protected Phases		4			8			2			6	
Permitted Phases	4			8		Free	2			6		Free
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Total Split (s)	65.0	65.0		65.0	65.0		25.0	25.0		25.0	25.0	
Total Split (%)	72.2%	72.2%		72.2%	72.2%		27.8%	27.8%		27.8%	27.8%	
Maximum Green (s)	58.0	58.0		58.0	58.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Lead/Lag												
Lead-Lag Optimize?	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	91.2	0	0 16.4		0	0	04.0
Act Effet Green (s)	60.8	60.8		60.8	60.8	-					16.4	91.2
Actuated g/C Ratio v/c Ratio	0.67	0.67 0.62		0.67 0.20	0.67 0.61	1.00 0.12		0.18			0.18 0.81	1.00
	0.58 27.3	10.4		10.0	10.3	0.12		0.07 18.4			61.3	0.05
Control Delay Queue Delay	0.0	0.0		0.0	0.0	0.2		0.0			0.0	0.1
Total Delay	27.3	10.4		10.0	10.3	0.0		18.4			61.3	0.0
LOS	27.3 C	10.4 B		10.0 A	10.3 B	0.2 A		10.4 B			61.3 E	Ο. Ι
Approach Delay	C	11.4		٨	9.1	A		18.4			43.2	A
Approach LOS		11.4 B			9.1 A			10.4 B			43.2 D	
Queue Length 50th (m)	8.8	72.2		2.1	71.4	0.0		1.1			31.8	0.0
Queue Length 95th (m)	#36.3	91.8		6.9	90.8	0.0		m6.2			#62.5	0.0
Internal Link Dist (m)	που.υ	180.7		0.5	224.7	0.0		4.0			102.5	0.0
Turn Bay Length (m)	110.0	100.7		35.0	22 7.1	100.0		7.0			102.0	70.0
Base Capacity (vph)	168	2382		169	2385	1601		352			264	1555
Starvation Cap Reductn	0	0		0	0	0		0			0	0
Spillback Cap Reductn	0	0		0	0	0		0			0	0
Storage Cap Reductn	0	0		0	0	0		0			0	0
Reduced v/c Ratio	0.58	0.62		0.20	0.61	0.12		0.06			0.74	0.05
Intersection Summary												

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 91.2

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.81 Intersection Signal Delay: 12.8

Intersection Capacity Utilization 78.0%

Intersection LOS: B ICU Level of Service D

2036 Future Total - SAT - Sensitivity Analysis 06/10/2017 Baseline

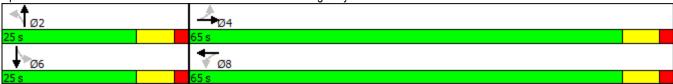
Synchro 9 Light Report Page 2

10/19/2017

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: 4: Elizabeth Street/Concession Road 7 & Highway 89



	-	•	•	•	•	~
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† ‡			414	W	
Traffic Volume (veh/h)	1612	3	7	1600	0	10
Future Volume (Veh/h)	1612	3	7	1600	0	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1715	3	7	1702	0	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	249					
pX, platoon unblocked			0.79		0.79	0.79
vC, conflicting volume			1718		2582	859
vC1, stage 1 conf vol			17.10		2002	000
vC2, stage 2 conf vol						
vCu, unblocked vol			1379		2471	293
tC, single (s)			4.1		6.8	7.2
tC, 2 stage (s)			7.1		0.0	1.2
tF (s)			2.2		3.5	3.5
p0 queue free %			98		100	98
cM capacity (veh/h)			398		20	522
				=		JZZ
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	1143	575	574	1135	11	
Volume Left	0	0	7	0	0	
Volume Right	0	3	0	0	11	
cSH	1700	1700	398	1700	522	
Volume to Capacity	0.67	0.34	0.02	0.67	0.02	
Queue Length 95th (m)	0.0	0.0	0.4	0.0	0.5	
Control Delay (s)	0.0	0.0	0.5	0.0	12.0	
Lane LOS			Α		В	
Approach Delay (s)	0.0		0.2		12.0	
Approach LOS					В	
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliza	ation		59.1%	IC	CU Level c	f Service
Analysis Period (min)	ALIUI I		15	10	O LEVEL C	I SELVICE
Analysis Feliou (IIIIII)			10			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ ⊅		*	∱ ∱		Ť	ર્ન	7	Ť	†	7
Traffic Volume (vph)	168	1234	218	523	1169	41	230	65	301	59	143	116
Future Volume (vph)	168	1234	218	523	1169	41	230	65	301	59	143	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	95.0		0.0	25.0		0.0	15.0		10.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			7.6			10.0			5.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00			1.00		1.00	1.00	0.98	1.00		0.98
Frt		0.978			0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950	0.972		0.950		
Satd. Flow (prot)	1807	3527	0	1825	3594	0	1683	1744	1617	1772	1921	1633
FIt Permitted	0.212			0.108			0.639	0.714		0.594		
Satd. Flow (perm)	403	3527	0	207	3594	0	1129	1278	1593	1105	1921	1607
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			6				324			88
Link Speed (k/h)		60			50			50			50	
Link Distance (m)		517.5			617.4			388.4			70.8	
Travel Time (s)		31.1			44.5			28.0			5.1	
Confl. Peds. (#/hr)	3		1	1		3	4		3	3		4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	0%	6%	0%	1%	0%	3%	0%	1%	3%	0%	0%
Adj. Flow (vph)	181	1327	234	562	1257	44	247	70	324	63	154	125
Shared Lane Traffic (%)							39%					
Lane Group Flow (vph)	181	1561	0	562	1301	0	151	166	324	63	154	125
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	0	2		1	2		1	1	1	1	1	0
Detector Template		Thru			Thru							
Leading Detector (m)	0.0	30.5		13.5	30.5		12.5	12.5	13.0	13.5	13.5	0.0
Trailing Detector (m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	0.0
Detector 1 Position(m)	0.0	0.0		-1.5	0.0		-1.5	-1.5	6.0	-1.5	-1.5	-1.5
Detector 1 Size(m)	6.1	1.8		15.0	1.8		14.0	14.0	7.0	15.0	15.0	6.1
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	18.0	18.0		8.0	18.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	40.0	40.0		12.0	40.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (s)	40.0	40.0		24.0	64.0		35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	40.4%	40.4%		24.2%	64.6%		35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	33.0	33.0		20.0	57.0		29.0	29.0	29.0	29.0	29.0	29.0
Yellow Time (s)	5.0	5.0		4.0	5.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		0.0	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)	7.0	7.0		4.0	7.0		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		2.0	3.0		4.0	4.0	4.0	4.0	4.0	4.0
Recall Mode	Max	Max		None	Max		None	None	None	None	None	None
Walk Time (s)	20.0	20.0			20.0		18.0	18.0	18.0	18.0	18.0	18.0
Flash Dont Walk (s)	13.0	13.0			13.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	33.2	33.2		60.3	57.3		18.9	18.9	18.9	18.9	18.9	18.9
Actuated g/C Ratio	0.37	0.37		0.68	0.64		0.21	0.21	0.21	0.21	0.21	0.21
v/c Ratio	1.21	1.18		1.12	0.56		0.63	0.61	0.55	0.27	0.38	0.31
Control Delay	172.2	116.8		101.9	11.1		43.8	41.5	7.0	31.4	32.1	12.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	172.2	116.8		101.9	11.1		43.8	41.5	7.0	31.4	32.1	12.4
LOS	F	F		F	В		D	D	Α	С	С	В
Approach Delay		122.5			38.5			24.6			24.8	
Approach LOS		F			D			С			С	
Queue Length 50th (m)	~37.9	~168.4		~93.6	57.8		24.8	27.1	0.0	9.0	22.7	5.1
Queue Length 95th (m)	#86.6	#246.4		#181.7	101.8		44.8	47.5	19.0	19.6	38.7	18.2
Internal Link Dist (m)		493.5			593.4			364.4			46.8	
Turn Bay Length (m)	80.0			95.0			25.0			15.0		10.0
Base Capacity (vph)	149	1324		504	2308		368	417	738	360	627	583
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	1.21	1.18		1.12	0.56		0.41	0.40	0.44	0.17	0.25	0.21

Area Type: Other

Cycle Length: 99

Actuated Cycle Length: 89.3

Natural Cycle: 150

Control Type: Semi Act-Uncoord Maximum v/c Ratio: 1.21

Intersection Signal Delay: 67.4 Intersection Capacity Utilization 109.4% Intersection LOS: E

ICU Level of Service H

Analysis Period (min) 15

- ~ 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.

Splits and Phases: 6: Industrial Parkway/Private Access & Highway 89



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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ች	^	W	
Traffic Volume (veh/h)	555	142	137	540	14	34
Future Volume (Veh/h)	555	142	137	540	14	34
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	617	158	152	600	16	38
Pedestrians	V 11	100	.02	000		
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)	None			NONC		
Upstream signal (m)				390		
pX, platoon unblocked				330		
vC, conflicting volume			775		1300	388
vC1, stage 1 conf vol			113		1300	300
vC2, stage 2 conf vol						
vCu, unblocked vol			775		1300	388
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)			4.1		0.0	0.9
			2.2		3.5	3.3
tF (s)			82		87	94
p0 queue free %			837		125	611
cM capacity (veh/h)						
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	411	364	152	300	300	54
Volume Left	0	0	152	0	0	16
Volume Right	0	158	0	0	0	38
cSH	1700	1700	837	1700	1700	284
Volume to Capacity	0.24	0.21	0.18	0.18	0.18	0.19
Queue Length 95th (m)	0.0	0.0	5.0	0.0	0.0	5.2
Control Delay (s)	0.0	0.0	10.3	0.0	0.0	20.6
Lane LOS			В			С
Approach Delay (s)	0.0		2.1			20.6
Approach LOS						С
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utiliza	ation		40.8%	IC	CU Level c	of Service
Analysis Period (min)	20011		15	IC.	, o Lovoi C	, COI VIOG
Analysis Fenou (IIIIII)			10			

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ Ъ		ሻ	^	*/*	
Traffic Volume (veh/h)	694	42	68	886	95	132
Future Volume (Veh/h)	694	42	68	886	95	132
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	771	47	76	984	106	147
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				389		
pX, platoon unblocked					0.90	
vC, conflicting volume			818		1438	409
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			818		1263	409
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		19	75
cM capacity (veh/h)			806		132	592
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	514	304	76	492	492	253
Volume Left	0	0	76	0	0	106
Volume Right	0	47	0	0	0	147
cSH	1700	1700	806	1700	1700	240
Volume to Capacity	0.30	0.18	0.09	0.29	0.29	1.05
	0.30	0.10	2.4	0.29	0.29	80.4
Queue Length 95th (m)	0.0	0.0	9.9	0.0	0.0	117.3
Control Delay (s)	0.0	0.0		0.0	0.0	_
Lane LOS	0.0		Α			147 O
Approach Delay (s)	0.0		0.7			117.3
Approach LOS						F
Intersection Summary						
Average Delay			14.3			
Intersection Capacity Utiliza	ation		47.7%	IC	CU Level	of Service
Analysis Period (min)			15			

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ሻ	^	W	
Traffic Volume (veh/h)	672	73	107	736	81	109
Future Volume (Veh/h)	672	73	107	736	81	109
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	747	81	119	818	90	121
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)	110110			110110		
Upstream signal (m)				388		
pX, platoon unblocked				000	0.92	
vC, conflicting volume			828		1434	414
vC1, stage 1 conf vol			020		1101	
vC2, stage 2 conf vol						
vCu, unblocked vol			828		1304	414
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					0.0	0.0
tF (s)			2.2		3.5	3.3
p0 queue free %			85		25	79
cM capacity (veh/h)			799		119	587
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	498	330	119	409	409	211
Volume Left	490	0	119	0	0	90
Volume Right	0	81	0	0	0	121
cSH	1700	1700	799	1700	1700	220
	0.29	0.19	0.15	0.24	0.24	0.96
Volume to Capacity	0.29		4.0	0.24	0.24	63.6
Queue Length 95th (m)		0.0				
Control Delay (s)	0.0	0.0	10.3	0.0	0.0	97.0
Lane LOS	0.0		В			F
Approach Delay (s)	0.0		1.3			97.0
Approach LOS						F
Intersection Summary						
Average Delay			11.0			
Intersection Capacity Utiliza	ation		48.0%	IC	CU Level o	of Service

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ሻ	^	W	
Traffic Volume (veh/h)	644	142	137	540	14	34
Future Volume (Veh/h)	644	142	137	540	14	34
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	716	158	152	600	16	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)	INOTIC			NONC		
Upstream signal (m)				388		
pX, platoon unblocked				300		
vC, conflicting volume			874		1399	437
vC1, stage 1 conf vol			074		1000	407
vC2, stage 2 conf vol						
vCu, unblocked vol			874		1399	437
			4.1		6.8	6.9
tC, single (s)			4.1		0.0	0.9
tC, 2 stage (s)			2.2		2.5	3.3
tF (s)					3.5	
p0 queue free %			80		85	93
cM capacity (veh/h)			768	= -	105	567
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	477	397	152	300	300	54
Volume Left	0	0	152	0	0	16
Volume Right	0	158	0	0	0	38
cSH	1700	1700	768	1700	1700	247
Volume to Capacity	0.28	0.23	0.20	0.18	0.18	0.22
Queue Length 95th (m)	0.0	0.0	5.6	0.0	0.0	6.2
Control Delay (s)	0.0	0.0	10.8	0.0	0.0	23.6
Lane LOS			В			С
Approach Delay (s)	0.0		2.2			23.6
Approach LOS						С
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utiliza	ation		43.3%	IC	U Level c	of Service
Analysis Period (min)			15	10	. 5 25 75 7 6	55. 1105
Analysis i chou (Illin)			10			

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	∱ 1>		ሻ	^	¥	
Traffic Volume (veh/h)	806	42	68	1013	95	132
Future Volume (Veh/h)	806	42	68	1013	95	132
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	896	47	76	1126	106	147
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				389		
pX, platoon unblocked					0.85	
vC, conflicting volume			943		1634	472
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			943		1391	472
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			89		0	73
cM capacity (veh/h)			723		101	539
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	597	346	76	563	563	253
Volume Left	0	0	76	0	0	106
Volume Right	0	47	0	0	0	147
cSH	1700	1700	723	1700	1700	192
Volume to Capacity	0.35	0.20	0.11	0.33	0.33	1.32
	0.0	0.20	2.7	0.00	0.0	108.8
Queue Length 95th (m) Control Delay (s)	0.0	0.0	10.6	0.0	0.0	224.1
, ,	0.0	0.0	_	0.0	0.0	_
Lane LOS	0.0		В			P 004.4
Approach Delay (s)	0.0		0.7			224.1
Approach LOS						F
Intersection Summary						
Average Delay			24.0			
Intersection Capacity Utiliza	ation		50.8%	IC	CU Level	of Service
Analysis Period (min)			15			

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑ ↑		ሻ	^	N/F	
Traffic Volume (veh/h)	782	73	107	844	81	109
Future Volume (Veh/h)	782	73	107	844	81	109
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	869	81	119	938	90	121
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				387		
pX, platoon unblocked				301	0.83	
vC, conflicting volume			950		1616	475
vC1, stage 1 conf vol			300		1010	770
vC2, stage 2 conf vol						
vCu, unblocked vol			950		1335	475
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)			7.1		0.0	0.3
tF (s)			2.2		3.5	3.3
p0 queue free %			83		10	77
cM capacity (veh/h)			719		100	536
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	579	371	119	469	469	211
Volume Left	0	0	119	0	0	90
Volume Right	0	81	0	0	0	121
cSH	1700	1700	719	1700	1700	188
Volume to Capacity	0.34	0.22	0.17	0.28	0.28	1.12
Queue Length 95th (m)	0.0	0.0	4.5	0.0	0.0	79.3
Control Delay (s)	0.0	0.0	11.0	0.0	0.0	153.5
Lane LOS			В			F
Approach Delay (s)	0.0		1.2			153.5
Approach LOS						F
Intersection Summary						
Average Delay			15.2			
Intersection Capacity Utilizati	ion		51.0%	IC	CU Level	of Service
Analysis Period (min)			15		2 = 2.01	

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† 1>		ች	^	W	
Traffic Volume (veh/h)	747	142	137	721	14	34
Future Volume (Veh/h)	747	142	137	721	14	34
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	830	158	152	801	16	38
Pedestrians	000	100	.02	00.		
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)	140110			140110		
Upstream signal (m)				387		
pX, platoon unblocked				301		
vC, conflicting volume			988		1614	494
vC1, stage 1 conf vol			300		1014	434
vC2, stage 2 conf vol						
vCu, unblocked vol			988		1614	494
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)			4.1		0.0	0.9
			2.2		3.5	3.3
tF (s)			78		78	93
p0 queue free %			695		76 74	521
cM capacity (veh/h)						
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	553	435	152	400	400	54
Volume Left	0	0	152	0	0	16
Volume Right	0	158	0	0	0	38
cSH	1700	1700	695	1700	1700	187
Volume to Capacity	0.33	0.26	0.22	0.24	0.24	0.29
Queue Length 95th (m)	0.0	0.0	6.3	0.0	0.0	8.7
Control Delay (s)	0.0	0.0	11.6	0.0	0.0	31.9
Lane LOS			В			D
Approach Delay (s)	0.0		1.9			31.9
Approach LOS						D
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utiliza	ation		49.7%	IC	CU Level c	of Service
Analysis Period (min)	auon		15	10	, o Lovoi C	, COI VIOG
Alialysis Fellou (IIIIII)			10			

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† ‡		ሻ	^	*/*	
Traffic Volume (veh/h)	936	42	68	1161	95	132
Future Volume (Veh/h)	936	42	68	1161	95	132
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1040	47	76	1290	106	147
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				389		
pX, platoon unblocked				000	0.79	
vC, conflicting volume			1087		1860	544
vC1, stage 1 conf vol			1007		1000	011
vC2, stage 2 conf vol						
vCu, unblocked vol			1087		1550	544
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)			7.1		0.0	0.3
tF (s)			2.2		3.5	3.3
p0 queue free %			88		0	70
cM capacity (veh/h)			638		72	484
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	693	394	76	645	645	253
Volume Left	0	0	76	0	0	106
Volume Right	0	47	0	0	0	147
cSH	1700	1700	638	1700	1700	143
Volume to Capacity	0.41	0.23	0.12	0.38	0.38	1.77
Queue Length 95th (m)	0.0	0.0	3.1	0.0	0.0	142.9
Control Delay (s)	0.0	0.0	11.4	0.0	0.0	427.2
Lane LOS			В			F
Approach Delay (s)	0.0		0.6			427.2
Approach LOS						F
Intersection Summary						
Average Delay			40.3			
Intersection Capacity Utiliza	ation		54.3%	IC	:Ulevel	of Service
Analysis Period (min)	AUO11		15	10	O LGVGI (JI OCIVICE
Analysis Fenou (IIIII)			10			

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Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	† ‡		ሻ	^	¥#	
Traffic Volume (veh/h)	910	73	107	969	81	109
Future Volume (Veh/h)	910	73	107	969	81	109
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1011	81	119	1077	90	121
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				390		
pX, platoon unblocked					0.78	
vC, conflicting volume			1092		1828	546
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1092		1495	546
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			81		0	75
cM capacity (veh/h)			635		72	482
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	674	418	119	538	538	211
Volume Left	0	0	119	0	0	90
Volume Right	0	81	0	0	0	121
cSH	1700	1700	635	1700	1700	140
Volume to Capacity	0.40	0.25	0.19	0.32	0.32	1.50
Queue Length 95th (m)	0.0	0.0	5.2	0.0	0.0	109.0
Control Delay (s)	0.0	0.0	12.0	0.0	0.0	317.5
Lane LOS	0.0	0.0	В	0.0	0.0	F
Approach Delay (s)	0.0		1.2			317.5
Approach LOS	0.0		1.2			F
• •						
Intersection Summary						
Average Delay			27.4			
Intersection Capacity Utiliza	ation		54.6%	IC	CU Level	of Service
Analysis Period (min)			15			

APPENDIX G

Signal Warrants

	Traffic Signal Warrant Summary														
	Highway 89	& Dean Dr/CR	7	ŀ	Highway 89	& Elizabeth St/	CR7		Concession 7	7 & Street A		Highway 89 & Street B			
Year	Time Period	Warranted	Justification	Year	Time Period	Warranted?	Justification	Year	Time Period	Warranted	Justification	Year	Time Period	Warranted?	Justification
Existing	Weekday	×	-	Existing	Weekday	×	-	Existing	Weekday	×	-	Existing	Weekday	×	-
EXISTING	Saturday	×	-		Saturday	×	-	EXISTING	Saturday	×	-	EXISTING	Saturday	×	-
FB 2026	Weekday	×	-	FB 2026	Weekday	*	-	FB 2026	Weekday	×	-	FB 2026	Weekday	×	-
FB 2020	Saturday	√	1, 3, 7	FB 2020	Saturday	*	-	FB 2020	Saturday	×	-	FB 2020	Saturday	×	-
FB 2031	Weekday	×	-	FB 2031	Weekday	×	-	FB 2031	Weekday	×	-	FB 2031	Weekday	×	-
10 2031	Saturday	✓	1-3, 7		Saturday	✓	2		Saturday	×	-	10 2031	Saturday	×	-
FB 2036	Weekday	✓	3	FB 2036	Weekday	*	-	FB 2036	Weekday	×	-	FB 2036	Weekday	×	-
10 2030	Saturday	✓	1-4, 7	1 0 2030	Saturday	✓	2-4	FB 2030	Saturday	×	-	FB 2030	Saturday	×	-
FT 2026	Weekday	х	-	FT 2026	Weekday	х		FT 2026	Weekday	*	-	FT 2026	Weekday	N/A	
112020	Saturday	✓	1-3, 7	11 2020	Saturday	x		11 2020	Saturday	×	-	11 2020	Saturday	N/A	
FT 2031	Weekday	N/A		FT 2031	Weekday	x		FT 2031	Weekday	х	-	FT 2031	Weekday	N/A	
112031	Saturday	N/A		112031	Saturday	✓	2	112031	Saturday	х	-	11 2031	Saturday	N/A	
FT 2036	Weekday	N/A		FT 2036	Weekday	x		FT 2036	Weekday	х	-	FT 2036	Weekday	х	-
11 2030	Saturday	N/A		Saturday	✓	2-4	11 2030	Saturday	х	-	11 2030	Saturday	х	-	

input Dat	a Shee	et		Analysis	Sheet	Results S	Sheet	Proposed	Collisio) Justificati	on:	
What are the in	tersecting r	oadways?	Hig	ghway 89 &	Concessio	n Rd 7/ Dea	an Dr						_
What is the dire	ection of the	Main Road	street?	Eas	st-West	▼	When was	the data colle	ected?	Existing Co	nditions - V	Veekday	
Justification	1 - 4: Vo	olume Wa	rrants										
a Number of I	anes on the	e Main Road	d?	2 or more									
b Number of I	anes on the	e Minor Roa	ıd?	1	•								
		3? 4	-										
c How many a	approaches												
c How many a				Llubana		Barrela		****		I (I			
d What is the				Urban	•	Popula	tion >= 10,000	AND	Speed < 70	km/hr			
d What is the	operating 6	environment	?			·	,	AND	Speed < 70	km/hr			
d What is the	operating e	environment	? Ime at the i	ntersection?		I in table be	low)	AND			outhbound A	Approach	Pedestrians
d What is the	operating e	environment	? Ime at the i	ntersection?	(Please fil	I in table be	low)				outhbound <i>I</i>	Approach RT	Pedestrians Crossing Main Road
d What is the	operating e	environment vehicle volu astbound Ap	me at the i	ntersection?	(Please fil	I in table be	low) Main We	estbound App	oroach	Minor Sc			Crossing Main
d What is the e What is the	operating e eight hour Main Ea	environment vehicle volu astbound Ap	me at the i	ntersection? Minor No	(Please file	I in table be pproach RT	Main Wo	estbound App	oroach RT	Minor So	TH	RT	Crossing Main Road
d What is the e What is the Hour Ending 7:00	operating e eight hour Main Ea LT 7	environment vehicle volu astbound Ap TH 277	me at the i	Minor No	rthbound A	I in table be	Main We	estbound App TH 274	oroach RT	Minor So	TH	RT 0	Crossing Main Road
d What is the e What is the Hour Ending 7:00 8:00	operating e eight hour Main Ea LT 7 11	environment vehicle volu astbound Ap TH 277 279	proach RT 4 12	Minor No	orthbound A TH 0 3	I in table be	Main Wo	TH 274 365	Proach RT 1 15	Minor So	TH 1 1	RT 0 4	Crossing Main Road 0
d What is the e What is the Hour Ending 7:00 8:00 9:00	operating e eight hour Main Ea LT 7 11 23	environment vehicle volu astbound Ap TH 277 279 370	proach RT 4 12 13	Minor No LT 2 8 5	rthbound A TH 0 3 2	I in table be	Main Wo	274 365 311	Proach RT 1 15 33	Minor So LT 1 5 22	TH 1 1 2	RT 0 4 13	Crossing Main Road 0 0 0
d What is the e What is the Hour Ending 7:00 8:00 9:00 10:00	operating eleight hour Main Ea LT 7 11 23 25	vehicle volu astbound Ap TH 277 279 370 405	proach RT 4 12 13 18	Minor No LT 2 8 5 9	Orthbound A TH 0 3 2 4	pproach RT 2 12 19 32	Main Wo LT 3 7 23 29	274 365 311 299	nroach RT 1 15 33 45	Minor Sc LT 1 5 22 49	TH 1 1 2 6	RT 0 4 13 19	Crossing Main Road 0 0 0 0 0
d What is the e What is the Hour Ending 7:00 8:00 9:00 10:00 16:00	operating eleight hour Main Ea LT 7 11 23 25 16	environment vehicle volu astbound Ap TH 277 279 370 405 366	proach RT 4 12 13 18	Minor No LT 2 8 5 9	P (Please fill orthbound A TH 0 3 2 4 6	I in table bei	Main Wo LT 3 7 23 29 26	estbound App TH 274 365 311 299 428	Proach RT 1 15 33 45 35	Minor Sc LT 1 5 22 49 37	TH 1 1 2 6 4	RT 0 4 13 19 19	Crossing Main Road 0 0 0 0 0 0
d What is the e What is the Hour Ending 7:00 8:00 9:00 10:00 16:00 17:00	operating eleight hour Main Ea LT 7 11 23 25 16 18	vehicle volu astbound Ap TH 277 279 370 405 366 512	reproach RT 4 12 13 18 13	Minor No LT 2 8 5 9 4	orthbound A TH 0 3 2 4 6 10	pproach RT 2 19 32 21 50	Main Wo LT 3 7 23 29 26 63	274 365 311 299 428 566	1 15 33 45 35 44	Minor Sc LT 1 5 22 49 37 34	TH 1 1 2 6 4 4	RT 0 4 13 19 19 26	Crossing Main Road 0 0 0 0 0 0 0 0

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0	
Factored 8 hour pedestrian volume	20,005	25	0	0	
% Assigned to crossing rate	23%	34%	30%	100%	
Net 8 Hour Pedestrian Volume at Cross	sing				4,610
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005		25		0		0	
Factored volume of delayed pedestrians	3	0		8		8		0	
% Assigned to Crossing Rate	23	1%	3	4%	30	0%	10	10%	
Net 8 Hour Volume of Total Pedestrians	3	-							4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gu	idance Ap	proach Lane	es				Percentage	Warrant				Total	Section
dustilication	1 La	nes	2 or Mor	e Lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
1A	480	720	600	900	572	722	836	940	975	1,362	1,284	1,000		
IA		COMPL	IANCE %		64	80	93	100	100	100	100	100	737	92
1B	120	170	120	170	6	33	63	119	91	141	154	108		
16		COMPL	IANCE %		4	19	37	70	54	83	91	64	421	53
		icted Flo			Both 1A and 1I Lesser of 1A o				ırs	Yes Yes		No No		

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Lane	es				Percentage	Warrant				Total	Section
Justilication	1 la	nes	2 or Mor	e lanes				Hour En	iding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	566	689	773	821	884	1,221	1,130	892		
ZA		COMPL	IANCE %		63	77	86	91	98	100	100	99	714	89
2B	50	75	50	75	4	16	29	64	47	61	65	37		
26		COMPL	IANCE %		5	21	39	85	63	81	87	49	431	54
		ricted Flo			Both 2A and 2I Lesser of 2A o				urs	Yes Yes			V	

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	re		Two Just Satisfied 8	ifications 0% or More
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ☑	YES	NO 🔽
Justification 2	Delay Cross Traffic	YES 🗆	NO 🗹		NOT JUSTIFIED

Justification 4: Four Hour Volume

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance
		X	Y (actual)	Y (warrant threshold)		
	16:00	884	60	239	25 %	
Luctification 4	17:00	1,221	77	133	58 %	41 %
Justilication 4	18:00	1,130	85	154	55 %	41 70
	19:00	892	60	236	25 %	

Intersection: Highway 89 & Concession Rd 7/ Dean Dr

Count Date: Existing Conditions - Weekday

Justification 5: Collision Experience

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular		Net 8 F	Hour Pedestrian Volume		
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000
	< 1440					
Justification	1440 - 2600					Justified
6A	2601 - 7000					
	> 7000					

Pedestrian Delay Analysis

	Net Total 8 Hour Volume	Net Total 8 H	our Volume of Delayed P	edestrians
	of Total Pedestrians	< 75	75 - 130	> 130
	< 200			
Justification 6B	200 - 300			
	> 300	Not Justified		

Results	She	eet	Input Sheet	Analysis	Sheet	Propo	sed Collision
Intersection: I	Highwa	ay 89 & Concession I	Rd 7/ Dean Dr	Count Date	e: Existing C	Conditions -	Weekday
Summary	Resu	ilts					
	Justif	fication	Complian	ce	Signal J		
1. Minimum Vehicular	A	Total Volume	92	%	YES	NO V	
Volume	В	Crossing Volume	53	%		14	
2. Delay to Cross	А	Main Road	89	%		V	
Traffic		Crossing Road	54	%			
3. Combination	1 A	Justificaton 1	53	%		~	
	В	Justification 2	54	%			
4. 4-Hr Volume			41	%		~	
5. Collision Exp	perience	e	0	%		•	

~

Justification met

Justification not met

6. Pedestrians

A Volume

B Delay

Input Data Sheet				Analysis	Sheet	Results	Sheet	Proposed	d Collisio) Justificati	on:	
Vhat are the in	tersecting i	roadways?	Hi	ghway 89 &	Concessio	on Rd 7/ Eliz	abeth St						
Vhat is the dire	ction of the	e Main Road	street?	Eas	t-West	•	When was	the data coll	ected?	Existing Co	onditions - V	Veekday	
ustification	1 - 4: V	olume Wa	rrants										
Number of	anes on th	e Main Road	d?	2 or more	•								
Number of	anes on th	e Minor Roa	ıd?	1	•								
c How many	approache	s? 4	-										
d What is the	operating	environment	t?	Urban	-	Popula	tion >= 10,000	AND	Speed < 70) km/hr			
		vehicle volu		intersection? Minor No	(Please fi	II in table be	low)	estbound Ap	•		outhbound A	Approach	Pedestrians
Hour Ending					`	II in table be	low)		•		outhbound <i>F</i>	Approach RT	Pedestrians Crossing Main Road
	Main E	astbound Ap	proach	Minor No	rthbound A	II in table be	low) Main W	estbound Ap	proach	Minor So			Crossing Main
7:00 8:00	Main E	astbound Ap	proach RT	Minor No	rthbound A	II in table be Approach RT	low) Main W	estbound Ap	proach RT	Minor So LT 17 36	TH	RT	Crossing Main Road
Hour Ending	Main E	astbound Ap TH 243	proach RT	Minor No	rthbound A	Il in table be Approach RT 2	Main W LT	estbound Ap TH 262	proach RT	Minor So	TH	RT 17	Crossing Main Road
7:00 8:00 9:00 10:00	Main E: LT 18 24	astbound Ap TH 243 277	pproach RT 0 0	Minor No	rthbound A TH 0 0	Il in table be Approach RT 2 2	Main W LT 1 0	estbound Ap TH 262 392 331 345	proach RT 9 23	Minor So LT 17 36	TH 0 1	RT 17 40	Crossing Main Road 0
7:00 8:00 9:00 10:00 16:00	Main Ea LT 18 24 32 27 29	243 277 371 446 399	proach RT 0 0 0 1 3	Minor No LT 0 0 1	rthbound A TH 0 0 0 1	Approach RT 2 2 3 1	Main W LT 1 0 5 6 11	estbound Ap TH 262 392 331 345 447	9 23 29 49 60	Minor So LT 17 36 29 37 32	TH 0 1 3 2 1	RT 17 40 34 29 22	Crossing Main Road 0 0 0 0 0 0
7:00 8:00 9:00 10:00 16:00 17:00	Main Education LT	astbound Ap TH 243 277 371 446 399 561	pproach RT 0 0 0 1 3 3	Minor No LT 0 0 1 0 1	rthbound A TH 0 0 0 1 1 2	Il in table be Approach RT 2 2 3 1 4 2	Main W LT 1 0 5 6 11 15	estbound Ap TH 262 392 331 345 447 618	9 23 29 49 60 94	Minor So LT 17 36 29 37 32 43	TH 0 1 3	RT 17 40 34 29 22 41	Crossing Main Road 0 0 0 0 0 0 0 0 0 0
7:00 8:00 9:00 10:00 16:00	Main Ea LT 18 24 32 27 29	243 277 371 446 399	proach RT 0 0 0 1 3	Minor No LT 0 0 1 0 1	rthbound A TH 0 0 0 1	Approach RT 2 2 3 1	Main W LT 1 0 5 6 11	estbound Ap TH 262 392 331 345 447	9 23 29 49 60	Minor So LT 17 36 29 37 32	TH 0 1 3 2 1	RT 17 40 34 29 22	Crossing Main Road 0 0 0 0 0 0

66

3,357

412

302

11

239

Justification 5: Collision Experience

231

3,333

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

Total

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total			
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted				
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0				
Factored 8 hour pedestrian volume	20,005	25	0	0				
% Assigned to crossing rate	23%	34%	30%	100%				
Net 8 Hour Pedestrian Volume at Crossing								
Net 8 Hour Vehicular Volume on Street Being Crossed								

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,005		25		0		0		
Factored volume of delayed pedestrians	30		8		8		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									4,610
Net 8 Hour Volume of Delayed Pedestrians									

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Intersection: Highway 89 & Concession Rd 7/ Elizabeth St

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	ıidance Ap	proach Lane	es				Percentage	Warrant				Total	Section
dustinication	1 La	nes	2 or Mor	e Lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
1A	480	720	600	900	569	795	838	944	1,011	1,423	1,349	1,074		
۱^		COMPL	IANCE %		63	88	93	100	100	100	100	100	745	93
1B	120	170	120	170	36	79	70	70	62	91	102	83		
I B	COMPLIANCE %				21	46	41	41	36	54	60	49	349	44
	Restricted Flow Signal Justification 1:					3 100% Fullfil r 1B at least			ırs	Yes Yes	-	No No		

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gu	idance Ap	proach Lane	es		Percentage Warrant								Section
Justilication	1 lanes 2 or More lanes Hour Ending Flow FREE FLOW RESTR. FREE FLOW RESTR.								Across	Percent				
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	533	716	768	874	949	1,332	1,247	991		
ZA		COMPL	IANCE %		59	80	85	97	100	100	100	100	721	90
2B	50	75	50	75	17	37	33	39	35	46	58	57		
26		COMPLIANCE %				49	44	52	47	61	77	76	429	54
	Restricted Flow Signal Justification 2:					3 100% Fullfil r 2B at least 8			ırs	Yes Yes	_		V	

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Just Satisfied 8			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ☑	YES	NO 🔽
Justification 2	Delay Cross Traffic	YES 🗆	NO 🗹		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance	
		X	Y (actual)	Y (warrant threshold)		Compliance	
	16:00	949	55	213	26 %		
Instification 4	17:00	1,332	86	115	75 %	53 %	
Justilication 4	18:00	1,247	93	127	73 %	33 %	
	19:00	991	73	198	37 %		

Intersection: Highway 89 & Concession Rd 7/ Elizabeth St

Count Date: Existing Conditions - Weekday

Justification 5: Collision Experience

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume								
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000				
	< 1440									
Justification	1440 - 2600					Justified				
6A	2601 - 7000									
	> 7000									

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians						
	of Total Pedestrians	< 75	75 - 130	> 130				
	< 200							
Justification 6B	200 - 300							
	> 300	Not Justified						

Results	s Sh	eet	Input Sheet	Analysis	Sheet	Propo	osed Collision		
Intersection:	Highw	yay 89 & Concession F	Rd 7/ Elizabeth St	Count Date	e: Existing C	onditions -	- Weekday		
Summary	Res	ults							
	luot	ification	Compliano	••	Signal J	ustified?	1		
	Just	IIICation	Compliano	ce	YES	NO			
1. Minimum Vehicular	Α	Total Volume	93	%		~			
Volume	В	Crossing Volume	44	%					
2. Delay to Cross	А	Main Road	90	%		~			
Traffic	В	Crossing Road	54	%					
3. Combination	n A	Justificaton 1	44	%		~			
	В	Justification 2	54	%					
4. 4-Hr Volume	e		53	%		~			
5. Collision Ex	perienc	ee	0	%		V			

6. Pedestrians	Α	Volume	Justification met	
	В	Delay	Justification not met	

Input Dat	a Shee	t		Analysis	Sheet	Results S	Sheet	Proposed	Collision	GOTO) Justificati	on:	
What are the int	tersecting ro	oadways?	Hi	ghway 89 &	Concession	on Rd 7/ Dea	ın Dr						▼
What is the dire	ction of the	Main Road	street?	Eas	t-West	•	When was	the data colle	ected?	Existing Co	onditions - S	Saturday	
Justification	1 - 4: Vo	lume Wa	rrants										
a Number of la	anes on the	Main Road	1?	2 or more	-								
b Number of la	anes on the	Minor Roa	d?	1	▼								
c How many approaches? 4 ▼													
d What is the operating environment?													
d What is the	e What is the eight hour vehicle volume at the intersection? (Please fill in table below)												
				1				AND	Speed < 70 l	(m/hr			
e What is the	eight hour	ehicle volu	me at the	intersection?	(Please f	ill in table bel	ow)				outhbound A	Approach	Pedestrians
	eight hour		me at the	intersection?		ill in table bel	ow)	estbound Ap			outhbound <i>l</i>	Approach RT	Pedestrians Crossing Main Road
e What is the	eight hour v	vehicle volu	me at the	intersection?	(Please f	ill in table bel	ow) Main We	estbound Ap	oroach	Minor So			Crossing Main
e What is the	eight hour v Main Ea	vehicle volu stbound Ap TH	me at the proach	Minor No	(Please forthbound a	ill in table bel Approach RT	ow) Main Wo	estbound Ap	oroach RT	Minor So	TH	RT	Crossing Main Road
e What is the Hour Ending 7:00	eight hour v Main Ea LT 15	vehicle volu stbound Ap TH 243	proach RT 8	Minor No LT 6	(Please forthbound of TH 5	Approach RT 39	ow) Main We	estbound Ap TH 259	proach RT 56	Minor So	TH 11	RT 16	Crossing Main Road
e What is the Hour Ending 7:00 8:00	eight hour v Main Ea LT 15 15	stbound Ap TH 243 243	proach RT 8 8	Minor No LT 6 6	(Please forthbound of TH 5 5 5	Approach RT 39 39	Main Wo	estbound Ap TH 259 259	56 56	Minor So LT 44 44	TH 11 11	RT 16 16	Crossing Main Road 0 0
e What is the Hour Ending 7:00 8:00 9:00	eight hour v Main Ea LT 15 15 15	stbound Ap TH 243 243 243	proach RT 8 8 8	Minor No LT 6 6 6	(Please f	Approach RT 39 39 39	ow) Main Wo LT 28 28 28 28	259 259 259	56 56 56	Minor So LT 44 44 44	TH 11 11 11	RT 16 16 16	Crossing Main Road 0 0
e What is the Hour Ending 7:00 8:00 9:00 10:00	eight hour v Main Ea LT 15 15 15 15	stbound Ap TH 243 243 243 243 243	proach RT 8 8 8 8	Minor No LT 6 6 6 6 6	(Please forthbound ATH 5 5 5 5 5 5	Approach RT 39 39 39 39 39	Main Wo	estbound Ap TH 259 259 259 259 259	56 56 56 56	Minor Sc LT 44 44 44 44	TH 11 11 11 11	16 16 16 16	Crossing Main Road 0 0 0 0 0
e What is the Hour Ending 7:00 8:00 9:00 10:00 16:00	eight hour v Main Ea LT 15 15 15 15 15	stbound Ap TH 243 243 243 243 243 243	proach RT 8 8 8 8 8	Minor No LT 6 6 6 6 6	(Please f	Approach RT 39 39 39 39 39 39	Main Wo	estbound Ap TH 259 259 259 259 259 259 259	56 56 56 56 56	Minor Sc LT 44 44 44 44 44	TH 11 11 11 11 11	16 16 16 16 16	Crossing Main Road 0 0 0 0 0 0 0
e What is the Hour Ending 7:00 8:00 9:00 10:00 16:00 17:00	eight hour v Main Ea LT 15 15 15 15 15 15	stbound Ap TH 243 243 243 243 243 243 243	proach RT 8 8 8 8 8	Minor No LT 6 6 6 6 6 6	(Please f rthbound A TH 5 5 5 5 5 5	Approach RT 39 39 39 39 39 39	Main Wo LT 28 28 28 28 28 28 28	259 259 259 259 259 259 259 259	56 56 56 56 56 56	Minor So LT 44 44 44 44 44 44	TH 11 11 11 11 11 11	16 16 16 16 16 16	Crossing Main Road 0 0 0 0 0 0 0 0 0
e What is the Hour Ending 7:00 8:00 9:00 10:00 16:00 17:00 18:00	eight hour v Main Ea LT 15 15 15 15 15 15 15	stbound Ap TH 243 243 243 243 243 243 243 243	me at the proach RT 8 8 8 8 8 8	Minor No	(Please f	Approach RT 39 39 39 39 39 39 39 39	Main Work LT 28 28 28 28 28 28 28 28	estbound Ap TH 259 259 259 259 259 259 259 259 259	56 56 56 56 56 56	Minor So LT 44 44 44 44 44 44 44	TH 11 11 11 11 11 11 11	16 16 16 16 16 16 16	Crossing Main Road 0 0 0 0 0 0 0 0 0 0 0 0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zor	ne 2	Zone 3 (i	f needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Iotai
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Factored 8 hour pedestrian volume	20,	005	2	5		0		0	
% Assigned to crossing rate	23	3%	34	1%	30)%	100%		
Net 8 Hour Pedestrian Volume at Cross	sing								4,610
Net 8 Hour Vehicular Volume on Street	Being Cross	sed							2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	ins 20,005			25		0		0	
Factored volume of delayed pedestrians	3	0	8		8			0	
% Assigned to Crossing Rate	23	1%	3	4%	30	0%	10	10%	
Net 8 Hour Volume of Total Pedestrians	Net 8 Hour Volume of Total Pedestrians							4,610	
Net 8 Hour Volume of Delayed Pedestrians								12	

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gu	idance Ap	proach Lane	es				Percentage	Warrant				Total	Section
dustilication	1 La	nes	2 or Mor	e Lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
1A	480	720	600	900	730	730	730	730	730	730	730	730		
IA		COMPL	IANCE %		81	81	81	81	81	81	81	81	649	81
10	120	170	120	170	121	121	121	121	121	121	121	121		
I I B	1B COMPLIANCE %			71	71	71	71	71	71	71	71	569	71	
	Restricted Flow Signal Justification 1:												V	

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	idance Ap	proach Land	es				Percentage	Warrant				Total	Section
Justilication	1 la	nes	2 or Moi	re lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	0 720 600 900			609	609	609	609	609	609	609	609		
ZA		COMPL	IANCE %		68	68	68	68	68	68	68	68	541	68
ap.	50	75	50	75	61	61	61	61	61	61	61	61		
28	COMPLIANCE %			81	81	81	81	81	81	81	81	651	81	
	Restricted Flow Signal Justification 2:												V	

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Justifications Satisfied 80% or More			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ☑	YES	NO 🔽
Justification 2	Delay Cross Traffic	YES 🗆	NO 🗹		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach Y (actual)	Required Value Y (warrant threshold)	Average % Compliance	Overall % Compliance
	7:00	609	71	380	19 %	
	8:00	609	71	380	19 %	19 %
Justification 4	9:00	609	71	380	19 %	19 %
	10:00	609	71	380	19 %	

Intersection: Highway 89 & Concession Rd 7/ Dean Dr

Count Date: Existing Conditions - Saturday

Justification 5: Collision Experience

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume									
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000					
	< 1440										
Justification	1440 - 2600					Justified					
6A	2601 - 7000										
	> 7000										

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians							
	of Total Pedestrians	< 75	75 - 130	> 130					
	< 200								
Justification 6B	200 - 300								
	> 300	Not Justified							

Results	Sheet		Input Sheet	Ana	llysis Sheet	Propo	osed Collision
Intersection: H	lighway 89	& Concession F	Rd 7/ Dean Dr	Coun	t Date: Existing	Conditions -	Saturday
Summary F	Results						
	Justificatio	on .	Compliar	nce	Signal	Justified?	
					YES	NO	
1. Minimum Vehicular	A Total	Volume	81	%		✓	
Volume	B Cross	ing Volume	71	%			
2. Delay to Cross	A Main I	Road	68	%		V	
Traffic	B Cross	ing Road	81	%			
3. Combination	A Justif	icaton 1	71	%		V	
	B Justif	ication 2	68	%			
4. 4-Hr Volume			19	%		V	
5. Collision Expe	erience		0	%		V	

~

Justification met

Justification not met

Results	Sheet

6. Pedestrians

A Volume

B Delay

Input Dat	ta She	et		Analysis	Sheet	Results	Sheet	Proposed	d Collision	GO TO	O Justificatio	on:	
What are the in	tersecting i	oadways?	Hi	ghway 89 &	Concession	on Rd 7/ Eliz	zabeth St						•
What is the dire	ection of the	Main Road	street?	Eas	st-West	•	When was	the data coll	ected?	xisting Co	onditions - S	aturday	
Justification 1 - 4: Volume Warrants a Number of lanes on the Main Road? b Number of lanes on the Minor Road? c How many approaches? 4 Drban Population >= 10,000 AND Speed < 70 km/hr e What is the eight hour vehicle volume at the intersection? (Please fill in table below)													
Hour Ending		astbound App			orthbound		,	estbound Ap	proach	Minor Se	outhbound A	pproach	Pedestrians Crossing Main
riour Enailig	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Road
7:00	23	322	2	1	2	4	9	328	53	52	2	21	0
8:00	23	322	2	1	2	4	9	328	53	52	2	21	0
9:00	23	322	2	1	2	4	9	328	53	52	2	21	0
10:00	23	322	2	1	2	4	9	328	53	52	2	21	0
16:00	23	322	2	1	2	4	9	328	53	52	2	21	0
17:00	23	322	2	1	2	4	9	328	53	52	2	21	0
18:00	23	322	2	1	2	4	9	328	53	52	2	21	0
19:00	23	322	2	1	2	4	9	328	53	52	2	21	0
Total	184	2,576	16	8	16	32	72	2,624	424	416	16	168	0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zor	ne 2	Zone 3 (i	f needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Iotai
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Factored 8 hour pedestrian volume	20,	005	2	5		0		0	
% Assigned to crossing rate	23	3%	34	! %	30)%	10	00%	
Net 8 Hour Pedestrian Volume at Cross	sing								4,610
Net 8 Hour Vehicular Volume on Street	Being Cross	sed							2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005		25		0		0	
Factored volume of delayed pedestrians	3	0		8		8		0	
% Assigned to Crossing Rate	23	1%	3	4%	30	0%	10	10%	
Net 8 Hour Volume of Total Pedestrians	3								4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

Intersection: Highway 89 & Concession Rd 7/ Elizabeth St

Count Date: Existing Conditions - Saturday

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	ıidance Ap	proach Land	es				Percentage	Warrant				Total	Section
oustilication	1 La	nes	2 or Mor	e Lanes				Hour Er	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
	480	720	600	900	819	819	819	819	819	819	819	819		
1 A		COMPL	IANCE %		91	91	91	91	91	91	91	91	728	91
1B	120	170	120	170	82	82	82	82	82	82	82	82		
IB		COMPL	IANCE %		48	48	48	48	48	48	48	48	386	48
Restricted Flow Both 1A and 1B 100% Fullfilled each of 8 hours Yes Signal Justification 1: Lesser of 1A or 1B at least 80% fullfilled each of 8 hours Yes								>						

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Lan	es				Percentage	Warrant				Total	Section
Justilication	1 la	nes	2 or Mo	re lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	737	737	737	737	737	737	737	737		
ZA		COMPL	IANCE %		82	82	82	82	82	82	82	82	655	82
2B	50	75	50	75	55	55	55	55	55	55	55	55		
28		COMPL	IANCE %		73	73	73	73	73	73	73	73	587	73
		ricted Flo			Both 2A and 2 Lesser of 2A o				ırs	Yes Yes			y	

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	re		Two Just Satisfied 8	ifications 0% or More
Justification 1	Minimun Vehicular Volume	NO ▼	YES	NO 🔽	
Justification 2	Delay Cross Traffic	YES 🗆	NO 🗹		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main) X	Main) Approach Required Value		Average % Compliance	Overall % Compliance
	7:00	737	75	309	24 %	
	8:00	737	75	309	24 %	04.0/
Justification 4	9:00	737	75	309	24 %	24 %
	10:00	737	75	309	24 %	

Intersection: Highway 89 & Concession Rd 7/ Elizabeth St

Count Date: Existing Conditions - Saturday

Justification 5: Collision Experience

Justification	Preceding Months	% Fulfillment	Overall % Compliance		
	1-12	0 %			
Justification 5		0 %	0 %		
	25-36	0 %			

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume								
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000				
	< 1440									
Justification	1440 - 2600					Justified				
6A	2601 - 7000									
	> 7000									

	Net Total 8 Hour Volume	Net Total 8 H	our Volume of Delayed P	edestrians
	of Total Pedestrians	< 75	75 - 130	> 130
	< 200			
Justification 6B	200 - 300			
	> 300	Not Justified		

Results	Sh	eet	<u>I</u> nput Sheet	Analysis	Sheet	Propo	osed Colli
Intersection:	Highw	ay 89 & Concessio	n Rd 7/ Elizabeth St	Count Date	e: Existing C	Conditions -	- Saturday
Summary	Resi	ults					
	Just	ification	Complian	ce	Signal J	ustified?	
			Compilari		YES	NO	
1. Minimum Vehicular	A	Total Volume	91	%		V	
Volume	В	Crossing Volume	48	%			
2. Delay to Cross	A	Main Road	82	%		V	
Traffic	В	Crossing Road	73	%			
3. Combination	n A	Justificaton 1	48	%		V	
	В	Justification 2	73	%			
4. 4-Hr Volume	,		24	%		V	
5. Collision Ex	perienc	e	0	%		✓	

				:
6. Pedestrians	Α	Volume	Justification met	₽.
	В	Delay	Justification not met	Ľ

What are the intersection of the direction of the direction of the direction 1 - 4 a Number of lanes of the direction of th	f the Main Road		ghway 89 &	Concessio		an Dr When was		[¥
Justification 1 - 4		I street?	Eas	t-West	-	When was		Г				
	: Volume Wa					Time! Was	tne data colle	ected?	Future Back	kground 202	26 - Saturo	ay
a Number of lanes o		rrants										
	n the Main Road	d?	2 or more	, •								
b Number of lanes o	n the Minor Roa	ıd?	1	v								
c How many approach d What is the operation e What is the eight h	ing environment	ıme at the i		(Please fil	II in table bel			Speed < 70				Pedestrians
Hour Ending LT	in Eastbound Ap TH	proacn RT	LT	Approach	LT	estbound App TH	proacn RT	LT	uthbound A	pproacn RT	Crossing Main	
7:00 19	307	36	43	TH 6	95	102	327	73	58	15	20	Road 0
8:00 19	307	36	43	6	95	102	327	73	58	15	20	0
9:00 19	307	36	43	6	95	102	327	73	58	15	20	0
10:00 19	307	36	43	6	95	102	327	73	58	15	20	0
16:00 19	307	36	43	6	95	102	327	73	58	15	20	0
	307	36	43	6	95	102	327	73	58	15	20	0
17:00 19	307	36	43	6	95	102	327	73	58	15	20	0
18:00 19												1
	307	36	43	6	95	102	327	73	58	15	20	0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

 a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total			
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai			
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0				
Factored 8 hour pedestrian volume	20,005	25	0	0				
% Assigned to crossing rate	23%	34%	30%	100%				
Net 8 Hour Pedestrian Volume at Crossing								
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000			

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zon	Zone 1		ne 2	Zone 3 (if needed)		Zone 4 (i	f needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10 10		1	6	2	4	0	0	
Factored volume of total pedestrians	20,0	005	25		0		0		
Factored volume of delayed pedestrians	3	0	8		8		0		
% Assigned to Crossing Rate	23	%	34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									
Net 8 Hour Volume of Delayed Pedestri	ans								12

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	Guidance Approach Lanes				Percentage Warrant							Total	Section
Justilication	1 Lanes 2 or More Lanes		Hour Ending								Across	Percent		
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
1A	480	720	600	900	1,101	1,101	1,101	1,101	1,101	1,101	1,101	1,101		
IA.	COMPLIANCE %			100	100	100	100	100	100	100	100	800	100	
1B	120	170	120	170	237	237	237	237	237	237	237	237		
16	COMPLIANCE %			100	100	100	100	100	100	100	100	800	100	
	Restricted Flow				Both 1A and 1B 100% Fullfilled each of 8 hours				Yes ▽ No					
	Signal Justification 1:			Lesser of 1A or 1B at least 80% fulfilled each of 8 hours										

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Lan	es		Percentage Warrant							Total	Section
Justilication	1 la	nes	2 or Mo	re lanes		Hour Ending							Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	864	864	864	864	864	864	864	864		
ZA		COMPLIANCE %			96	96	96	96	96	96	96	96	768	96
AP.	50	75	50	75	116	116	116	116	116	116	116	116		
26	2B COMPLIANCE %		100	100	100	100	100	100	100	100	800	100		
Restricted Flow Signal Justification 2:			Both 2A and 2B 100% Fullfilled each of 8 hours Lesser of 2A or 2B at least 80% fullfilled each of 8 hours Yes ✓							V				

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo		ifications 0% or More		
Justification 1	Minimun Vehicular Volume	YES 🔽	NO 🗆	YES 🔽	NO 🗆
Justification 2	Delay Cross Traffic	YES 🔽	NO 🗆	JUSTIFIED	

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance	
		X	Y (actual)				
	7:00	864	144	248	58 %		
luctification 4	8:00	864	144	248	58 %	58 %	
Justilication 4	9:00	864	144	144 248 58 %		58 %	
	10:00	864	144	248	58 %		

Intersection: Highway 89 & Concession Rd 7/ Dean Dr

Count Date: Future Background 2026 - Saturday

Justification 5: Collision Experience

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume							
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000			
Justification 6A	< 1440								
	1440 - 2600					Justified			
	2601 - 7000								
	> 7000								

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians						
	of Total Pedestrians	< 75	75 - 130	> 130				
Justification 6B	< 200							
	200 - 300							
	> 300	Not Justified						

Input Sheet Analysis Sheet **Proposed Collision Results Sheet** Intersection: Highway 89 & Concession Rd 7/ Dean Dr Count Date: Future Background 2026 - Saturday **Summary Results** Signal Justified? Justification Compliance YES NO 1. Minimum A Total Volume 100 % Vehicular Volume B Crossing Volume 100 % 2. Delay to 96 A Main Road % Cross Traffic **~** B Crossing Road 100 % 3. Combination A Justificatin 1 100 **~** B Justification 2 96 % 4. 4-Hr Volume 58 % ~

5. Collision Exp	erience	0 %	✓
6. Pedestrians	A Volume B Delay	Justification met Justification not met	V

Major Road: Highway 89

Minor Road: Dean Drive and Concession Road 7

Horizon Year: 2026

Saturday

Condition: Restricted Flow

Major Rd. Lanes: 2

Intersection Type: Existing Analyst: Madeleine Ferguson

Date:

5-Sep-17

Project No.: 1101-4125

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM RI	MINIMUM REQUIREMENT		Equirement Dre Lane		COMPLIANCE	
JUSTIFICATION	DESCRIPTION	1 Lane Highways		HIGH		Sect	ional	Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
1. Minimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1098	122%	122%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	236	139%	122 /0
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	862	96%	63%
Traffic	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	107	63%	US /6

Existing Intersection Requires 120 % Justification
Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met:	X	Yes	No
•			

Input Dat	ta She	et		Analysis	Sheet	Results 9	Sheet	Proposed	d Collision	GO TO) Justification	on:	
What are the in	tersecting	roadways?	Hi	ghway 89 &	Concession	on Rd 7/ Eliz	abeth St						
Vhat is the dire	ection of the	e Main Road	street?	Eas	st-West	•	When was	the data coll	ected? F	uture Bacl	kground 202	26 - Saturo	ay
Justification	1 - 4: V	olume Wa	rrants										
a Number of	lanes on th	e Main Road	d?	2 or more	. •								
Number of	lanes on th	e Minor Roa	ıd?	1	•								
c How many	approache	s? 4	-										
d What is the	onerating	environment	?	Urban	-	Popula	tion >= 10,000) AND	Speed < 70 km	ı/hr			
e What is the		vehicle volu			(Please fi			estbound Ap	proach	Minor Sc	outhbound A	Approach	Pedestrians Crossing Mair
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Road
7:00	32	453	3	1	3	5	12	400	69	67	2	28	noau
8:00								483	03				0
9:00	32	453	3	1	3	5	12	483	69	67	2	28	
	32 32	453 453	3 3	1	3 3	5 5					2 2		0
10:00				1 1 1			12	483	69	67		28	0
10:00 16:00	32	453	3	1 1 1	3	5	12 12	483 483	69 69	67 67	2	28 28	0 0 0
	32 32	453 453	3 3	1 1 1 1 1	3 3	5 5	12 12 12	483 483 483	69 69 69	67 67 67	2 2	28 28 28	0 0 0 0
16:00	32 32 32	453 453 453	3 3 3	1 1 1 1 1 1	3 3 3	5 5 5	12 12 12 12	483 483 483 483	69 69 69	67 67 67 67	2 2 2	28 28 28 28	0 0 0 0
16:00 17:00	32 32 32 32	453 453 453 453	3 3 3 3	1 1 1 1 1 1	3 3 3 3	5 5 5 5	12 12 12 12 12	483 483 483 483 483	69 69 69 69	67 67 67 67 67	2 2 2 2	28 28 28 28 28	0 0 0 0 0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total			
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai			
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0				
Factored 8 hour pedestrian volume	20,005	25	0	0				
% Assigned to crossing rate	23%	34%	30%	100%				
Net 8 Hour Pedestrian Volume at Crossing								
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000			

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,005		25		0		0		
Factored volume of delayed pedestrians	30		8		8		0		
% Assigned to Crossing Rate	23	1%	3	4%	30	0%	10	10%	
Net 8 Hour Volume of Total Pedestrians	3	-							4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	idance Ap	proach Lane	es	Percentage Warrant									Section
dustilication	1 Lanes 2 or More Lanes			Hour Ending								Percent		
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~	1.158 1.158									
1A	480	720	600	900	1,158	1,158	1,158	1,158	1,158	1,158	1,158	1,158		
IA.	COMPLIANCE %			100	100	100	100	100	100	100	100	800	100	
1B	120	170	120	170	106	106	106	106	106	106	106	106		
I B		COMPL	IANCE %		62	62	62	62	62	62	62	62	499	62
	Restricted Flow Signal Justification 1:												y	

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gu	iidance Ap	proach Lane	es	Percentage Warrant								Total	Section
Justilication	1 lanes 2 or More lanes			e lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	1,052	1,052	1,052	1,052	1,052	1,052	1,052	1,052		
ZA	COMPLIANCE %			100	100	100	100	100	100	100	100	800	100	
2B	50	75	50	75	71	71	71	71	71	71	71	71		
26	COMPLIANCE %			95	95	95	95	95	95	95	95	757	95	
											V			

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Justifications Satisfied 80% or More			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ▼	YES	NO 🔽
Justification 2	Delay Cross Traffic	YES 🔽	NO 🗆		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance	
		X	Y (actual)	Y (warrant threshold)			
	7:00	1,052	97	177	55 %		
Instification 4	8:00	1,052	97	177	55 %	55 %	
Justilication 4	9:00	1,052	97	177	55 %	33 %	
	10:00	1,052	97	177	55 %		

	Justification Preceding Months		% Fulfillment	Overall % Compliance
		1-12	0 %	
,	lustification 5	_	0 %	0 %
		25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular		Net 8 Hour Pedestrian Volume								
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000					
	< 1440										
Justification	1440 - 2600					Justified					
6A	2601 - 7000										
	> 7000										

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians						
	of Total Pedestrians	< 75	75 - 130	> 130				
	< 200							
Justification 6B	200 - 300							
	> 300	Not Justified						

Input Sheet Analysis Sheet **Proposed Collision Results Sheet** Intersection: Highway 89 & Concession Rd 7/ Elizabeth St Count Date: Future Background 2026 - Saturday **Summary Results** Signal Justified? Justification Compliance YES NO 1. Minimum A Total Volume 100 % Vehicular ~ Volume B Crossing Volume 62 % 2. Delay to A Main Road 100 % Cross Traffic **~** B Crossing Road 95 % 3. Combination A Justificatin 1 62 ~ B Justification 2 95 % 4. 4-Hr Volume 55 % ~

5. Collision Exp	perience	0 %		✓
6. Pedestrians	A Volume	Justification met	П	V
	B Delay	Justification not met		14

Major Road:

Highway 89

Minor Road:

Elizabeth Street and Concession Road 7

Horizon Year: 2026

Saturday

Condition: Restricted Flow

Major Rd. Lanes: 2

Intersection Type: Existing

Date: 5-Sep-17
Project No.: 1101-4125

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM R	EQUIREMENT	MINIMUM RI	EQUIREMENT DRE LANE		COMPLIANCE	
JUSTIFICATION	DESCRIPTION	1 LANE H	IGHWAYS		WAYS	Sect	ional	Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
I. /VIIIIMUM	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1154	128%	62%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	105	62%	02 /6
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	1049	117%	410/
Traffic	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	70	41%	41%

Existing Intersection Requires 120 % Justification Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met: Yes X No

Input Dat	a Shee	et		Analysis	Sheet	Results	Sheet	Propose	d Collision) Justification	on:	
What are the in	tersecting r	oadways?	Hi	ghway 89 &	Concessio	n Rd 7/ De	an Dr						•
What is the dire	ction of the	Main Road	street?	Eas	t-West	•	When was	the data coll	ected?	Future Bac	kground 20	31 - Weeko	day
Justification	1 - 4: Vo	olume Wa	rrants										
a Number of I	anes on the	e Main Road	d?	2 or more	•								
b Number of I	anes on the	e Minor Roa	d?	1	▼								
c How many	approaches	? 4	•										
d What is the	operating e	environment	?	Urban	-	Popula	ation >= 10,00	AND	Speed < 70 I	cm/hr			
e What is the	eight hour	vehicle volu	me at the i	intersection?	(Please fil	I in table be	elow)						
Hour Ending	Main Ea	stbound Ap	proach	Minor No	rthbound A	pproach	Main W	estbound Ap	proach	Minor So	uthbound A	Approach	Pedestrians Crossing Main
riour Enaing	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Road
7:00	16	334	21	20	7	46	51	335	37	31	5	18	0
8:00	16	334	21	20	7	46	51	335	37	31	5	18	0
9:00	16	334	21	20	7	46	51	335	37	31	5	18	0
10:00	16	334	21	20	7	46	51	335	37	31	5	18	0
16:00	16	334	21	20	7	46	51	335	37	31	5	18	0

2,672

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

17:00

18:00

19:00 **Total** 2,680

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total		
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai		
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0			
Factored 8 hour pedestrian volume	20,005	25	0	0			
% Assigned to crossing rate	23%	34%	30%	100%			
Net 8 Hour Pedestrian Volume at Cross	sing				4,610		
Net 8 Hour Vehicular Volume on Street Being Crossed							

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005		25		0		0	
Factored volume of delayed pedestrians	3	0		8		8		0	
% Assigned to Crossing Rate	23	1%	3	4%	30	0%	10	10%	
Net 8 Hour Volume of Total Pedestrians	3								4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Lane	es				Percentage	Warrant				Total	Section
dustinication	1 La	nes	2 or Mor	e Lanes		Hour Ending						Across	Percent	
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
1A	480	720	600	900	921	921	921	921	921	921	921	921		
۱^		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
1B	120	170	120	170	127	127	127	127	127	127	127	127		
IB		COMPL	IANCE %		75	75	75	75	75	75	75	75	598	75
	Restricted Flow Signal Justification 1:									No No				

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Lan	es		Percentage Warrant							Total	Section
Justilication	1 la	nes	2 or Mo	re lanes		Hour Ending						Across	Percent	
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	794	794	794	794	794	794	794	794		
ZA		COMPL	IANCE %		88	88	88	88	88	88	88	88	706	88
2B	50	75	50	75	58	58	58	58	58	58	58	58		
26		COMPL	IANCE %		77	77	77	77	77	77	77	77	619	77
	Restricted Flow Signal Justification 2:				Both 2A and 2I Lesser of 2A o				urs	Yes Yes			V	

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Just Satisfied 8			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ☑	YES	NO 🔽
Justification 2	Delay Cross Traffic		NOT JUSTIFIED		

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance
		X	Y (actual)	Y (warrant threshold)		•
	7:00	794	73	280	26 %	
luctification 4	8:00	794	73	280	26 %	26 %
Justilication 4	9:00	794	73	280	26 %	20 %
	10:00	794	73	280	26 %	

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5	_	0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

8 Hour Vehicular Volume V ₈		Net 8 Hour Pedestrian Volume								
		< 200	200 - 275	276 - 475	476 - 1000	>1000				
Justification 6A	< 1440									
	1440 - 2600					Justified				
	2601 - 7000									
	> 7000									

Net Total 8 Hour Volume of Total Pedestrians		Net Total 8 Hour Volume of Delayed Pedestrians						
		< 75	75 - 130	> 130				
Justification 6B	< 200							
	200 - 300							
	> 300	Not Justified						

Results	Sh	eet	Input Sheet	Analysis	Sheet	Propo	sed Collision
Intersection: H	ighw	ay 89 & Concession F	Rd 7/ Dean Dr	Count Date	e: Future Ba	ckground 2	031 - Weekday
Summary F	Resi	ults					
	lust	ification	Compliano	ce	Signal Ju	ıstified?	
	Just	incution	Compliant	•	YES	NO	
1. Minimum Vehicular	Α	Total Volume	100	%		V	
Volume	В	Crossing Volume	75	%			
2. Delay to Cross	Α	Main Road	88	%		V	
Traffic	В	Crossing Road	77	%			
3. Combination	Α	Justificaton 1	75	%		V	
	В	Justification 2	77	%			
4. 4-Hr Volume			26	%		~	

6. Pedestrians	А	Volume
	В	Delay

5. Collision Experience

Justification met								
Justification not met								

~

Major Road: Highway 89

Minor Road: Dean Drive and Concession Road 7

Horizon Year: 2031

Weekday

Condition: Restricted Flow

Major Rd. Lanes: 2

Intersection Type: Existing

Date: 5-Sep-17
Project No.: 1101-4125

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM R	EQUIREMENT	MINIMUM RI 2 OR MC		COMPLIANCE			
JUSTIFICATION	DESCRIPTION	1 LANE H	GHWAYS		WAYS	Sect	Entire		
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage	
I. /V\Inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	915	102%	74%	
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	125	74%	7 4 70	
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	790	88%	4.40/	
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	75	44%	44%	

Existing Intersection Requires 120 % Justification
Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met:	Yes	X	No

Input Dat	a Shee	et		Analysis	Sheet	Results	Sheet	Propose	d Collision	GO TO) Justification	on:	
What are the int	ersecting r	oadways?	Hi	ghway 89 &	Concession	on Rd 7/ Eli	zabeth St						▼
What is the dire	ction of the	Main Road	street?	Eas	t-West	•	When was	the data coll	lected? Fu	iture Back	kground 20	31 - Week	day
Justification	1 - 1 · V	olumo Wa	rrante										
Justilication	1 - 4. V	Jiuille wa	IIIaiilo										
a Number of la	anes on the	e Main Road	d?	2 or more	-								
b Number of la	anes on the	e Minor Roa	ıd?	1	•								
c How many a	approaches	s? 4	•										
d What is the	operating e	environment	:?	Urban	-	Popula	ation >= 10,00	0 AND	Speed < 70 km	/hr			
e What is the	eight hour	vehicle volu	me at the	intersection?	(Please fi	ill in table be	elow)						
Hour Ending	Main Ea	astbound Ap	proach	Minor No	rthbound A	Approach	Main W	Main Westbound Approach			outhbound A	Pedestrians Crossing Main	
rioui Enaing	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Road
7:00	29	392	3	0	1	3	7	377	49	40	1	27	0
8:00	29	392	3	0	1	3	7	377	49	40	1	27	0
9:00	29	392	3	0	1	3	7	377	49	40	1	27	0
10:00	29	392	3	0	1	3	7	377	49	40	1	27	0

3,016

3,136

Preceding Months	Number of Collisions*				
1-12	0				
13-24	0				
25-36	0				

16:00

17:00

18:00

19:00

Total

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (i	f needed)	Zone 4 (Total	
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Factored 8 hour pedestrian volume	20,005		25		0		0		
% Assigned to crossing rate	Assigned to crossing rate 23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									4,610
Net 8 Hour Vehicular Volume on Street Being Crossed									

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005		25		0		0	
Factored volume of delayed pedestrians	3	0		8		8		0	
% Assigned to Crossing Rate	23	1%	3	4%	30	0%	10	10%	
Net 8 Hour Volume of Total Pedestrians	3								4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	idance Ap	proach Lane	es				Percentage	Warrant				Total	Section
dustilication	1 La	nes	2 or Mor	e Lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
1A	480	720	600	900	929	929	929	929	929	929	929	929		
IA IA		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
1B	120	170	120	170	72	72	72	72	72	72	72	72		
16		COMPL	IANCE %		42	42	42	42	42	42	42	42	339	42
		icted Flo			Both 1A and 1I Lesser of 1A o				ırs	Yes Yes			y	

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Lane	es				Percentage	Warrant				Total	Section
Justilication	1 la	nes	2 or Mor	e lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	857	857	857	857	857	857	857	857		
ZA		COMPL	IANCE %		95	95	95	95	95	95	95	95	762	95
2B	50	75	50	75	41	41	41	41	41	41	41	41		
28		COMPL	IANCE %		55	55	55	55	55	55	55	55	437	55
		ricted Flo			Both 2A and 2I Lesser of 2A o				ırs				>	

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	re		Two Just Satisfied 8	ifications 0% or More
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ☑	YES	NO 🔽
Justification 2	Delay Cross Traffic	YES 🗆	NO 🗹		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance
		X	Y (actual)	Y (warrant threshold)		
	7:00	857	68	251	27 %	
luctification 4	8:00	857	68	251	27 %	27 %
Justilication 4	9:00	857	68	251	27 %	21 70
	10:00	857	68	251	27 %	

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular		Net 8 F	lour Pedestrian Volume		
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000
	< 1440					
Justification	1440 - 2600					Justified
6A	2601 - 7000					
	> 7000					

	Net Total 8 Hour Volume	Net Total 8 H	our Volume of Delayed P	edestrians
	of Total Pedestrians	< 75	75 - 130	> 130
	< 200			
Justification 6B	200 - 300			
	> 300	Not Justified		

Analysis Sheet **Proposed Collision** Input Sheet **Results Sheet** Intersection: Highway 89 & Concession Rd 7/ Elizabeth St Count Date: Future Background 2031 - Weekday **Summary Results** Signal Justified? Justification Compliance YES NO 1. Minimum A Total Volume 100 % Vehicular ~ Volume B Crossing Volume 42 % 2. Delay to A Main Road 95 % Cross Traffic **~** B Crossing Road 55 % 3. Combination A Justificatin 1 42 ~ B Justification 2 55 % 4. 4-Hr Volume 27 % ~

5. Collision Expe	erienc	ee	0 %		~
6. Pedestrians	A	Volume	Justification met		-
	В	Delay	Justification not met		~

Major Road: Highway 89

Highway 89

Elizabeth Street and Concession Road 7

Horizon Year: 2031

Minor Road:

Weekday

Condition: Restricted Flow

Major Rd. Lanes: 2

Intersection Type: Existing

Date: 5-Sep-17

Project No.: 1101-4125

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM R	EQUIREMENT	MINIMUM RI	EQUIREMENT DRE LANE		COMPLIANCE	
JUSTIFICATION	DESCRIPTION	1 LANE H	IGHWAYS	HIGH		Sect	ional	Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
I. /V\inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	924	103%	41%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	70	41%	7170
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	854	95%	24%
Traffic	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	40	24%	2470

Existing Intersection Requires 120 % Justification Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met: Yes X No

Input Dat	ta She	et		Analysis	Sheet	Results S	Sheet	Proposed	Collisio) Justificati	on:	
What are the in	tersecting r	roadways?	Hig	ghway 89 &	Concessio	on Rd 7/ Dea	ın Dr						▼
What is the dire	ection of the	Main Road	street?	Eas	st-West	•	When was t	the data colle	ected?	Future Bacl	kground 20	31 - Saturo	lay
Justification	1 - 4: Vo	olume Wa	rrants										
a Number of I	lanes on the	e Main Road	d?	2 or more	. 🖵								
b Number of I	lanes on the	e Minor Roa	ıd?	1	▼								
c How many	approaches	s? 4	-										
· ·													
d What is the		environment	1?	Urban	•	Populat	tion >= 10,000	AND	Speed < 70	km/hr			
d What is the	operating (1		·	•	AND	Speed < 70	km/hr			
d What is the	operating of eight hour	vehicle volu	ıme at the i	ntersection?	(Please fil	II in table bel	ow)				outhbound 4	Approach	Pedestrians
· ·	operating of eight hour	vehicle volu	me at the i	ntersection?	(Please file	Il in table bel	ow) Main We	estbound Ap	oroach	Minor Sc	outhbound <i>f</i>		Crossing Main
d What is the e What is the	operating e eight hour Main Ea	vehicle volu astbound Ap TH	me at the i	ntersection? Minor No	(Please file	Il in table bel Approach RT	ow) Main We	estbound Ap	oroach RT	Minor Sc	TH	 RT	Crossing Main Road
d What is the e What is the Hour Ending 7:00	operating of eight hour Main Ea LT 22	vehicle volu astbound Ap TH 357	proach RT 38	Minor No	(Please file	Il in table bel	Main We	estbound Ap TH 381	oroach RT 84	Minor So LT 67	TH 17	RT 23	Crossing Main Road
d What is the e What is the	operating of eight hour Main Ea LT 22 22	vehicle volu astbound Ap TH 357 357	pproach RT 38 38	Minor No LT 45 45	(Please file orthbound A TH 7 7	Approach RT 103 103	Main We LT 108 108	estbound Ap TH 381 381	94 84 84	Minor Sc LT 67 67	TH 17 17	RT 23 23	Crossing Main Road 0 0
d What is the e What is the Hour Ending 7:00 8:00	operating of eight hour Main Ea LT 22 22 22	vehicle volu astbound Ap TH 357	pproach RT 38 38 38 38	Minor No LT 45 45 45 45	(Please file	Approach RT 103 103 103	Main We LT 108 108 108	281 381 381 381	oroach RT 84	Minor Sc LT 67 67 67	TH 17	RT 23 23 23	Crossing Main Road
d What is the e What is the Hour Ending 7:00 8:00 9:00	operating of eight hour Main Ea LT 22 22	vehicle volu astbound Ap TH 357 357 357	pproach RT 38 38	Minor No LT 45 45	Prthbound A TH 7 7 7	Approach RT 103 103	Main We LT 108 108	estbound Ap TH 381 381	84 84 84 84	Minor Sc LT 67 67	TH 17 17 17	RT 23 23	Crossing Main Road 0 0 0
d What is the e What is the Hour Ending 7:00 8:00 9:00 10:00	operating of eight hour Main Ea LT 22 22 22 22	vehicle volu astbound Ap TH 357 357 357 357 357	proach RT 38 38 38 38	Minor No. LT 45 45 45 45 45 45	orthbound A TH 7 7 7 7 7	Approach RT 103 103 103 103 103	Main Wa LT 108 108 108 108	### ### ##############################	84 84 84 84 84	Minor Sc LT 67 67 67 67	TH 17 17 17 17 17	RT 23 23 23 23 23 23	Crossing Main Road 0 0 0 0 0
d What is the e What is the Hour Ending 7:00 8:00 9:00 10:00 16:00	operating of eight hour Main Ea LT 22 22 22 22 22 22 22	vehicle volu astbound Ap TH 357 357 357 357 357	proach RT 38 38 38 38 38 38	Minor No LT 45 45 45 45	orthbound A TH 7 7 7 7 7	Il in table bel Approach RT 103 103 103 103 103	Main We LT 108 108 108 108 108	estbound Ap TH 381 381 381 381 381	84 84 84 84 84 84	Minor Sc LT 67 67 67 67 67	TH 17 17 17 17 17 17	RT 23 23 23 23 23	Crossing Main Road 0 0 0 0 0 0 0
d What is the e What is the Hour Ending 7:00 8:00 9:00 10:00 16:00 17:00	operating of eight hour Main Ea LT 22 22 22 22 22 22 22	vehicle volu astbound Ap TH 357 357 357 357 357 357	proach RT 38 38 38 38 38 38 38	Minor No. LT 45 45 45 45 45 45 45	rthbound A TH 7 7 7 7 7 7	Approach RT 103 103 103 103 103 103 103 103	Main We LT 108 108 108 108 108 108	28tbound Ap TH 381 381 381 381 381 381	84 84 84 84 84 84 84	Minor Sc LT 67 67 67 67 67 67	TH 17 17 17 17 17 17 17	RT 23 23 23 23 23 23 23	Crossing Main Road 0 0 0 0 0 0 0 0 0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total		
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai		
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0			
Factored 8 hour pedestrian volume	20,005	25	0	0			
% Assigned to crossing rate	23%	34%	30%	100%			
Net 8 Hour Pedestrian Volume at Cross	Net 8 Hour Pedestrian Volume at Crossing						
Net 8 Hour Vehicular Volume on Street Being Crossed							

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005		25		0		0	
Factored volume of delayed pedestrians	3	0		8	8		0		
% Assigned to Crossing Rate	23	1%	3	4%	30	0%	10	10%	
Net 8 Hour Volume of Total Pedestrians							4,610		
Net 8 Hour Volume of Delayed Pedestrians						12			

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gu	iidance Ap	proach Lane	es		Percentage Warrant							Total	Section
dustilication	1 Lanes		2 or More Lanes			Hour Ending							Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
1A	480	720	600	900	1,252	1,252	1,252	1,252	1,252	1,252	1,252	1,252		
'^		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
1B	120	170	120	170	262	262	262	262	262	262	262	262		
IB		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
	Restricted Flow Signal Justification 1:				Both 1A and 1B 100% Fullfilled each of 8 hours Lesser of 1A or 1B at least 80% fulfilled each of 8 hours									

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes					Percentage Warrant							Total	Section
Justilication	1 lanes		2 or More lanes			Hour Ending							Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	990	990	990	990	990	990	990	990		
ZA	COMPLIANCE %			100	100	100	100	100	100	100	100	800	100	
2B	50	75	50	75	129	129	129	129	129	129	129	129		
26		COMPLIANCE %			100	100	100	100	100	100	100	100	800	100
	Restricted Flow Signal Justification 2:				Both 2A and 2B 100% Fullfilled each of 8 hours Lesser of 2A or 2B at least 80% fulfilled each of 8 hours									

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo		ifications 0% or More		
Justification 1	Minimun Vehicular Volume	YES 🔽	NO 🗆	YES 🔽	NO 🗆
Justification 2	Delay Cross Traffic	YES 🔽	NO 🗆	JUSTIFIED	

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance	
		X	Y (actual)	Y (warrant threshold)		·	
	7:00	990	155	198	78 %		
luctification 4	8:00	990	155	198	78 %	78 %	
Justilication 4	9:00	990	155	198	78 %	70 %	
	10:00	990	155	198	78 %		

Justification	Preceding Months	% Fulfillment	Overall % Compliance	
	1-12	0 %		
Justification 5		0 %	0 %	
	25-36	0 %		

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume								
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000				
	< 1440									
Justification	1440 - 2600					Justified				
6A	2601 - 7000									
	> 7000									

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians						
	of Total Pedestrians	< 75	75 - 130	> 130				
	< 200							
Justification 6B	200 - 300							
	> 300	Not Justified						

Input Sheet Analysis Sheet **Proposed Collision Results Sheet** Intersection: Highway 89 & Concession Rd 7/ Dean Dr Count Date: Future Background 2031 - Saturday **Summary Results** Signal Justified? Justification Compliance YES NO 1. Minimum A Total Volume 100 % Vehicular Volume B Crossing Volume 100 % 2. Delay to A Main Road 100 % Cross Traffic **~** B Crossing Road 100 % 3. Combination A Justificatin 1 100 **~** B Justification 2 100 % 4. 4-Hr Volume 78 % ~

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6. Pedestrians	A Volume		Justification met	E .
	В	Delay	Justification not met	Į.

0

%

5. Collision Experience

Major Road: Highway 89

Minor Road: Dean Drive and Concession Road 7

Horizon Year: 2031

Saturday

Condition: Restricted Flow

Major Rd. Lanes: 2

Intersection Type: Existing

Date: 5-Sep-17
Project No.: 1101-4125

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		Minimum requirement / 1 Lane Highways		MINIMUM RI	EQUIREMENT ORE LANE		COMPLIANCE		
JUSTIFICATION	DESCRIPTION			HIGHWAYS		Sect	ional	Entire	
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage	
I. /V\Inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1249	139%	139%	
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	261	154%	137/0	
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	988	110%	1010/	
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	172	101%	101%	

Existing Intersection Requires 120 % Justification
Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met:	X	Yes	No

	a Sheet			Analysis	Sheet	Results S	Sheet	Proposed	Collision) Justification	on:	
What are the in	tersecting roa	adways?	Hiç	ghway 89 &	Concessio	n Rd 7/ Eliz	abeth St						•
What is the dire	ection of the M	/lain Road	street?	Eas	st-West	•	When was t	the data colle	ected?	Future Back	kground 20	31 - Saturo	lay
Justification	n 1 - 4: Voli	ume Wai	rrants										
a Number of I	lanes on the N	Main Road	l?	2 or more									
o Number of I	lanes on the N	Minor Road	d?	1	•								
c How many a	approaches?	4	•										
d What is the	operating en	vironment?	?	Urban	-	Populat	tion >= 10,000	AND	Speed < 70 k	cm/hr			
						•	•) AND	Speed < 70 k	km/hr			
d What is the	eight hour ve		me at the i	ntersection?		I in table bel	ow)	AND estbound Ap			outhbound A	Approach	Pedestrians
e What is the	eight hour ve	ehicle volur	me at the i	ntersection?	(Please fil	I in table bel	ow)				outhbound A	Approach RT	Pedestrians Crossing Main Road
e What is the	eight hour ve	ehicle volur	me at the i	ntersection?	(Please fil	I in table bel	ow) Main We	estbound Ap	proach	Minor So			Crossing Main
e What is the	eight hour ve	ehicle volur tbound App TH	me at the i	ntersection? Minor No	(Please fill prthbound A	l in table bel	ow) Main We	estbound Ap	proach RT	Minor So	TH	RT	Crossing Main Road
Hour Ending	eight hour ve	tbound App TH 520	proach RT	ntersection? Minor No	rthbound A TH	I in table bel	Main We	estbound Ap TH 551	proach RT 80	Minor So LT 78	TH 3	RT 33	Crossing Main Road
Hour Ending 7:00 8:00	eight hour ve Main East LT 36 36	tbound App TH 520 520	proach RT 3 3	ntersection? Minor No	rthbound A TH 3 3	pproach RT 5 5	Main We	estbound Ap TH 551 551	proach RT 80 80	Minor So LT 78 78	TH 3 3	RT 33 33	Crossing Main Road 0 0
Hour Ending 7:00 8:00 9:00	eight hour ve Main East LT 36 36 36 36	tbound App TH 520 520 520 520	proach RT 3 3 3	ntersection? Minor No	rthbound A TH 3 3 3 3	pproach RT 5 5 5	Main We LT 14 14 14	estbound Ap TH 551 551 551	Proach RT 80 80 80	Minor So LT 78 78 78 78	TH 3 3 3	RT 33 33 33	Crossing Main Road 0 0
Hour Ending 7:00 8:00 9:00 10:00	eight hour ve Main East LT 36 36 36 36	tbound App TH 520 520 520 520 520	proach RT 3 3 3 3	ntersection? Minor No	orthbound A TH 3 3 3 3 3	pproach RT 5 5 5 5	Main We LT 14 14 14 14 14	estbound Ap TH 551 551 551 551	proach RT 80 80 80 80	Minor Sc LT 78 78 78 78	TH 3 3 3 3 3 3	8T 33 33 33 33	Crossing Main Road 0 0 0 0
7:00 8:00 9:00 10:00 16:00	eight hour ve Main East LT 36 36 36 36 36	tbound App TH 520 520 520 520 520 520	proach RT 3 3 3 3 3 3	ntersection? Minor No	P (Please fill orthbound A TH 3 3 3 3 3 3 3 3 3	pproach RT 5 5 5 5 5	Main We LT 14 14 14 14 14 14	estbound Ap TH 551 551 551 551 551	Proach RT 80 80 80 80 80 80	Minor So LT 78 78 78 78 78	TH 3 3 3 3 3 3	8T 33 33 33 33 33 33	Crossing Main Road 0 0 0 0 0 0 0
7:00 8:00 9:00 10:00 16:00 17:00	eight hour ve Main East LT 36 36 36 36 36 36 36 36	tbound App TH 520 520 520 520 520 520 520	proach RT 3 3 3 3 3 3 3	ntersection? Minor No	orthbound A TH 3 3 3 3 3 3	pproach RT 5 5 5 5 5 5	Main We LT 14 14 14 14 14 14 14	estbound Ap TH 551 551 551 551 551 551 551	80 80 80 80 80 80 80	Minor So LT 78 78 78 78 78 78	TH 3 3 3 3 3 3 3	RT 33 33 33 33 33 33 33	Crossing Main Road 0 0 0 0 0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	Zone 1		ne 2	Zone 3 (i	f needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Factored 8 hour pedestrian volume	20,	005	2	25	(0		0	
% Assigned to crossing rate	23	3%	3	4%	30)%	10	00%	
Net 8 Hour Pedestrian Volume at Cross	sing								4,610
Net 8 Hour Vehicular Volume on Street	Being Cross	sed							2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zoi	Zone 1		ne 2	Zone 3 (if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	,005	:	25		0		0	
Factored volume of delayed pedestrians	3	30		8		8		0	
% Assigned to Crossing Rate	23	3%	3	4%	3	0%	10	00%	
Net 8 Hour Volume of Total Pedestrians	3								4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

Intersection: Highway 89 & Concession Rd 7/ Elizabeth St

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	idance Ap	proach Lane	es		Percentage Warrant							Total	Section
dustinication	1 La	nes	2 or More Lanes			Hour Ending							Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
1A	480	720	600	900	1,327	1,327	1,327	1,327	1,327	1,327	1,327	1,327		
IA.	COMPLIANCE %			100	100	100	100	100	100	100	100	800	100	
1B	120	170	120	170	123	123	123	123	123	123	123	123		
I IB		COMPL	IANCE %		72	72	72	72	72	72	72	72	579	72
	Restricted Flow Signal Justification 1:											No No		

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	idance Ap	proach Land	es		Percentage Warrant							Total	Section
Justilication	1 la	nes	2 or More lanes			Hour Ending								Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	1,204	1,204	1,204	1,204	1,204	1,204	1,204	1,204		
ZA		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
2B	50	75	50	75	82	82	82	82	82	82	82	82		
26		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
	Restricted Flow Signal Justification 2:													

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Justifications Satisfied 80% or More			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ▼	YES	NO 🔽
Justification 2	Delay Cross Traffic		NOT JUSTIFIED		

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance	
		X	Y (actual)	Y (warrant threshold)			
	7:00	1,204	114	136	84 %		
Instification 4	8:00	1,204	114	136	84 %	84 %	
Justilication 4	9:00	1,204	114	136	84 %	04 76	
	10:00	1,204	114	136	84 %		

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume							
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000			
	< 1440								
Justification	1440 - 2600					Justified			
6A	2601 - 7000								
	> 7000								

	Net Total 8 Hour Volume	Net Total 8 H	our Volume of Delayed P	edestrians
	of Total Pedestrians	< 75	75 - 130	> 130
	< 200			
Justification 6B	200 - 300			
	> 300	Not Justified		

Input Sheet Analysis Sheet **Proposed Collision Results Sheet** Intersection: Highway 89 & Concession Rd 7/ Elizabeth St Count Date: Future Background 2031 - Saturday **Summary Results** Signal Justified? Justification Compliance YES NO 1. Minimum A Total Volume 100 % Vehicular ~ Volume 72 B Crossing Volume % 2. Delay to A Main Road 100 % Cross Traffic ~ B Crossing Road 100 % 3. Combination A Justificatin 1 72 ~ B Justification 2 100 % 4. 4-Hr Volume 84 % ~

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6. Pedestrians	Α	Volume	Justification met	П	D.
	В	Delay	Justification not met		Į.

0

%

5. Collision Experience

Major Road:

Highway 89

Minor Road: Elizabeth Street and Concession Road 7

Horizon Year:

2031

Saturday

Condition: Restricted Flow

Major Rd. Lanes: 2

Intersection Type: Existing

Date: 5-Sep-17

Project No.: 1101-4125

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM R	EQUIREMENT	MINIMUM REQUIREMENT 2 OR MORE LANE		COMPLIANCE			
JUSTIFICATION	DESCRIPTION	1 Lane Highways		HIGHWAYS		Sectional		Entire	
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage	
I. /V\inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1324	147%	71%	
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	121	71%	7 1 70	
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	1203	134%	48%	
Traffic	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	81	48%	40 /0	

Existing Intersection Requires 120 % Justification Proposed Intersection Requires 150 % Justication **Signal Justification 7 Met:** X No Yes

Input Dat	ta She	et		Analysis	Sheet	Results	Sheet	Propose	d Collision		O Justificatio	on:	
What are the in	itersecting	roadways?	Hi	ghway 89 &	Concessio	on Rd 7/ Dea	an Dr						•
What is the dire	ection of the	e Main Road	street?	Eas	t-West	•	When was	the data coll	lected?	Future Bac	kground 203	36 - Week	lay
Justification	n 1 - 4: V	olume Wa	irrants										
a Number of	lanes on th	e Main Roa	d?	2 or more	-								
b Number of lanes on the Minor Road? 1 ▼													
c How many	approache	s? 4	•										
d What is the	operating	environmen	t?	Urban	·	Popula	tion >= 10,00	0 AND	Speed < 70 k	m/hr			
e What is the	eight hour	vehicle volu	ıme at the	intersection?	(Please fi	II in table be	low)						
Hann Fradis a	Main E	astbound Ap	proach	Minor No	rthbound A	Approach	Main V	estbound Ap	proach	Minor S	outhbound A	pproach	Pedestrians
Hour Ending	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Crossing Main Road
7:00	18	387	23	21	8	52	57	388	42	36	5	20	
8:00											_		0
	18	387	23	21	8	52	57	388	42	36	5	20	0
9:00	18	387	23	21	8	52	57	388 388	42	36 36	5	20	
									I				0

36

288

40

20

160

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

18:00

19:00 **Total**

416

456

3,104

336

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

168

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total			
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai			
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0				
Factored 8 hour pedestrian volume	20,005	25	0	0				
% Assigned to crossing rate	23%	34%	30%	100%				
Net 8 Hour Pedestrian Volume at Cross	sing				4,610			
Net 8 Hour Vehicular Volume on Street Being Crossed								

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005		25		0		0	
Factored volume of delayed pedestrians	3	0		8		8		0	
% Assigned to Crossing Rate	23	1%	3	4%	30	0%	10	10%	
Net 8 Hour Volume of Total Pedestrians	3	-							4,610
Net 8 Hour Volume of Delayed Pedestri	let 8 Hour Volume of Delayed Pedestrians								12

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gu	idance Ap	proach Lane	es		Percentage Warrant							Total	Section
dustilication	1 La	nes	2 or Mor	e Lanes	Hour Ending							Across	Percent	
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
1A	480	720	600	900	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057		
IA IA		COMPL	IANCE %		100 100 100 100 100				100	100	100	100	800	100
10	120	170	120	170	142	142	142	142	142	142	142	142		
16	COMPLIANCE %				84	84	84	84	84	84	84	84	668	84
	Restricted Flow Signal Justification 1:				Both 1A and 1I Lesser of 1A o				ırs	Yes Yes		No No		

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	iidance Ap	proach Lane	es		Percentage Warrant						Total	Section	
Justilication	1 la	nes	2 or Moi	e lanes	Hour Ending							Across	Percent	
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
24	480	720	600	900	915	915	915	915	915	915	915	915		
ZA	COMPLIANCE %			100	100	100	100	100	100	100	100	800	100	
2B	50	75	50	75	65	65	65	65	65	65	65	65		
26		COMPL	IANCE %		87	87	87	87	87	87	87	87	693	87
	Restricted Flow Signal Justification 2:										V			

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo		ifications 0% or More		
Justification 1	Minimun Vehicular Volume	YES 🔽	NO 🗆	YES 🔽	NO 🗆
Justification 2	Delay Cross Traffic	YES 🔽	NO 🗆	JUSTIFIED	

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance
		X	Y (actual)	Y (warrant threshold)		
	7:00	915	81	226	36 %	
luctification 4	8:00	915	81	226	36 %	36 %
Justilication 4	9:00	915	81	226	36 %	30 %
	10:00	915	81	226	36 %	

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume							
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000			
	< 1440								
Justification	1440 - 2600					Justified			
6A	2601 - 7000								
	> 7000								

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians						
	of Total Pedestrians	< 75	75 - 130	> 130				
	< 200							
Justification 6B	200 - 300							
	> 300	Not Justified						

Results	Sh	eet	Input Sheet	Analysis	Sheet	Propo	sed Collision
	_	ay 89 & Concession R	Rd 7/ Dean Dr	Count Date	e: Future Ba	ckground 2	036 - Weekday
Summary	Resu	ılts					
	Justit	fication	Complianc	e	Signal J	ustified?	
					YES	NO	
1. Minimum Vehicular	A	Total Volume	100	%		•	
Volume	В	Crossing Volume	84	%			
2. Delay to Cross	A	Main Road	100	%		V	
Traffic	В	Crossing Road	87	%			
3. Combination	A	Justificaton 1	84	%	V		
	В	Justification 2	87	%			
4. 4-Hr Volume			36	%		V	
5. Collision Exp	perience	•	0	%		~	

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Justification met

Justification not met

6. Pedestrians

A Volume

B Delay

Major Road: Highway 89

Minor Road: Dean Drive and Concession Road 7

Horizon Year: 2036

Weekday

Condition: Restricted Flow

Major Rd. Lanes: 2

Intersection Type: Existing

Date: 5-Sep-17

Project No.: 1101-4125

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM R	EQUIREMENT	MINIMUM RI	EQUIREMENT DRE LANE	COMPLIANCE			
JUSTIFICATION	DESCRIPTION	1 LANE H	IGHWAYS		WAYS	Sect	Entire		
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage	
I. /VIIIIMUM	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1055	117%	83%	
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	141	83%	03 %	
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	914	102%	E00/	
Traffic	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	85	50%	50%	

Existing Intersection Requires 120 % Justification
Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met:	Yes	X	No

Input Dat	ta She	et		Analysis S	heet	Results	Sheet	Propose	d Collisi) Justificati	on:	
What are the in	tersecting	roadways?	Н	ighway 89 & 0	Concessio	on Rd 7/ Eli	zabeth St						▼
What is the dire	ection of the	e Main Road	I street?	East	-West	•	When was	the data coll	lected?	Future Back	kground 20	36 - Week	day
Justification	2 1 - 4: V	olumo Wa	rrante										
Justilication	1 1 - 4. V	Olullie Wa	iiiaiiis										
a Number of	lanes on th	e Main Roa	d?	2 or more	-								
b Number of	lanes on th	e Minor Roa	ad?	1	+								
				,									
c How many	approache	s? 4	▼										
d What is the	operating	environmen	t?	Urban	-	Popula	ation >= 10,00	0 AND	Speed < 7	0 km/hr			
e What is the	eiaht hour	vehicle volu	ıme at the	intersection?	(Please fi	II in table be	elow)						
		astbound Ap		Minor Nor			,	estbound Ap	pproach	Minor Sc	outhbound A	approach	Pedestrians
Hour Ending	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Crossing Main Road
7:00	33	453	3	0	1	4	8	435	57	46	1	31	0
8:00	33	453	3	0	1	4	8	435	57	46	1	31	0
9:00	33	453	3	0	1	4	8	435	57	46	1	31	0
10:00	33	453	3	0	1	4	8	435	57	46	1	31	0
16:00	33	453	3	0	1	4	8	435	57	46	1	31	
17:00			_		4				1	40			0
	33	453	3	0	- 1	4	8	435	57	46	1	31	0
18:00	33 33	453 453	3 3	0	1	4	8	435 435	57 57	46	1	31 31	

3,480

456

368

248

Justification 5: Collision Experience

3,624

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

19:00 Total

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total					
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai					
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0						
Factored 8 hour pedestrian volume	20,005	25	0	0						
% Assigned to crossing rate	23%	34%	30%	100%						
Net 8 Hour Pedestrian Volume at Cross	sing				4,610					
Net 8 Hour Vehicular Volume on Street Being Crossed										

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005		25		0		0	
Factored volume of delayed pedestrians	3	30		8		8		0	
% Assigned to Crossing Rate	23	1%	3	4%	30	0%	10	10%	
Net 8 Hour Volume of Total Pedestrians	3	-							4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Lane	es	Percentage Warrant								Total	Section
dustilication	1 Lanes 2 or More Lanes				Hour Ending								Percent	
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
1A	480	720	600	900	1,072	1,072	1,072	1,072	1,072	1,072	1,072	1,072		
IA.		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
1B	120	170	120	170	83	83	83	83	83	83	83	83		
16	COMPLIANCE %				49	49	49	49	49	49	49	49	391	49
													>	

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Lane	es		Percentage Warrant							Total	Section
Justilication	1 lanes 2 or More lanes					Hour Ending								Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	989	989	989	989	989	989	989	989		
ZA		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
AP.	50	75	50	75	47	47	47	47	47	47	47	47		
28	COMPLIANCE %				63	63	63	63	63	63	63	63	501	63
	Restricted Flow					Both 2A and 2B 100% Fullfilled each of 8 hours					Yes No			
	Signal Justification 2:				Lesser of 2A or 2B at least 80% fulfilled each of 8 hours					Yes No			•	

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Just Satisfied 80			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ☑	YES	NO 🔽
Justification 2	Delay Cross Traffic	YES 🗆	NO 🗹		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance	
		X	Y (actual)	Y (warrant threshold)		00p	
	7:00	989	78	198	39 %		
luctification 4	8:00	989	78	198	39 %	39 %	
Justinication 4	9:00	989	78	198	39 %	39 %	
	10:00	989	78	198	39 %		

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5	-	0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume								
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000				
	< 1440									
Justification	1440 - 2600					Justified				
6A	2601 - 7000									
	> 7000									

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians						
	of Total Pedestrians	< 75	75 - 130	> 130				
	< 200							
Justification 6B	200 - 300							
	> 300	Not Justified						

Analysis Sheet Input Sheet **Proposed Collision Results Sheet** Intersection: Highway 89 & Concession Rd 7/ Elizabeth St Count Date: Future Background 2036 - Weekday **Summary Results** Signal Justified? Justification Compliance YES NO 1. Minimum A Total Volume 100 % Vehicular ~ Volume B Crossing Volume 49 % 2. Delay to A Main Road 100 % Cross Traffic **~** B Crossing Road 63 % 3. Combination A Justificatin 1 49 ~ B Justification 2 63 % 4. 4-Hr Volume 39 % ~

6. Pedestrians A Volume Justification met

Major Road: H

Highway 89

Minor Road: Eliz

Elizabeth Street and Concession Road 7

Horizon Year: 2036

Weekday

Condition: Restricted Flow

Major Rd. Lanes: 2

Intersection Type: Existing

Date: 5-Sep-17 Project No.: 1101-4125

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM RI	EQUIREMENT	MINIMUM RI 2 OR MC		COMPLIANCE		
JUSTIFICATION	DESCRIPTION	1 LANE HI	IGHWAYS	HIGH		Sect	Entire	
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
I. /V\Inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1067	119%	48%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	81	48%	40 /0
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	986	110%	27%
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	46	27%	Z170

Existing Intersection Requires 120 % Justification Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met: Yes X No

Input Dat	a Shee	et		Analysis	Sheet	Results S	heet	Proposed	d Collisio) Justificati	on:	
What are the int	tersecting re	oadways?	Hiç	ghway 89 &	Concessio	n Rd 7/ Dea	ın Dr						<u>-</u>
What is the dire	ction of the	Main Road	street?	Eas	t-West	•	When was the	e data colle	ected?	Future Back	kground 20	36 - Saturo	lay
Justification 1 - 4: Volume Warrants													
Justification	1 - 4: Vo	olume Wa	rrants										
a Number of Is	anes on the	e Main Road	1?	2 or more	•								
b Number of la	anes on the	e Minor Roa	d?	1	₩								
c How many a	approaches	? 4	▼										
, , <u>.</u>													
d What is the	operating e	environment	?	Urban	-	Populat	ion >= 10,000	AND	Speed < 70) km/hr			
						•	ŕ	AND	Speed < 70) km/hr			
d What is the	eight hour	vehicle volu	me at the i	ntersection?	(Please fi	I in table bel	ow)		•				
e What is the	eight hour		me at the i	ntersection?		I in table bel	ow)	AND stbound App	•		outhbound A	Approach	Pedestrians Crossing Main
	eight hour	vehicle volu	me at the i	ntersection?	(Please fi	I in table bel	ow)		•		uthbound <i>F</i>	Approach RT	Pedestrians Crossing Main Road
e What is the	eight hour	vehicle volu	me at the i	ntersection?	(Please file	I in table bel	ow) Main West	stbound App	proach	Minor So			Crossing Main
e What is the	eight hour v Main Ea	vehicle volu estbound Ap	me at the i	ntersection? Minor No	(Please file) orthbound A TH	I in table bel	ow) Main West	stbound App	proach RT	Minor So	TH	 RT	Crossing Main Road
e What is the Hour Ending 7:00	eight hour v Main Ea LT 26	vehicle volu estbound Ap TH 416	me at the i	Minor No	(Please file) orthbound A TH 8	I in table bel	Main West	stbound App TH 443	proach RT 98	Minor So LT 77	TH 20	RT 27	Crossing Main Road
e What is the Hour Ending 7:00 8:00	eight hour v Main Ea LT 26 26	vehicle volu astbound Ap TH 416 416	proach RT 40 40	Minor No LT 46 46	(Please file orthbound A TH 8 8 8	I in table bel	Main West LT 114 114	TH 443 443	proach RT 98 98	Minor So	TH 20 20	RT 27 27	Crossing Main Road 0
e What is the Hour Ending 7:00 8:00 9:00	eight hour v Main Ea LT 26 26 26	estbound Ap TH 416 416 416	proach RT 40 40 40	Minor No LT 46 46 46	(Please file	I in table bel	Main West LT 114 114 114	TH 443 443 443	proach RT 98 98 98	Minor So LT 77 77 77	TH 20 20 20 20	RT 27 27 27 27	Crossing Main Road 0 0
e What is the Hour Ending 7:00 8:00 9:00 10:00	eight hour v Main Ea LT 26 26 26 26	astbound App TH 416 416 416 416 416	proach RT 40 40 40 40	Minor No LT 46 46 46 46	rthbound A TH 8 8 8 8 8	pproach RT 112 112 112 112	Main West LT 114 114 114 114 114	### ### ##############################	98 98 98 98	Minor So LT 77 77 77 77	TH 20 20 20 20 20 20	RT 27 27 27 27 27	Crossing Main Road 0 0 0 0
e What is the Hour Ending 7:00 8:00 9:00 10:00 16:00	eight hour v Main Ea LT 26 26 26 26 26	restbound App TH 416 416 416 416 416	proach RT 40 40 40 40 40 40	Minor No	rthbound A TH 8 8 8 8 8	I in table bel	Main West LT 114 114 114 114 114 114	### ### ##############################	98 98 98 98 98 98	Minor So LT 77 77 77 77	TH 20 20 20 20 20 20 20	27 27 27 27 27 27	Crossing Main Road 0 0 0 0 0 0 0
e What is the Hour Ending 7:00 8:00 9:00 10:00 16:00 17:00	eight hour v Main Ea LT 26 26 26 26 26 26	**************************************	me at the ii proach RT 40 40 40 40 40 40	Minor No LT 46 46 46 46 46 46	(Please fill orthbound A TH 8 8 8 8 8 8 8 8 8 8 8	I in table bel pproach RT 112 112 112 112 112 112 112	Main West LT 114 114 114 114 114 114 114 114	## stbound App TH 443 443 443 443 443 443 443 443 443 44	98 98 98 98 98 98	Minor So LT 77 77 77 77 77 77	TH 20 20 20 20 20 20 20 20 20	27 27 27 27 27 27 27	Crossing Main Road 0 0 0 0 0 0 0 0 0
e What is the Hour Ending 7:00 8:00 9:00 10:00 16:00 17:00 18:00	eight hour v Main Ea LT 26 26 26 26 26 26 26 26 26	xehicle volu astbound Ap TH 416 416 416 416 416 416 416 416	me at the ii proach RT 40 40 40 40 40 40 40	Minor No LT 46 46 46 46 46 46 46 46	(Please fill orthbound A TH 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	pproach RT 112 112 112 112 112 112 112 112 112	Main West LT 114 114 114 114 114 114 114 114 114 11	## stbound App TH 443 443 443 443 443 443 443 443 443 44	98 98 98 98 98 98 98	Minor So LT 77 77 77 77 77 77	TH 20 20 20 20 20 20 20 20 20 20 20 20	27 27 27 27 27 27 27 27	Crossing Main Road 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0	
Factored 8 hour pedestrian volume	20,005	25	0	0	
% Assigned to crossing rate	23%	34%	30%	100%	
Net 8 Hour Pedestrian Volume at Cross	sing				4,610
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,005		25		0		0		
Factored volume of delayed pedestrians	30		8		8			0	
% Assigned to Crossing Rate	23	1%	3	4%	30	0%	10	10%	
Net 8 Hour Volume of Total Pedestrians	3	-							4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	iidance Ap	proach Lane	es	Percentage Warrant								Total	Section
dustilication	1 La	nes	2 or Mor	e Lanes		Hour Ending							Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
1A	480	720	600	900	1,427	1,427	1,427	1,427	1,427	1,427	1,427	1,427		
۱ ۰		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
1B	120	170	120	170	290	290	290	290	290	290	290	290		
IB		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
	Restricted Flow Signal Justification 1:													

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Land	es		Percentage Warrant							Total	Section
Justinication	1 la	nes	2 or Moi	re lanes		Hour Ending								Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	1,137	1,137	1,137	1,137	1,137	1,137	1,137	1,137		
ZA		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
2B	50	75	50	75	143	143	143	143	143	143	143	143		
28		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
	Restr	ricted Flo	ow			oth 2A and 2B 100% Fullfilled each of 8 hours Yes V								
	Signal J	lustificati	on 2:		Lesser of 2A o	r 2B at least	80% fulfilled	each of 8 hou	ırs	Yes	~	No		

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Justifications Satisfied 80% or More			
Justification 1	Minimun Vehicular Volume	YES 🔽	NO 🗆	YES 🔽	NO 🗆
Justification 2	Delay Cross Traffic	JUSTIFIED			

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance
		X	Y (actual)	Y (warrant threshold)		
	7:00	1,137	166	152	100 %	
luctification 4	8:00	1,137	166	152	100 %	100 %
Justilication 4	9:00	1,137	166	152	100 %	100 %
	10:00	1,137	166	152	100 %	

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5	_	0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume							
	Volume V ₈	< 200 200 - 275 276 - 475 476 - 1000							
	< 1440								
Justification	1440 - 2600					Justified			
6A	2601 - 7000								
	> 7000								

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians					
	of Total Pedestrians	< 75	75 - 130	> 130			
	< 200						
Justification 6B	200 - 300						
	> 300	Not Justified					

Input Sheet Analysis Sheet **Proposed Collision Results Sheet** Intersection: Highway 89 & Concession Rd 7/ Dean Dr Count Date: Future Background 2036 - Saturday **Summary Results** Signal Justified? Justification Compliance YES NO 1. Minimum A Total Volume 100 % Vehicular Volume B Crossing Volume 100 % 2. Delay to A Main Road 100 % Cross Traffic **~** B Crossing Road 100 % 3. Combination A Justificatin 1 100 **~** B Justification 2 100 % 4. 4-Hr Volume 100 % ~

5. Collision Experience	0	%	☑

6. Pedestrians	Α	Volume	Justification met	D.
	В	Delay	Justification not met	V

Major Road: Highway 89

Minor Road: Dean Drive and Concession Road 7

Horizon Year: 2036

Saturday

Condition: Restricted Flow

Major Rd. Lanes: 2

Intersection Type: Existing

Date: 5-Sep-17

Project No.: 1101-4125

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM REQUIREMENT 1 LANE HIGHWAYS		MINIMUM RI				
JUSTIFICATION	DESCRIPTION			2 OR MORE LANE HIGHWAYS		Sectional		Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
I. /V\inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1424	158%	158%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	289	170%	150 %
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	1135	126%	1110/
Traffic	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	188	111%	111%

Existing Intersection Requires 120 % Justification
Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met:	X	Yes	No
•			

-	a Sheet	t		Analysis	Sheet	Results S	Sheet	Proposed	d Collision) Justificati	on:	
What are the in	tersecting ro	adways?	Hiç	ghway 89 &	Concessio	n Rd 7/ Eliz	abeth St						•
What is the dire	ction of the N	Main Road	street?	Eas	st-West	•	When was t	the data coll	ected?	Future Bacl	kground 20	36 - Saturo	day
Justification	n 1 - 4: Vol	lume Wa	rrants										
a Number of I	anes on the	Main Road	l?	2 or more	• •								
b Number of I	anes on the	Minor Road	d?	1	•								
c How many	approaches?	? 4	▼										
d What is the	operating er	nvironment	?	Urban	•	Populat	tion >= 10,000	AND	Speed < 70 k	km/hr			
d What is the						•) AND	Speed < 70 k	m/hr			
d What is the	eight hour v		me at the i	ntersection?		I in table bel	low)	AND AND			outhbound A	Approach	Pedestrians
d What is the	eight hour v	ehicle volu	me at the i	ntersection?	' (Please fil	I in table bel	low)				outhbound <i>f</i>	Approach RT	Pedestrians Crossing Main Road
d What is the	eight hour v	ehicle volu	me at the i	ntersection?	' (Please fil	I in table bel	low) Main We	estbound Ap	proach	Minor Sc			Crossing Main
d What is the	eight hour vo	ehicle volu stbound App TH	me at the i	Minor No	' (Please fil orthbound A	I in table bel	Main We	estbound Ap TH	proach RT	Minor Sc	TH	RT	Crossing Main Road
d What is the e What is the Hour Ending 7:00	eight hour vo	ehicle volui stbound App TH 597	me at the i	Minor No	P (Please fill porthbound A TH 4	I in table bel	Main We	estbound Ap TH 630	proach RT 93	Minor So	TH 3	RT 38	Crossing Main Road
d What is the e What is the Hour Ending 7:00 8:00	eight hour vo	ehicle volui stbound App TH 597 597	proach RT 4 4	Minor No	P (Please fill porthbound A TH 4 4	pproach RT 6 6	Main We LT	estbound Ap TH 630 630	proach RT 93 93	Minor So LT 90 90	TH 3 3	RT 38 38	Crossing Main Road 0 0
d What is the e What is the Hour Ending 7:00 8:00 9:00	eight hour vo	ehicle voluments stbound App TH 597 597 597	proach RT 4 4 4 4	Minor No	P (Please fill orthbound A TH 4 4 4 4	pproach RT 6 6 6	Main We LT 16 16 16	estbound Ap TH 630 630 630	proach RT 93 93 93	Minor Sc LT 90 90 90	TH 3 3 3	RT 38 38 38	Crossing Main Road 0 0 0
d What is the Hour Ending 7:00 8:00 9:00 10:00	eight hour vo	stbound App TH 597 597 597 597 597	proach RT 4 4 4 4	Minor No	P (Please fill orthbound A TH 4 4 4 4 4 4	pproach RT 6 6 6 6	Main We LT 16 16 16 16 16	estbound Ap TH 630 630 630 630	proach RT 93 93 93 93	Minor Sc LT 90 90 90 90	TH 3 3 3 3 3 3	RT 38 38 38 38	Crossing Main Road 0 0 0 0 0
d What is the e What is the Hour Ending 7:00 8:00 9:00 10:00 16:00	eight hour vo	stbound App TH 597 597 597 597 597 597	proach RT 4 4 4 4 4	Minor No	orthbound A TH 4 4 4 4 4	pproach RT 6 6 6 6	Main We LT 16 16 16 16 16	estbound Ap TH 630 630 630 630 630	proach RT 93 93 93 93 93	Minor Sc LT 90 90 90 90 90	TH 3 3 3 3 3 3	RT 38 38 38 38 38 38	Crossing Main Road 0 0 0 0 0 0 0
d What is the Hour Ending 7:00 8:00 9:00 10:00 17:00	eight hour vo	stbound App TH 597 597 597 597 597 597 597	proach RT 4 4 4 4 4	Minor No	P (Please fill orthbound A TH 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	pproach RT 6 6 6 6 6	Main We LT 16 16 16 16 16 16 16	estbound Ap TH 630 630 630 630 630 630 630	93 93 93 93 93 93	Minor Sc LT 90 90 90 90 90	TH 3 3 3 3 3 3 3	RT 38 38 38 38 38 38 38	Crossing Main Road 0 0 0 0 0 0 0 0 0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total			
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Total			
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0				
Factored 8 hour pedestrian volume	20,005	25	0	0				
% Assigned to crossing rate	23%	34%	30%	100%				
Net 8 Hour Pedestrian Volume at Crossing								
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000			

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	Factored volume of total pedestrians 20,005				0		0		
Factored volume of delayed pedestrians	3	0	8		8		0		
% Assigned to Crossing Rate	23	1%	3	4%	30	0%	10	10%	
Net 8 Hour Volume of Total Pedestrians								4,610	
Net 8 Hour Volume of Delayed Pedestrians							12		

Intersection: Highway 89 & Concession Rd 7/ Elizabeth St

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Lane	es				Percentage	Warrant				Total	Section
dustinication	1 La	nes	2 or Mor	e Lanes		Hour Ending							Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
1A	480	720	600	900	1,524	1,524	1,524	1,524	1,524	1,524	1,524	1,524		
14		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
1B	120	170	120	170	142	142	142	142	142	142	142	142		
16		COMPL	IANCE %		84	84	84	84	84	84	84	84	668	84
	Restricted Flow Signal Justification 1:												V	

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gu	idance Ap	proach Land	es		Percentage Warrant								Section
Justilication	1 laı	nes	2 or Moi	re lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	1,382	1,382	1,382	1,382	1,382	1,382	1,382	1,382		
ZA		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
2B	50	75	50	75	95	95	95	95	95	95	95	95		
28	·	COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
	Restricted Flow Signal Justification 2:					B 100% Fullfil r 2B at least 8			ırs	Yes Yes	V			

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo		ifications 0% or More		
Justification 1	Minimun Vehicular Volume	YES 🔽	NO 🗆	YES 🔽	NO 🗆
Justification 2	Delay Cross Traffic	JUSTIFIED			

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance	
		X	Y (actual)	Y (warrant threshold)			
	7:00	1,382	131	115	100 %		
luctification 4	8:00	1,382	131	115	100 %	100 %	
Justification 4	9:00	1,382	131	115	100 %	100 %	
	10:00	1,382	131	115	100 %		

Intersection: Highway 89 & Concession Rd 7/ Elizabeth St

Count Date: Future Background 2036 - Saturday

Justification 5: Collision Experience

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume									
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000					
	< 1440										
Justification	1440 - 2600					Justified					
6A	2601 - 7000										
	> 7000										

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians							
	of Total Pedestrians	< 75	75 - 130	> 130					
	< 200								
Justification 6B	200 - 300								
	> 300	Not Justified							

Intersection: Highway 89 & Concession Rd 7/ Elizabeth St

Count Date: Future Background 2036 - Saturday

Summary Results

Justification

Compliance

Signal Justified?

YES

NO

1. Minimum
Vehicular

A Total Volume

100

%

	Justification	Compliance	Signal	Justified?
•	distilication	Compliance	YES	NO
1. Minimum Vehicular	A Total Volume	100 %		V
Volume	B Crossing Volume	84 %		
2. Delay to Cross	A Main Road	100 %	~	
Traffic	B Crossing Road	100 %		
Combination	A Justificaton 1	84 %	V	
	B Justification 2	100 %		
4. 4-Hr Volume		100 %	~	
5. Collision Expe	erience	0 %		✓
6. Pedestrians	A Volume	Justification met		V
	B Delay	Justification not met		12

Major Road:

Highway 89

Elizabeth Street and Concession Road 7

Horizon Year:

Minor Road:

2036 Saturday Condition: Major Rd. Lanes: 2

Intersection Type: Existing

Restricted Flow

Date:

5-Sep-17

Project No.: 1101-4125

Analyst:

Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM R	EQUIREMENT	MINIMUM RI		COMPLIANCE			
JUSTIFICATION	DESCRIPTION	1 LANE H	IGHWAYS	2 OR MORE LANE HIGHWAYS		Sect	Entire		
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage	
I. /V\Inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1520	169%	83%	
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	141	83%	00 %	
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	1379	153%	E E 0/	
Traffic	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	94	55%	55%	

Existing Intersection Requires 120 % Justification Proposed Intersection Requires 150 % Justication **Signal Justification 7 Met:**

Yes

X No

Input Dat	a Shee	et		Analysis	Sheet	Results	Sheet	Propose	d Collision	n GO TO) Justification	nn:	
What are the int	tersecting r	oadways?	CF	R 7 and Stre	et A								▼
What is the dire	ction of the	Main Road	street?	Nor	th-South	•	When was	the data col	lected?	Future Tota	l 2026 - We	ekday	
Justification	1 - 4: Vo	olume Wa	rrants										
a Number of I	anes on the	e Main Roa	d?	1	·								
b Number of I	anes on the	e Minor Roa	ıd?	1	•								
c How many a	approaches	? 3	•										
d What is the	operating e	environmen	t?	Urban	-	Popul	lation >= 10,00	00 AND	Speed < 70 I	km/hr			
e What is the	oight hour	vobielo volu	ıma at tha i	ntore action?	(Please fi	ill in table b	olow)						
C. What is the	eight flour	vernoie voic	ino at the i	THE SECTION:	(1 10030 11	iii iii tabic b	CIOW)						
Hour Ending	Main No	rthbound A	oproach	Minor Ea	astbound A	pproach	Main S	outhbound Ap	oproach	Minor W	estbound A	pproach	Pedestrians Crossing Main
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Road
7:00	8	44	0	70	0	8	0	45	54	0	0	0	0
8:00	8	44	0	70	0	8	0	45	54	0	0	0	0
9:00	8	44	0	70	0	8	0	45	54	0	0	0	0
10:00	8	44	0	70	0	8	0	45	54	0	0	0	0
16:00	8	44	0	70	0	8	0	45	54	0	0	0	0
17:00	8	44	0	70	0	8	0	45	54	0	0	0	0
18:00	8	44	0	70	0	8	0	45	54	0	0	0	0
19:00	8	44	0	70	0	8	0	45	54	0	0	0	0
Total	64	352	0	560	0	64	0	360	432	0	0	0	0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total				
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai				
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0					
Factored 8 hour pedestrian volume	20,005	25	0	0					
% Assigned to crossing rate	23%	34%	30%	100%					
Net 8 Hour Pedestrian Volume at Crossing									
Net 8 Hour Vehicular Volume on Street Being Crossed									

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (f needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,005		25		0		0		
Factored volume of delayed pedestrians	30		8		8		0		
% Assigned to Crossing Rate	23	3%	34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									
Net 8 Hour Volume of Delayed Pedestri	ans								12

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gu	idance Ap	proach Lane	es		Percentage Warrant							Total	Section
dustilication	1 Lanes 2 or More Lanes			Hour Ending							Across	Percent		
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
1A	480	720	600	900	229	229	229	229	229	229	229	229		
IA	COMPLIANCE %			32	32	32	32	32	32	32	32	254	32	
1B	180	255	180	255	78	78	78	78	78	78	78	78		
16		COMPLIANCE %			31	31	31	31	31	31	31	31	245	31
Restricted Flow Signal Justification 1:			Both 1A and 1B 100% Fullfilled each of 8 hours Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								V			

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	idance Ap	proach Land	es		Percentage Warrant							Total	Section
Justilication	1 la	nes	2 or Moi	re lanes	Hour Ending								Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	151	151	151	151	151	151	151	151		
ZA	COMPLIANCE %			21	21	21	21	21	21	21	21	168	21	
2B	50	75	50	75	70	70	70	70	70	70	70	70		
25	COMPLIANCE %			93	93	93	93	93	93	93	93	747	93	
Restricted Flow Signal Justification 2:										V				

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Justifications Satisfied 80% or More			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ☑	YES	NO 🔽
Justification 2	Delay Cross Traffic	YES 🗆	NO 🗹		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Heaviest Minor Approaches (Main) Approach		Required Value	Average % Compliance	Overall %	
		X	Y (actual)	Y (warrant threshold)			
	8:00	158	8	441	2 %		
lustification 4	9:00	158	8	441	2 %	2 %	
Justification 4	10:00	158	8	441	2 %	2 70	
	16:00	158	8	441	2 %		

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume								
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000				
	< 1440									
Justification	1440 - 2600					Justified				
6A	2601 - 7000									
	> 7000									

Net Total 8 Hour Volume		Net Total 8 Hour Volume of Delayed Pedestrians						
	of Total Pedestrians	< 75	75 - 130	> 130				
Justification 6B	< 200							
	200 - 300							
	> 300	Not Justified						

Input Sheet Analysis Sheet **Proposed Collision Results Sheet** Intersection: CR 7 and Street A Count Date: Future Total 2026 - Weekday **Summary Results** Signal Justified? Justification Compliance YES NO 1. Minimum A Total Volume 32 % Vehicular Volume B Crossing Volume 31 % 2. Delay to A Main Road 21 % Cross Traffic **~** B Crossing Road 93 % 3. Combination A Justificatin 1 31 ~ B Justification 2 21 % 4. 4-Hr Volume 2 % ~ 5. Collision Experience 0 % ~ 6. Pedestrians A Volume Justification met **V** B Delay Justification not met

Major Road: Highway 89 Minor Road: CR7 and Street A

Horizon Year: 2026 Weekday Condition: Restricted Flow Major Rd. Lanes: 1

Intersection Type: Existing Analyst: Madeleine Ferguson

Date:

5-Sep-17

Project No.: 1101-4125

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM REQUIREMENT I 1 LANE HIGHWAYS		MINIMUM RI 2 OR MC			COMPLIANCE	
JUSTIFICATION	DESCRIPTION			HIGHWAYS		Sect	onal	Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
1. Minimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	227	32%	32%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	150	88%	J2 /0
2. Delay to Cross Traffic	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	77	11%	11%
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	70	93%	11 /0

Existing Intersection Requires 120 % Justification
Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met:	Ye	es	Х	No

•	a She	et		Analysis	Sheet	Results S	Sheet	Proposed	d Collisio) Justificati	on:	
What are the int	tersecting i	roadways?	Hiç	ghway 89 &	Concessio	n Rd 7/ Dea	ın Dr						_
What is the dire	ction of the	Main Road	street?	Eas	t-West	•	When was	the data colle	ected?	Future Tota	l 2026 - We	eekday	
Justification	1 - 4: V	olume Wa	rrants										
a Number of I	anes on th	e Main Road	d?	2 or more	•								
b Number of I	anes on th	e Minor Roa	d?	1	•								
c How many a	approache	s? 4	▼										
d What is the	operating	environment	?	Urban	-	Populat	tion >= 10,000) AND	Speed < 70	km/hr			
e - What is the	eight hour	vehicle volu	me at the i	ntersection?	(Please fi	II in table bel	Ť						
e What is the					`		ow)		•				Padagtriana
e What is the	Main E	astbound Ap	proach	Minor No	rthbound A	Approach	ow) Main W	estbound App	proach		outhbound A		Pedestrians Crossing Main
Hour Ending	Main E	astbound Ap TH	proach RT	Minor No	rthbound A	Approach RT	ow) Main W LT	estbound App	proach RT	LT	TH	 RT	Crossing Main Road
Hour Ending	Main E	astbound Ap TH 301	proach RT 13	Minor No	rthbound A	Approach RT 43	Main W LT 73	estbound App TH 330	proach RT 32	LT 27	TH 4	RT 15	Crossing Main Road
7:00 8:00	Main E: LT 14 14	astbound Ap TH 301 301	proach RT 13 13	Minor No LT 17 17	rthbound A TH 6 6	Approach RT 43 43	ow) Main W LT 73 73	estbound App TH 330 330	proach RT 32 32	27 27	TH 4 4	RT 15 15	Crossing Main Road 0
7:00 8:00 9:00	Main E: LT 14 14 14	301 301 301	proach RT 13 13 13	Minor No LT 17 17 17	rthbound A TH 6 6 6	Approach RT 43 43 43	ow) Main W LT 73 73 73 73	estbound App TH 330 330 330 330	proach RT 32 32 32 32	27 27 27 27	TH 4 4 4	RT 15 15 15	Crossing Main Road 0 0
7:00 8:00 9:00 10:00	Main Ea LT 14 14 14 14	301 301 301 301 301	proach RT 13 13 13 13	Minor No LT 17 17 17 17	rthbound A TH 6 6 6 6	Approach RT 43 43 43 43 43	Main W LT 73 73 73 73 73	estbound App TH 330 330 330 330 330	proach RT 32 32 32 32 32	27 27 27 27 27	TH 4 4 4 4 4	RT 15 15 15 15	Crossing Main Road 0 0 0 0 0
7:00 8:00 9:00 10:00 16:00	Main E: LT 14 14 14 14 14	301 301 301 301 301 301 301	proach RT 13 13 13 13 13 13	Minor No LT 17 17 17 17 17	rthbound A TH 6 6 6 6 6	Approach RT 43 43 43 43 43 43	Main W LT 73 73 73 73 73 73	estbound App TH 330 330 330 330 330	proach RT 32 32 32 32 32 32 32	27 27 27 27 27 27	TH 4 4 4 4 4 4	RT 15 15 15 15 15	Crossing Main Road 0 0 0 0 0 0 0
7:00 8:00 9:00 10:00 16:00 17:00	Main E: LT 14 14 14 14 14	astbound Ap TH 301 301 301 301 301 301	proach RT 13 13 13 13 13 13 13 13	Minor No LT 17 17 17 17 17 17 17 17	rthbound A TH 6 6 6 6 6 6	Approach RT 43 43 43 43 43 43 43 43	ow) Main W LT 73 73 73 73 73 73 73 73	estbound App TH 330 330 330 330 330 330 330	proach RT 32 32 32 32 32 32 32 32	27 27 27 27 27 27 27	TH 4 4 4 4 4 4 4 4	RT 15 15 15 15 15 15 15	Crossing Main Road 0 0 0 0 0 0 0 0 0
7:00 8:00 9:00 10:00 16:00 17:00 18:00	Main E: LT 14 14 14 14 14 14 14	301 301 301 301 301 301 301 301	proach RT 13 13 13 13 13 13 13 13 13 13	Minor No LT 17 17 17 17 17 17 17 17 17	rthbound A TH 6 6 6 6 6 6 6	Approach RT 43 43 43 43 43 43 43 43	ow) Main W LT 73 73 73 73 73 73 73 73 73 73	estbound App TH 330 330 330 330 330 330 330 330 330 33	9roach RT 32 32 32 32 32 32 32 32 32	27 27 27 27 27 27 27 27	TH 4 4 4 4 4 4 4 4 4	15 15 15 15 15 15 15 15	Crossing Main Road 0 0 0 0 0 0 0 0 0 0 0
7:00 8:00 9:00 10:00 16:00 17:00 18:00 19:00	Main E. LT 14 14 14 14 14 14 14 14 14	301 301 301 301 301 301 301 301 301 301	Proach RT 13 13 13 13 13 13 13 13 13 13	Minor No LT 17 17 17 17 17 17 17 17 17 17 17	TH 6 6 6 6 6 6 6 6 6 6 6 6	Approach RT 43 43 43 43 43 43 43 43 43	ow) Main W LT 73 73 73 73 73 73 73 73 73 73 73 73	estbound App TH 330 330 330 330 330 330 330 330 330 33	proach RT 32 32 32 32 32 32 32 32 32 32	27 27 27 27 27 27 27 27 27 27	TH 4 4 4 4 4 4 4 4 4 4	RT 15 15 15 15 15 15 15 15 15 15	Crossing Main Road 0 0 0 0 0 0 0 0 0 0 0 0 0
7:00 8:00 9:00 10:00 16:00 17:00 18:00	Main E: LT 14 14 14 14 14 14 14	301 301 301 301 301 301 301 301	proach RT 13 13 13 13 13 13 13 13 13 13	Minor No LT 17 17 17 17 17 17 17 17 17	rthbound A TH 6 6 6 6 6 6 6	Approach RT 43 43 43 43 43 43 43 43	ow) Main W LT 73 73 73 73 73 73 73 73 73 73	estbound App TH 330 330 330 330 330 330 330 330 330 33	9roach RT 32 32 32 32 32 32 32 32 32	27 27 27 27 27 27 27 27	TH 4 4 4 4 4 4 4 4 4	15 15 15 15 15 15 15 15	Crossing Main Road 0 0 0 0 0 0 0 0 0 0 0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zo	ne 2	Zone 3 (i	f needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Factored 8 hour pedestrian volume	20,	005	2	25	(0		0	
% Assigned to crossing rate	23	3%	3	4%	30)%	10	00%	
Net 8 Hour Pedestrian Volume at Cross	sing								4,610
Net 8 Hour Vehicular Volume on Street	Being Cross	sed							2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005		25		0		0	
Factored volume of delayed pedestrians	3	0		8		8		0	
% Assigned to Crossing Rate	23	1%	3	4%	30	0%	10	10%	
Net 8 Hour Volume of Total Pedestrians	3								4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

Intersection: Highway 89 & Concession Rd 7/ Dean Dr

Count Date: Future Total 2026 - Weekday

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	iidance Ap	proach Lane	es				Percentage	Warrant				Total	Section
Justilication	1 La	nes	2 or Mor	e Lanes				Hour Er	iding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
1A	480	720	600	900	875	875	875	875	875	875	875	875		
16		COMPL	IANCE %		97	97	97	97	97	97	97	97	778	97
1B	120	170	120	170	112	112	112	112	112	112	112	112		
15		COMPL	IANCE %		66	66	66	66	66	66	66	66	527	66
	Resti	icted Flo	w		Both 1A and 1	B 100% Fullfil	led each of 8	hours		Yes		No	V	
	Signal J	ustificati	on 1:		Lesser of 1A o	r 1B at least 8	30% fulfilled	each of 8 ho	urs	Yes		No	~	

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Land	es				Percentage	Warrant				Total	Section
Justinication	1 la	nes	2 or Moi	re lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	763	763	763	763	763	763	763	763		
ZA		COMPL	IANCE %		85	85	85	85	85	85	85	85	678	85
2B	50	75	50	75	50	50	50	50	50	50	50	50		
28		COMPL	IANCE %		67	67	67	67	67	67	67	67	533	67
		ricted Flo			Both 2A and 2 Lesser of 2A o				ırs	Yes Yes			y	

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	re		Two Just Satisfied 8	
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ☑	YES	NO 🔽
Justification 2	Delay Cross Traffic	YES 🗆	NO 🗹		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance
		X	Y (actual)	Y (warrant threshold)		·
	7:00	763	66	295	22 %	
luctification 4	8:00	763	66	295	22 %	22 %
Justilication 4	9:00	763	66	295	22 %	22 %
	10:00	763	66	295	22 %	

Intersection: Highway 89 & Concession Rd 7/ Dean Dr

Count Date: Future Total 2026 - Weekday

Justification 5: Collision Experience

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular		Net 8 F	Hour Pedestrian Volume		
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000
	< 1440					
Justification	1440 - 2600					Justified
6A	2601 - 7000					
	> 7000					

	Net Total 8 Hour Volume	Net Total 8 H	our Volume of Delayed P	edestrians
	of Total Pedestrians	< 75	75 - 130	> 130
	< 200			
Justification 6B	200 - 300			
	> 300	Not Justified		

Results	Sh	eet	Input Sheet	Analysis	Sheet	Propo	sed Collision
Intersection: Highway 89 & Concession Rd 7/ Dean Dr Count Date: Future Total 2026 - Week							
Summary Results							
	Just	ification	Compliano	e	Signal Ju		
1. Minimum			<u> </u>		YES	NO	
Vehicular	Α	Total Volume	97	%		~	
Volume	В	Crossing Volume	66	%			
2. Delay to Cross	Α	Main Road	85	%		V	
Traffic	В	Crossing Road	67	%	_		
3. Combination	Α	Justificaton 1	66	%		~	
	В	Justification 2	67	%			
4. 4-Hr Volume			22	%		V	

5. Collision Experience	0 %		V
6. Pedestrians A Volume B Delay	Justification met Justification not met		V

Major Road: Highway 89

Minor Road: Dean Drive and Concession Road 7

Horizon Year: 2026

Weekday

Condition: Restricted Flow

Major Rd. Lanes: 2

Intersection Type: Existing

Date: 5-Sep-17
Project No.: 1101-4125

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM RI	EQUIREMENT	MINIMUM RI		COMPLIANCE		
JUSTIFICATION	DESCRIPTION	1 LANE HI	IGHWAYS	2 OR MORE LANE HIGHWAYS		Sectional		Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
I. /V\Inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	870	97%	65%
	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	111	65%	05 %
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	759	84%	29%
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	49	29%	29%

Existing Intersection Requires 120 % Justification
Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met:	Yes	X	No

Input Dat	a She	et		Analysis	Sheet	Results S	Sheet	Proposed	d Collision		Justification	on:	
What are the in	tersecting	roadways?	Hi	ghway 89 &	Concessio	n Rd 7/ Eliz	abeth St						▼
What is the direction of the Main Road street? East-West When was the data collected? Future Total 2026 - Weekday													
Justification	1 - 4: V	olume Wa	rrants										
a Number of I	anes on th	e Main Road	1?	2 or more									
b Number of I				1									
c How many													
d What is the	operating	environment	?	Urban	~	Popula	tion >= 10,000) AND	Speed < 70 ki	m/hr			
e What is the	eight hour	vehicle volu	me at the	intersection?	(Please fil	II in table be	ow)						
Hour Ending	Main E	astbound Ap	proach	Minor No	orthbound A	pproach	Main W	estbound Ap	proach	Minor So	uthbound A	Approach	Pedestrians Crossing Main
Hour Ending	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Road
7:00	28	406	3	0	1	3	6	411	42	34	1	26	Houd
8:00	28	406	3	0	4								0
2.00	20	406	J	0	1	3	6	411	42	34	1	26	
9:00	28	406	3	0	1	3	6 6	411 411	42 42	34 34	1	26 26	0
					1 1						1 1 1		0
9:00	28	406	3	0		3	6	411	42	34	1 1 1	26	0 0 0
9:00 10:00	28 28	406 406	3 3	0		3 3	6 6	411 411	42 42	34 34	1 1 1 1	26 26	0 0 0 0
9:00 10:00 16:00	28 28 28	406 406 406	3 3 3	0 0 0		3 3 3	6 6 6	411 411 411	42 42 42	34 34 34	1 1 1 1 1	26 26 26	0 0 0 0
9:00 10:00 16:00 17:00	28 28 28 28	406 406 406 406	3 3 3 3	0 0 0 0		3 3 3 3	6 6 6 6	411 411 411 411	42 42 42 42	34 34 34 34	1 1 1 1 1 1	26 26 26 26	0 0 0 0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total			
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai			
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0				
Factored 8 hour pedestrian volume	20,005	25	0	0				
% Assigned to crossing rate	23% 34% 3		30% 100%					
Net 8 Hour Pedestrian Volume at Crossing								
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000			

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zo	Zone 2 Zone 3 (if needed)			Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,005		25		0		0		
Factored volume of delayed pedestrians	30		8		8		0		
% Assigned to Crossing Rate	23	1%	34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									
Net 8 Hour Volume of Delayed Pedestri	ans								12

Intersection: Highway 89 & Concession Rd 7/ Elizabeth St

Count Date: Future Total 2026 - Weekday

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	ıidance Ap	proach Lane	es		Percentage Warrant							Total	Section
Justilication	1 Lanes 2 or More Lanes		Hour Ending								Across	Percent		
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
1A	480	720	600	900	961	961	961	961	961	961	961	961		
IA	COMPLIANCE %			100	100	100	100	100	100	100	100	800	100	
1B	120	170	120	170	65	65	65	65	65	65	65	65		
15	COMPLIANCE %			38	38	38	38	38	38	38	38	306	38	
				Both 1A and 1B 100% Fullfilled each of 8 hours Lesser of 1A or 1B at least 80% fulfilled each of 8 hours				Yes	Yes □ No		V			
								Yes No			~			

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Lane	es		Percentage Warrant							Total	Section
Justilication	1 lanes 2 or More lanes		e lanes	Hour Ending								Across	Percent	
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	896	896	896	896	896	896	896	896		
24	COMPLIANCE %			100	100	100	100	100	100	100	100	796	100	
2B	50	75	50	75	35	35	35	35	35	35	35	35		
26	COMPLIANCE %			47	47	47	47	47	47	47	47	373	47	
												V		
				Lesser of 2A o	r 2B at least	80% fulfilled	Lesser of 2A or 2B at least 80% fulfilled each of 8 hours				Yes No			

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Justifications Satisfied 80% or More			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ☑	YES	NO 🔽
Justification 2	Delay Cross Traffic	YES 🗆	NO 🗹		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall %	
		X	Y (actual)	Y (warrant threshold)		p. namoo	
	7:00	896 61		234	26 %		
Justification 4	8:00	896	61	234	26 %	26 %	
Justilication 4	9:00	896	61	234	26 %	20 %	
	10:00	896	61	234	26 %		

Justification	Preceding Months	% Fulfillment	Overall % Compliance		
	1-12	0 %			
Justification 5	-	0 %	0 %		
	25-36	0 %			

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume								
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000				
Justification 6A	< 1440									
	1440 - 2600					Justified				
	2601 - 7000									
	> 7000									

Pedestrian Delay Analysis

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians						
of Total Pedestrians		< 75	75 - 130	> 130				
Justification 6B	< 200							
	200 - 300							
	> 300	Not Justified						

Analysis Sheet Input Sheet **Proposed Collision Results Sheet** Intersection: Highway 89 & Concession Rd 7/ Elizabeth St Count Date: Future Total 2026 - Weekday **Summary Results** Signal Justified? Justification Compliance YES NO 1. Minimum A Total Volume 100 % Vehicular ~ Volume B Crossing Volume 38 % 2. Delay to A Main Road 100 % Cross Traffic **~** B Crossing Road 47 % 3. Combination A Justificatin 1 38 ~ B Justification 2 47 % 4. 4-Hr Volume 26 % ~

5. Collision Expe	erience	0 %	V
6. Pedestrians	A Volume	Justification met	D.
	B Delay	Justification not met	

Major Road:

Minor Road:

Highway 89

Elizabeth Street and Concession Road 7

Horizon Year: 2026

Weekday

Condition:

Intersection Type: Existing

Restricted Flow

Date: Project No.: 1101-4125

5-Sep-17

Major Rd. Lanes: 2

Analyst:

Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM REQUIREMENT		MINIMUM REQUIREMENT 2 OR MORE LANE		COMPLIANCE			
JUSTIFICATION	DESCRIPTION	1 LANE H	1 Lane Highways		HIGHWAYS		ional	Entire	
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage	
1. Minimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	958	106%	37%	
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	63	37%	37 /6	
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	895	99%	20%	
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	34	20%	20 /6	

Existing Intersection Requires 120 % Justification Proposed Intersection Requires 150 % Justication **Signal Justification 7 Met:**

Yes

X No

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total				
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai				
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0					
Factored 8 hour pedestrian volume	destrian volume 20,005		0	0					
% Assigned to crossing rate	23%	34%	30%	100%					
Net 8 Hour Pedestrian Volume at Crossing									
Net 8 Hour Vehicular Volume on Street Being Crossed									

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (f needed)	Total		
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total		
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0			
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0			
Factored volume of total pedestrians	20,005		25		0		0				
Factored volume of delayed pedestrians	3	0	8		8		0				
% Assigned to Crossing Rate	23	3%	34%		30%		100%				
Net 8 Hour Volume of Total Pedestrians											
Net 8 Hour Volume of Delayed Pedestri	Net 8 Hour Volume of Delayed Pedestrians										

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	idance Ap	proach Lane	es				Percentage	Warrant				Total	Section
dustilication	1 La	nes	2 or Mor	e Lanes				Hour En	nding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
1A	480	720	600	900	293	293	293	293	293	293	293	293		
IA IA		COMPL	IANCE %		41	41	41	41	41	41	41	41	326	41
1B	180	255	180	255	107	107	107	107	107	107	107	107		
I B		COMPL	IANCE %		42	42	42	42	42	42	42	42	336	42
Restricted Flow Signal Justification 1:												>		

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	iidance Ap	proach Lane	es				Percentage	Warrant				Total	Section
Justilication	1 la	nes	2 or Mor	e lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	186	186	186	186	186	186	186	186		
ZA		COMPL	IANCE %		26	26	26	26	26	26	26	26	207	26
2B	50	75	50	75	96	96	96	96	96	96	96	96		
28		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
Restricted Flow Signal Justification 2:											>			

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Just Satisfied 80			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ☑	YES	NO 🔽
Justification 2	Delay Cross Traffic	NO 🗹		NOT JUSTIFIED	

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance	
		X	Y (actual)	Y (warrant threshold)		·	
	7:00	186	107	424	25 %		
luctification 4	8:00	186	107	424	25 %	25 %	
Justilication 4	9:00	186	107	424	25 %	25 %	
	10:00	186	107	424	25 %		

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5	-	0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume									
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000					
	< 1440										
Justification	1440 - 2600					Justified					
6A	2601 - 7000										
	> 7000										

Pedestrian Delay Analysis

	Net Total 8 Hour Volume	Net Total 8 H	our Volume of Delayed P	edestrians
of Total Pedestrians		< 75	75 - 130	> 130
	< 200			
Justification 6B	200 - 300			
	> 300	Not Justified		

10/19/2017

Results	Sh	eet	Input Sheet	Analysis	Sheet	Propo	osed Collision	
Intersection: 0	CR7 8	& Street A		Count Date	e: Future To	tal 2026 - :	Saturday	
Summary	Resi	ults						
	Just	ification	Compliance	e	I	ustified?		
1. Minimum	A	Total Volume	41	%	YES	NO		
Vehicular Volume	В	Crossing Volume	42	%		☑		
2. Delay to Cross	A	Main Road	26	%		⊌		
Traffic	В	Crossing Road	100	%		·		
3. Combination	Α	Justificaton 1	41	%		V		
	В	Justification 2	26	%				
4. 4-Hr Volume			25	%		V		
						:	7	
5. Collision Exp	erienc	ee	0	%		⊽		
6. Pedestrians						:	=	
b. Pedestrians	Α	Volume	Justification me	et		✓		
	В	Delay	Justification not i	met				

Major Road: Highway 89
Minor Road: CR7 and Street A

Horizon Year: 2026

Saturday

Condition: Restricted Flow Date: 5-Sep-17

Major Rd. Lanes: 1 Project No.: 1101-4125

Intersection Type: Proposed Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM RI	EQUIREMENT	MINIMUM RI 2 OR MC			COMPLIANCE	
JUSTIFICATION	DESCRIPTION	1 LANE HI	IGHWAYS	HIGH		Sectional		Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
i. /viinimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	292	41%	41%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	186	109%	7170
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	106	15%	15%
Traffic	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	96	128%	13 /0

Existing Intersection Requires 120 % Justification
Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met:	Ye	es	Х	No

	a Shee	et		Analysis	Sheet	Results 9	Sheet	Proposed	d Collisio	n GO TO) Justificati	on:	
What are the inte	ersecting r	oadways?	Hig	ghway 89 &	Concessio	n Rd 7/ Dea	an Dr						▼
What is the direct	ction of the	Main Road	street?	Eas	t-West	•	When was	the data colle	ected?	Future Tota	l 2026 - Sa	turday	
Justification	1 - 4: Vo	olume Wa	rrants										
a Number of la	anes on the	e Main Road	i?	2 or more	-								
b Number of la	anes on th	e Minor Roa	d?	1	•								
c How many a	pproaches	s? 4	-										
d What is the	onerating (anvironment	2	Urban	-	Popula	tion >= 10,000	AND	Speed < 70	km/hr			
e What is the				ntersection?		•	,						
	Main Ea	astbound Api	proach	Minor No	rthbound A		,	estbound Apr	proach	Minor Sc	outhbound A	Approach	Pedestrians
Hour Ending	Main Ea	astbound App	proach RT	Minor No	rthbound A		,	estbound App	proach RT	Minor So	outhbound A	Approach RT	Pedestrians Crossing Main Road
Hour Ending		······································	•			Approach	Main W	······································					Crossing Main
	LT	TH	RT	LT	TH	Approach RT	Main Wo	тн	RT	LT	TH	RT	Crossing Main Road
7:00	LT	TH 363	. RT	LT 49	TH 6	Approach RT 104	Main We	TH 380	RT 73	LT 58	TH 15	RT 20	Crossing Main Road
7:00 8:00	LT 19 19	TH 363 363	RT 11 11	LT 49 49	TH 6 6	Approach RT 104 104	Main We LT 90 90	TH 380 380	73 73	LT 58 58	TH 15 15	RT 20 20	Crossing Main Road 0
7:00 8:00 9:00	19 19 19	TH 363 363 363	RT 11 11 11	LT 49 49 49	TH 6 6 6	Approach RT 104 104 104	Main Wo	TH 380 380 380	73 73 73 73	58 58 58	TH 15 15 15	RT 20 20 20 20	Crossing Main Road 0 0
7:00 8:00 9:00 10:00	19 19 19 19	TH 363 363 363 363	RT 11 11 11 11	49 49 49 49 49	TH 6 6 6 6	Approach RT 104 104 104 104 104	Main Wo	TH 380 380 380 380 380	73 73 73 73 73	58 58 58 58	TH 15 15 15 15	RT 20 20 20 20 20	Crossing Main Road 0 0 0 0 0
7:00 8:00 9:00 10:00 16:00	19 19 19 19 19	TH 363 363 363 363 363	RT 11 11 11 11 11	49 49 49 49 49	TH 6 6 6 6 6	Approach RT 104 104 104 104 104	Main Wo	TH 380 380 380 380 380 380	73 73 73 73 73 73	58 58 58 58 58	TH 15 15 15 15 15 15	RT 20 20 20 20 20 20 20	Crossing Main Road 0 0 0 0 0 0 0
7:00 8:00 9:00 10:00 16:00 17:00	19 19 19 19 19	TH 363 363 363 363 363 363 363	RT 11 11 11 11 11 11 11	49 49 49 49 49 49	TH 6 6 6 6 6	Approach RT 104 104 104 104 104 104 104	Main Wo LT 90 90 90 90 90 90	TH 380 380 380 380 380 380 380	73 73 73 73 73 73 73	58 58 58 58 58 58 58	TH 15 15 15 15 15 15 15	20 20 20 20 20 20 20 20	Crossing Main Road 0 0 0 0 0 0 0 0 0 0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

 a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	Zone 1		Zone 2		f needed)	Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Iotai
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Factored 8 hour pedestrian volume	20,	005	2	25		0	0		
% Assigned to crossing rate	23	3%	34%		30)%	10	00%	
Net 8 Hour Pedestrian Volume at Cross	sing								4,610
Net 8 Hour Vehicular Volume on Street	Being Cross	sed							2,000

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	20,005		25		0		0	
Factored volume of delayed pedestrians	3	0	8		8			0	
% Assigned to Crossing Rate	23	1%	3	4%	30	0%	10	10%	
Net 8 Hour Volume of Total Pedestrians								4,610	
Net 8 Hour Volume of Delayed Pedestri	ans								12

Intersection: Highway 89 & Concession Rd 7/ Dean Dr

Count Date: Future Total 2026 - Saturday

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gu	idance Ap	proach Lane	es				Percentage	Warrant				Total	Section
dustilication	1 Lanes 2 or More Lanes		e Lanes		Hour Ending							Across	Percent	
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				V										
1A	480	720	600	900	1,188	1,188	1,188	1,188	1,188	1,188	1,188	1,188		
15	COMPLIANCE %			100	100	100	100	100	100	100	100	800	100	
1B	120	170	120	170	252	252	252	252	252	252	252	252		
16		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
	Restricted Flow Signal Justification 1:													

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Lan	es		Percentage Warrant							Total	Section
Justilication	1 la	1 lanes 2 or More lanes			Hour Ending							Across	Percent	
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	936	936	936	936	936	936	936	936		
ZA		COMPLIANCE %			100	100	100	100	100	100	100	100	800	100
2B	50	75	50	75	122	122	122	122	122	122	122	122		
26		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo		ifications 0% or More		
Justification 1	Minimun Vehicular Volume	YES 🔽	NO 🗆	YES 🔽	NO 🗆
Justification 2	Delay Cross Traffic	YES 🔽	NO 🗆	JUSTIFIED	

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance
		X	Y (actual)	Y (warrant threshold)		
	7:00	936	159	218	73 %	
luctification 4	8:00	936	159	218	73 %	73 %
Justilication 4	9:00	936	159	218	73 %	73 %
	10:00	936	159	218	73 %	

	Justification	Preceding Months	% Fulfillment	Overall % Compliance
		1-12	0 %	
,	lustification 5	_	0 %	0 %
		25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume								
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000				
	< 1440									
Justification	1440 - 2600					Justified				
6A	2601 - 7000									
	> 7000									

Pedestrian Delay Analysis

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians							
	of Total Pedestrians	< 75	75 - 130	> 130					
Justification 6B	< 200								
	200 - 300								
	> 300	Not Justified							

Input Sheet Analysis Sheet **Proposed Collision Results Sheet** Intersection: Highway 89 & Concession Rd 7/ Dean Dr Count Date: Future Total 2026 - Saturday **Summary Results** Signal Justified? Justification Compliance YES NO 1. Minimum A Total Volume 100 % Vehicular Volume B Crossing Volume 100 % 2. Delay to A Main Road 100 % Cross Traffic ~ B Crossing Road 100 % 3. Combination A Justificatin 1 100 ~ B Justification 2 100 % 4. 4-Hr Volume 73 % ~

5. Collision Expe	erience	0 %	✓
6. Pedestrians	A Volume	Justification met	M
	B Delav	Justification not met	14.

Major Road: Highway 89

Minor Road: Dean Drive and Concession Road 7

Horizon Year: 2026

Saturday

Condition: Restricted Flow

Major Rd. Lanes: 2

Intersection Type: Existing Analyst: Madeleine Ferguson

Date:

5-Sep-17

Project No.: 1101-4125

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM R	EQUIREMENT	MINIMUM RI			COMPLIANCE	
JUSTIFICATION	DESCRIPTION	1 LANE HIGHWAYS		2 OR MORE LANE HIGHWAYS		Sect	ional	Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
I. /V\INIMUM	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1186	132%	132%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	251	148%	132 /6
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	935	104%	0.20/
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	158	93%	93%

Existing Intersection Requires 120 % Justification	
Proposed Intersection Requires 150 % Justication	

Signal Justification 7 Met: X Yes No

Input Dat	ta She	et		Analysis	Sheet	Results	Sheet	Proposed	d Collision	GO TO) Justification	on:	
What are the in	tersecting	roadways?	Н	lighway 89 &	Concession	on Rd 7/ Eliz	zabeth St						
What is the dire	ection of the	e Main Road	street?	Eas	st-West	•	When was	the data colle	ected? F	uture Tota	l 2026 - Sa	turday	
Justification	າ 1 - 4: V	olume Wa	rrants										
a Number of	lanes on th	e Main Road	d?	2 or more	, -								
o Number of	lanes on th	e Minor Roa	d?	1	v								
c How many	approache	s? 4	▼										
d What is the				Urban intersection?	(Please fi	·	tion >= 10,000) AND	Speed < 70 ki	m/hr			
	Main E	astbound Ap	proach	Minor No	orthbound A	Approach	Main W	estbound Ap	proach	Minor Sc	outhbound A	pproach	Pedestrians
Hour Ending	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Crossing Main Road
7:00	35	514	3	1	3	5	12	523	69	67	2	29	
8:00	35	514	3	1	3	5	12	500	69	67	2	29	0
9:00		317					12	523	09	٠.	-	29	0
	35	514	3	1	3	5	12	523	69	67	2	29 29	
10:00				1 1									0
10:00 16:00	35	514	3		3	5	12	523	69	67	2	29	0
	35 35	514 514	3 3		3 3	5 5	12 12	523 523	69 69	67 67	2 2	29 29	0 0 0
16:00	35 35 35	514 514 514	3 3 3		3 3 3	5 5 5	12 12 12	523 523 523	69 69 69	67 67 67	2 2 2	29 29 29	0 0 0
16:00 17:00	35 35 35 35	514 514 514 514	3 3 3 3		3 3 3 3	5 5 5 5	12 12 12 12	523 523 523 523	69 69 69	67 67 67 67	2 2 2 2	29 29 29 29	0 0 0 0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total			
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai			
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0				
Factored 8 hour pedestrian volume	20,005	25	0	0				
% Assigned to crossing rate	23%	34%	30%	100%				
Net 8 Hour Pedestrian Volume at Crossing								
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000			

	Zon	ie 1	Zoi	ne 2	Zone 3 (i	f needed)	Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,0	005	2	25		0		0	
Factored volume of delayed pedestrians	3	0		8	8		0		
% Assigned to Crossing Rate	23	%	34	4%	30)%	10	0%	
Net 8 Hour Volume of Total Pedestrians								4,610	
Net 8 Hour Volume of Delayed Pedestri	ans								12

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gu	idance Ap	proach Lane	es		Percentage Warrant						Total	Section	
dustilication	1 Lanes		2 or More Lanes			Hour Ending							Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
1A	480	720	600	900	1,263	1,263	1,263	1,263	1,263	1,263	1,263	1,263		
IA IA	COMPLIANCE %			100	100	100	100	100	100	100	100	800	100	
40	120	170	120	170	107	107	107	107	107	107	107	107		
1B		COMPL	IANCE %		63	63	63	63	63	63	63	63	504	63
Restricted Flow Signal Justification 1:			Both 1A and 1I Lesser of 1A o				ırs	Yes Yes			V			

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Instification	Guidance Approach Lanes					Percentage Warrant							Total	Section
Justilication	1 la	nes	2 or Mor	e lanes		Hour Ending							Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	1,156	1,156	1,156	1,156	1,156	1,156	1,156	1,156		
ZA	COMPLIANCE %			100	100	100	100	100	100	100	100	800	100	
2B	50	75	50	75	71	71	71	71	71	71	71	71		
26		COMPL	IANCE %		95	95	95	95	95	95	95	95	757	95
	Restricted Flow Signal Justification 2:			Lancour of OA are OD at lancot 2007 fortilled and a fortilled							V			

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Just Satisfied 8	ifications 0% or More		
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ▼	YES	NO 🔽
Justification 2	Delay Cross Traffic	YES 🔽	NO 🗆		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance	
		X	Y (actual)	Y (warrant threshold)			
	7:00	1,156	98	148	66 %		
Instification 4	8:00	1,156	98	148	66 %	66 %	
Justilication 4	9:00	1,156	98	148	66 %	00 %	
	10:00	1,156	98	148	66 %		

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5	_	0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume								
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000				
	< 1440									
Justification	1440 - 2600					Justified				
6A	2601 - 7000									
	> 7000									

Pedestrian Delay Analysis

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians						
	of Total Pedestrians	< 75	75 - 130	> 130				
Justification 6B	< 200							
	200 - 300							
	> 300	Not Justified						

Results	She	eet	Input Sheet	Analys	sis Sheet	Propo	osed Collision
Intersection: H	lighwa	y 89 & Concession	Rd 7/ Elizabeth St	Count Da	ate: Future To	tal 2026 - S	Saturday
Summary F	Resul	lts					
	Justifi	ication	Compliano	ee	Signal J	ustified?	
					YES	NO	
1. Minimum Vehicular	Α .	Total Volume	100	%		~	
Volume	В	Crossing Volume	63	%			
2. Delay to Cross	A I	Main Road	100	%		V	
Traffic	В	Crossing Road	95	%			
3. Combination	Α.	Justificaton 1	63	%		<u> </u>	
	в,	Justification 2	95	%			
4. 4-Hr Volume			66	%		V	
5. Collision Expe	erience		0	%		V	

or comoton Expe	,,,,,,,,,,		0 /0	I.E.
6. Pedestrians	A	Volume	Justification met	□
	В	Delay	Justification not met	ı.

Major Road:

Highway 89

Minor Road:

Elizabeth Street and Concession Road 7

Horizon Year: 2026

Saturday

Condition: Restricted Flow

Major Rd. Lanes: 2

Intersection Type: Existing

Date: 5-Sep-17

Project No.: 1101-4125

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM RI	EQUIREMENT	MINIMUM RI 2 OR MC			COMPLIANCE	
JUSTIFICATION	DESCRIPTION	1 LANE HIGHWAYS		HIGH		Sect	ional	Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
I. /V\Inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1260	140%	62%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	106	62%	02 /0
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	1154	128%	41%
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	70	41%	1 1/0

Existing Intersection Requires 120 % Justification Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met: Yes X No

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	Zone 1		Zone 2		f needed)	Zone 4 (if needed)	Total		
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Iotai		
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0			
Factored 8 hour pedestrian volume	Factored 8 hour pedestrian volume 20,005				0		0				
% Assigned to crossing rate	23	3%	34	! %	30)%	10	00%			
Net 8 Hour Pedestrian Volume at Cross	sing								4,610		
Net 8 Hour Vehicular Volume on Street Being Crossed											

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total	
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total	
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0		
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0		
Factored volume of total pedestrians	20,	005	2	25		0		0		
Factored volume of delayed pedestrians	3	0		8		8		0		
% Assigned to Crossing Rate	23	3%	34	4%	30	0%	10	10%		
Net 8 Hour Volume of Total Pedestrians									4,610	
Net 8 Hour Volume of Delayed Pedestrians										

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gu	idance Ap	proach Lane	es				Percentage	Warrant				Total	Section
dustilication	1 Lanes		2 or More Lanes			Hour Ending								
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
1A	480	720	600	900	1,158	1,158	1,158	1,158	1,158	1,158	1,158	1,158		
IA	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100
10	120	170	120	170	106	106	106	106	106	106	106	106		
I I B	COMPLIANCE %				62	62	62	62	62	62	62	62	499	62
	Restricted Flow Signal Justification 1:					3 100% Fullfil r 1B at least t			ırs	Yes Yes	-		>	

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gu	idance Ap	proach Lane	es				Percentage	Warrant				Total	Section
Justilication	1 laı	nes	2 or More lanes			Hour Ending								
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	1,052	1,052	1,052	1,052	1,052	1,052	1,052	1,052		
ZA	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100
O.P.	50	75	50	75	71	71	71	71	71	71	71	71		
28	2B COMPLIANCE %					95	95	95	95	95	95	95	757	95
	Restricted Flow Signal Justification 2:					B 100% Fullfil r 2B at least 8			ırs	Yes Yes				

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Justifications Satisfied 80% or More			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ▼	YES	NO 🔽
Justification 2	Delay Cross Traffic		NOT JUSTIFIED		

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach Y (actual)	Required Value Y (warrant threshold)	Average % Compliance	Overall % Compliance
		^	` '	<u> </u>		
	7:00	1,052	97	177	55 %	
Justification 4	8:00	1,052	97	177	55 %	55 %
Justilication 4	9:00	1,052	97	177	55 %	55 %
	10:00	1,052	97	177	55 %	

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume									
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000					
	< 1440										
Justification	1440 - 2600					Justified					
6A	2601 - 7000										
	> 7000										

Pedestrian Delay Analysis

	Net Total 8 Hour Volume	Net Total 8 H	our Volume of Delayed P	edestrians
	of Total Pedestrians	< 75	75 - 130	> 130
	< 200			
Justification 6B	200 - 300			
	> 300	Not Justified		

Results	Sh	eet	Input Sheet	Analysis	Sheet	Propos	sed Collision
Intersection: H	Highw	ay 89 & Concession	Rd 7/ Elizabeth St Co	ount Date	e: Future To	otal 2026 - S	aturday
Summary	Res	ults					
	.luet	ification	Compliance		Signal J	lustified?	
	3431		Compilation		YES	NO	
1. Minimum Vehicular	A	Total Volume	100 %			V	
Volume	В	Crossing Volume	62 %				
2. Delay to Cross	A	Main Road	100 %			V	
Traffic	В	Crossing Road	95 %				
3. Combination	A	Justificaton 1	62 %			V	
	В	Justification 2	95 %				
4. 4-Hr Volume			55 %			V	
5. Collision Exp	erienc	ce	0 %			፟	
6. Pedestrians	Α	Volume	Justification met				

Justification not met

B Delay

Major Road:

Highway 89

Minor Road:

Elizabeth Street and Concession Road 7

Horizon Year: 2026

Saturday

Condition: Restricted Flow

Major Rd. Lanes: 2

Intersection Type: Existing

Date: 5-Sep-17
Project No.: 1101-4125

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM R	EQUIREMENT	MINIMUM RI	EQUIREMENT DRE LANE		COMPLIANCE	
JUSTIFICATION	DESCRIPTION	1 LANE H	IGHWAYS		WAYS	Sect	ional	Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
I. /VIIIIMUM	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1154	128%	62%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	105	62%	02 /6
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	1049	117%	410/
Traffic	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	70	41%	41%

Existing Intersection Requires 120 % Justification Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met: Yes X No

input but	a Shee	et		Analysis	Sheet	Results	Sheet	Proposed	d Collisio	n GO TO) Justification	on:	
What are the int	tersecting r	oadways?	CF	R 7 and Stre	et A						oustmouth	JII.	-
What is the dire	ction of the	Main Road	street?	Nor	th-South	•	When was	he data coll	ected?	Future Tota	I 2031 - We	eekday	
Justification	1 - 4: Vo	olume Wa	rrants										
a Number of I	anes on the	e Main Road	d?	1	•								
b Number of I	anes on th	e Minor Roa	ıd?	1	•								
c How many a	approaches	3	T										
·													
d What is the	operating of	environment	:?	Urban		Popula	tion >= 10,000	AND	Speed < 70	km/hr			
e What is the	eiaht hour	vehicle volu	me at the i	ntersection?	(Please fil	I in table be	low)						
					(
Hour Ending	Main No	rthbound Ap	proach	Minor Ea	astbound Ap	pproach	Main So	uthbound Ap	proach	Minor W	estbound A	pproach	
riour Ending	LT			1									Pedestrians Crossing Main
		TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Pedestrians Crossing Main Road
7:00	8	TH 50	RT 0	70	0	RT 8	LT	TH 53	RT 54	LT	TH 0	RT 0	Crossing Main
8:00	8			70 70									Crossing Main Road
8:00 9:00		50	0	70 70 70	0	8	0	53	54 54 54	0	0	0	Crossing Main Road
8:00	8	50 50	0	70 70	0 0	8 8	0	53 53	54 54	0	0 0	0	Crossing Main Road 0
8:00 9:00	8 8	50 50 50	0 0 0	70 70 70	0 0 0	8 8 8	0 0 0	53 53 53	54 54 54	0 0 0	0 0 0	0 0 0	Crossing Main Road 0 0
8:00 9:00 10:00	8 8 8	50 50 50 50	0 0 0 0	70 70 70 70	0 0 0 0	8 8 8 8	0 0 0 0	53 53 53 53	54 54 54 54	0 0 0	0 0 0 0	0 0 0 0	Crossing Main Road 0 0 0 0
8:00 9:00 10:00 16:00	8 8 8	50 50 50 50 50	0 0 0 0	70 70 70 70 70	0 0 0 0	8 8 8 8	0 0 0 0	53 53 53 53 53	54 54 54 54 54	0 0 0 0	0 0 0 0	0 0 0 0	Crossing Main Road 0 0 0 0 0 0 0
8:00 9:00 10:00 16:00 17:00	8 8 8 8	50 50 50 50 50 50	0 0 0 0 0	70 70 70 70 70 70	0 0 0 0	8 8 8 8	0 0 0 0 0	53 53 53 53 53 53	54 54 54 54 54 54	0 0 0 0	0 0 0 0	0 0 0 0 0	Crossing Main Road 0 0 0 0 0 0 0 0 0
8:00 9:00 10:00 16:00 17:00 18:00	8 8 8 8 8	50 50 50 50 50 50 50	0 0 0 0 0	70 70 70 70 70 70 70 70	0 0 0 0 0	8 8 8 8 8	0 0 0 0 0	53 53 53 53 53 53 53	54 54 54 54 54 54 54	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	Crossing Main Road 0 0 0 0 0 0 0 0 0 0 0 0
8:00 9:00 10:00 16:00 17:00 18:00 19:00	8 8 8 8 8 8	50 50 50 50 50 50 50 50	0 0 0 0 0	70 70 70 70 70 70 70 70 70	0 0 0 0 0 0	8 8 8 8 8 8	0 0 0 0 0 0	53 53 53 53 53 53 53 53	54 54 54 54 54 54 54 54	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	Crossing Main Road 0 0 0 0 0 0 0 0 0 0 0 0 0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

 a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0	
Factored 8 hour pedestrian volume	20,005	25	0	0	
% Assigned to crossing rate	23%	34%	30%	100%	
Net 8 Hour Pedestrian Volume at Cross	sing				4,610
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (f needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005	2	25		0		0	
Factored volume of delayed pedestrians	3	0		8		8		0	
% Assigned to Crossing Rate	23	3%	34	4%	30	0%	10	0%	
Net 8 Hour Volume of Total Pedestrians	3								4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	idance Ap	proach Lane	es				Percentage	Warrant				Total	Section
dustilication	1 La	nes	2 or Mor	e Lanes		Hour Ending						Across	Percent	
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
1A	480	720	600	900	243	243	243	243	243	243	243	243		
14		COMPL	IANCE %		34	34	34	34	34	34	34	34	270	34
1B	180	255	180	255	78	78	78	78	78	78	78	78		
IB.		COMPL	IANCE %		31	31	31	31	31	31	31	31	245	31
		icted Flo				oth 1A and 1B 100% Fullfilled each of 8 hours Yes No esser of 1A or 1B at least 80% fulfilled each of 8 hours Yes No								

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Lan	es				Percentage	Warrant				Total	Section
Justilication	1 la	nes	2 or Mo	re lanes		Hour Ending						Across	Percent	
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	165	165	165	165	165	165	165	165		
ZA		COMPL	IANCE %		23	23	23	23	23	23	23	23	183	23
2B	50	75	50	75	70	70	70	70	70	70	70	70		
26		COMPL	IANCE %		93	93	93	93	93	93	93	93	747	93
		ricted Flo									y			

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Justifications Satisfied 80% or More			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ☑	YES	NO 🔽
Justification 2	Delay Cross Traffic		NOT JUSTIFIED		

Justification	Time Period	Total Volume of Both eriod Approaches (Main)		Required Value	Average % Compliance	Overall % Compliance	
		X	Y (actual)	Y (warrant threshold)			
	7:00	165	78	436	18 %		
luctification 4	8:00	165	78	436	18 %	18 %	
Justilication 4	9:00	165	78	436	18 %	10 %	
	10:00	165	78	436	18 %		

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume								
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000				
	< 1440									
Justification	1440 - 2600					Justified				
6A	2601 - 7000									
	> 7000									

Pedestrian Delay Analysis

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians							
	of Total Pedestrians	< 75	75 - 130	> 130					
	< 200								
Justification 6B	200 - 300								
	> 300	Not Justified							

10/19/2017

Results	Sh	eet	Input Sheet	Analysis	Sheet	Propo	osed Collision			
Intersection:	CR 7	and Street A	C	Count Date	: Future To	tal 2031 - N	Weekday			
Summary	Resu	ults								
	Justi	fication	Compliance		Signal J	stified?				
					YES	NO				
1. Minimum Vehicular	A	Total Volume	34 %	6		~				
Volume	В	Crossing Volume	31 %	6						
2. Delay to Cross	A	Main Road	23 %	6		~				
Traffic	В	Crossing Road	93 %	6						
3. Combination	1 A	Justificaton 1	31 %	6		~				
	В	Justification 2	23 %	6						
4. 4-Hr Volume			18 %	6		~				
							=			
5. Collision Exp	perienc	е	0 %	6		~				
							_			
6. Pedestrians	A	Volume	Justification met			~				
	В	Delay	Justification not met	t		1*				

10/19/2017

Major Road: Highway 89
Minor Road: CR 7 and Street A

Horizon Year: 2031 Weekday Condition: Restricted Flow Date: 5-Sep-17
Major Rd. Lanes: 1 Project No.: 1101-4125

Intersection Type: Existing Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM RI	EQUIREMENT	MINIMUM RI 2 OR MC		COMPLIANCE		
JUSTIFICATION	DESCRIPTION	1 LANE HI	GHWAYS	HIGH		Sect	onal	Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
i. /viinimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	241	33%	33%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	164	96%	33 <i>1</i> 0
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	77	11%	11%
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	70	93%	11 /0

Existing Intersection Requires 120 % Justification
Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met:	Yes	X	No

Input Da	ta Shee	et		Analysis S	Sheet	Results S	heet	Propose	d Collision) Justificatio	on:	
What are the in	itersecting r	oadways?	Hiş		Concessio	on Rd 7/ Dea	n Dr						▼
What is the dire	ection of the	Main Road	street?	Eas	t-West	•	When was	the data coll	ected?	Future Tota	l 2031 - We	ekday	
Justification	n 1 - 4: Vo	olume Wa	rrants										
a Number of	lanes on the	Main Roac	d?	2 or more	•								
b Number of	lanes on the	e Minor Roa	ıd?	1	•								
c How many	approaches	? 4	T										
d What is the	operating e	environment	?	Urban	·	Populat	ion >= 10,00	0 AND	Speed < 70 k	m/hr			
e What is the	eight hour												
		vehicle volu	me at the i	ntersection?	(Please fi	II in table bel	ow)						
Harris English		stbound Ap			(Please fi			estbound Ap	proach	Minor Sc	outhbound A	pproach	Pedestrians
Hour Ending					<u>` </u>			estbound Ap	proach RT	Minor So	outhbound A	pproach RT	Pedestrians Crossing Main Road
Hour Ending	Main Ea	astbound Ap	proach	Minor No	rthbound A	Approach	Main W		-				Crossing Main
7:00 8:00	Main Ea LT 16 16	TH 334 334	proach RT	Minor No LT 20 20	rthbound A TH 7 7	Approach RT 46 46	Main W LT 51 51	TH 335 335	RT 37 37	LT 31 31	TH 5 5	RT 18 18	Crossing Main Road 0 0
7:00 8:00 9:00	Main Ea LT 16 16 16	astbound Ap TH 334	21 21 21 21	Minor No	rthbound A TH 7 7 7	Approach RT 46 46 46 46	Main W LT 51 51 51	TH 335 335 335	RT 37 37 37	31 31 31 31	TH 5 5 5	RT 18 18 18	Crossing Main Road
7:00 8:00	Main Ea LT 16 16	TH 334 334	pproach RT 21 21	Minor No LT 20 20	rthbound A TH 7 7	Approach RT 46 46	Main W LT 51 51	TH 335 335	RT 37 37	LT 31 31	TH 5 5	RT 18 18	Crossing Main Road 0 0

335

2,680

37

296

31

248

40

18

144

Justification 5: Collision Experience

128

2,672

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

18:00

19:00 **Total**

368

408

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

160

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0	
Factored 8 hour pedestrian volume	20,005	25	0	0	
% Assigned to crossing rate	23%	34%	30%	100%	
Net 8 Hour Pedestrian Volume at Cross	sing				4,610
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005		25		0		0	
Factored volume of delayed pedestrians	3	0		8		8		0	
% Assigned to Crossing Rate	23	1%	3	4%	30	0%	10	10%	
Net 8 Hour Volume of Total Pedestrians	3	-							4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Intersection: Highway 89 & Concession Rd 7/ Dean Dr

Count Date: Future Total 2031 - Weekday

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Land	es	Percentage Warrant							Total Across	Section	
dustilication	1 La	nes	2 or Mor	e Lanes	Hour Ending									Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
	480	720	600	900	921	921	921	921	921	921	921	921		
1A		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
1B	120	170	120	170	127	127	127	127	127	127	127	127		
ТВ		COMPLIANCE %			75	75	75	75	75	75	75	75	598	75
					No. 2012 Add an AD at least 2007 for Hiller and a figure of the same of the sa									

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Lane	es	Percentage Warrant									Section	
Justilication	1 la	nes	2 or Mor	e lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00			
2A	480	720	600	900	794	794	794	794	794	794	794	794			
24		COMPL	IANCE %		88	88	88	88	88	88	88	88	706	88	
2B	50	75	50	75	58	58	58	58	58	58	58	58			
26	COMPLIANCE %				77	77	77	77	77	77	77	77	619	77	
	Restricted Flow Signal Justification 2:												V		

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Just Satisfied 8	ifications 0% or More		
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ☑	YES	NO 🔽
Justification 2	Delay Cross Traffic	YES 🗆	NO 🗹		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance
		X	Y (actual)	Y (warrant threshold)		
	7:00	794	73	280	26 %	
luctification 4	8:00	794	73	280	26 %	26 %
Justilication 4	9:00	794	73	280	26 %	20 %
	10:00	794	73	280	26 %	

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5	-	0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

8 Hour Vehicular Volume V ₈		Net 8 Hour Pedestrian Volume							
		< 200	200 - 275	276 - 475	476 - 1000	>1000			
	< 1440								
Justification	1440 - 2600					Justified			
6A	2601 - 7000								
	> 7000								

Pedestrian Delay Analysis

Net Total 8 Hour Volume of Total Pedestrians		Net Total 8 Hour Volume of Delayed Pedestrians						
		< 75	75 - 130	> 130				
	< 200							
Justification 6B	200 - 300							
	> 300	Not Justified						

Results	Sh	eet	Input Sheet	Analysis	Sheet	Propo	sed Collision
Intersection: I	Highwa	ay 89 & Concession	Rd 7/ Dean Dr	Count Date	e: Future To	tal 2031 - V	Veekday
Summary	Resu	ılts					
	Justi	fication	Complianc	е	Signal J YES	ustified? NO	
1. Minimum Vehicular	A	Total Volume	100	%		V	
Volume	В	Crossing Volume	75	%			
2. Delay to Cross	Α	Main Road	88	%		✓	
Traffic	В	Crossing Road	77	%			
3. Combination	A	Justificaton 1	75	%		V	
	В	Justification 2	77	%			
4. 4-Hr Volume			26	%		V	
						:	1
5. Collision Exp	perience	e	0	%		✓	

~

Justification met

Justification not met

6. Pedestrians

A Volume

B Delay

Major Road: Highway 89

Minor Road: Dean Drive and Concession Road 7

Horizon Year: 2031

Weekday

Condition: Restricted Flow

Major Rd. Lanes: 2

Intersection Type: Existing

Date: 5-Sep-17
Project No.: 1101-4125

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM REQUIREMENT ^A 1 LANE HIGHWAYS		MINIMUM REQUIREMENT 2 OR MORE LANE HIGHWAYS		COMPLIANCE		
JUSTIFICATION	DESCRIPTION					Sectional		Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
I. /V\Inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	915	102%	74%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	125	74%	7 4 70
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	790	88%	4.40/
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	75	44%	44%

Existing Intersection Requires 120 % Justification
Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met:	Yes	X	No

iiiput Dai	a She	et		Analysis	Sheet	Results 9	Sheet	Propose	d Collision) Justificati	on:	
What are the in	tersecting i	roadways?	Hi	ghway 89 &	Concession	on Rd 7/ Eliz	abeth St						
What is the dire	ection of the	Main Road	I street?	Eas	st-West	•	When was	the data coll	ected?	uture Tota	l 2031 - We	eekday	
		-1 14/-											
Justification	11-4: V	oiume wa	irrants										
a Number of I	anes on th	e Main Road	d?	2 or more	• •								
o Number of I	anes on th	e Minor Roa	ad?	1	▼								
c How many	approache	s? 4	-										
d What is the e What is the		environment	ι?	Urban	~	Popula	tion >= 10,000	AND	Speed < 70 kg	m/hr			
		vehicle volu			(Please fi			estbound Ap	proach	Minor Sc	outhbound A	Approach	Pedestrians
Hour Ending					`			estbound Ap	proach RT	Minor So	outhbound A	Approach RT	Pedestrians Crossing Main Road
Hour Ending	Main E	astbound Ap	proach	Minor No	orthbound A	Approach	Main We	-					Crossing Main
	Main E	astbound Ap	proach RT	Minor No	orthbound A	Approach RT	Main Wo	тн	RT	LT		RT	Crossing Mair Road
7:00	Main E	astbound Ap TH 458	pproach RT	Minor No	orthbound A	Approach RT 3	Main Wo	TH 461	RT 49	LT 40		RT 29	Crossing Mair Road
7:00 8:00	Main E: LT 32 32	astbound Ap TH 458 458	pproach RT 3 3	Minor No	orthbound A	Approach RT 3 3	Main We	TH 461 461	RT 49 49	LT 40 40		RT 29 29	Crossing Mair Road 0
7:00 8:00 9:00	Main E: LT 32 32 32	astbound Ap TH 458 458 458	pproach RT 3 3 3	Minor No	orthbound A	Approach RT 3 3 3	Main Wo	TH 461 461 461	RT 49 49 49	40 40 40		RT 29 29 29	Crossing Mair Road 0 0 0
7:00 8:00 9:00 10:00	Main Ea LT 32 32 32 32 32	458 458 458 458 458	proach RT 3 3 3 3	Minor No. LT 0 0 0 0 0	orthbound A	Approach RT 3 3 3 3 3	Main Wo	TH 461 461 461 461	RT 49 49 49 49	40 40 40 40		RT 29 29 29 29 29	Crossing Main Road 0 0 0 0
8:00 9:00 10:00 16:00	Main E: LT 32 32 32 32 32 32	458 458 458 458 458 458	3 3 3 3 3 3	Minor No	orthbound A	Approach RT 3 3 3 3 3 3	Main Wo	TH 461 461 461 461 461	RT 49 49 49 49 49	40 40 40 40 40 40		RT 29 29 29 29 29 29	Crossing Main Road 0 0 0 0 0

3,688

392

320

232

Justification 5: Collision Experience

256

3,664

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

Total

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total					
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai					
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0						
Factored 8 hour pedestrian volume	20,005	25	0	0						
% Assigned to crossing rate	23%	34%	30%	100%						
Net 8 Hour Pedestrian Volume at Crossing										
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000					

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total	
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total	
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0		
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0		
Factored volume of total pedestrians	20,005		25		0		0			
Factored volume of delayed pedestrians	3	0	8		8		0			
% Assigned to Crossing Rate	6 Assigned to Crossing Rate 23% 34% 30% 100%									
Net 8 Hour Volume of Total Pedestrians										
Net 8 Hour Volume of Delayed Pedestrians										

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes			Percentage Warrant							Total	Section		
	1 Lanes 2 or More Lanes			Hour Ending								Across	Percent	
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
1A	480	720	600	900	1,084	1,084	1,084	1,084	1,084	1,084	1,084	1,084		
IA IA	COMPLIANCE %			100	100	100	100	100	100	100	100	800	100	
1B	120	170	120	170	74	74	74	74	74	74	74	74		
16	COMPLIANCE %			44	44	44	44	44	44	44	44	348	44	
Restricted Flow Signal Justification 1:											y			

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes			Percentage Warrant							Total	Section		
	1 lanes 2 or More lanes		Hour Ending								Across	Percent		
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	1,010	1,010	1,010	1,010	1,010	1,010	1,010	1,010		
ZA	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100
ap.	50	75	50	75	41	41	41	41	41	41	41	41		
COMPLIANCE %			55	55	55	55	55	55	55	55	437	55		
Restricted Flow Signal Justification 2:			Both 2A and 2B 100% Fullfilled each of 8 hours Lesser of 2A or 2B at least 80% fulfilled each of 8 hours								V			

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Just Satisfied 8			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ☑	YES	NO 🔽
Justification 2	Delay Cross Traffic	YES 🗆	NO 🗹		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach Y (actual)	Required Value Y (warrant threshold)	Average % Compliance	Overall % Compliance	
	7:00	1,010	70	191	37 %		
Justification 4	8:00	1,010	70	191	37 %	07.0/	
	9:00	1,010	70	191	37 %	37 %	
	10:00	1,010	70	191	37 %		

Count Date: Future Total 2031 - Weekday

Justification 5: Collision Experience

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume									
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000					
	< 1440										
Justification	1440 - 2600					Justified					
6A	2601 - 7000										
	> 7000										

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians						
	of Total Pedestrians	< 75	75 - 130	> 130				
	< 200							
Justification 6B	200 - 300							
	> 300	Not Justified						

Analysis Sheet Input Sheet **Proposed Collision Results Sheet** Intersection: Highway 89 & Concession Rd 7/ Elizabeth St Count Date: Future Total 2031 - Weekday **Summary Results** Signal Justified? Justification Compliance YES NO 1. Minimum A Total Volume 100 % Vehicular ~ Volume B Crossing Volume 44 % 2. Delay to A Main Road 100 % Cross Traffic **~** B Crossing Road 55 % 3. Combination A Justificatin 1 44 ~ B Justification 2 55 % 4. 4-Hr Volume 37 % ~

5. Collision Expe	erience		0 %	☑
6. Pedestrians	Α \	/olume	Justification met	
	ВІ	Delay	Justification not met	V

Major Road:

Highway 89

Minor Road:

Elizabeth Street and Concession Road 7

Horizon Year: 2031

Weekday

Condition: Restricted Flow

Major Rd. Lanes: 2

Intersection Type: Existing

Date:

5-Sep-17

Project No.: 1101-4125

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM R	EQUIREMENT	MINIMUM RI	EQUIREMENT DRE LANE			
JUSTIFICATION	DESCRIPTION	1 LANE H	IGHWAYS	HIGH		Sect	Entire	
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
I. /V\Inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1081	120%	43%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	73	43%	73 /0
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	1008	112%	24%
Traffic	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	40	24%	24 /o

Existing Intersection Requires 120 % Justification Proposed Intersection Requires 150 % Justication **Signal Justification 7 Met:** X No Yes

input Dat	ta Shee	et		Analysis	Sheet	Results	Sheet	Propose	d Collisio	n GO TO) Justificati	on:	
What are the int	tersecting r	roadways?	CF	R7 & Street	A						Justinouti		<u> </u>
What is the dire	ection of the	Main Road	street?	Nor	rth-South	•	When was	the data coll	lected?	Future Tota	l 2031 - Sa	turday	
Justification	1 - 4: Vo	olume Wa	arrants										
a Number of I	lanes on the	e Main Road	d?	1	-								
b Number of I	lanes on th	e Minor Roa	ad?	1	•								
c How many a	approaches	s? 3	T										
d What is the	operating e	environment	t?	Urban	-	Popula	ation >= 10,000	AND	Speed < 70	km/hr			
				1									
e What is the	eight hour	vehicle volu	ıme at the i	intersection?	(Please fil	I in table be	elow)						
e What is the										84:	/ A A		Podostrians
e What is the	Main No	orthbound Ap	pproach	Minor E	astbound A	pproach	Main So	uthbound Ap	· · · · · · · · · · · · · · · · · · ·		estbound A	•	Pedestrians Crossing Main
Hour Ending	Main No	orthbound Ap	pproach RT	Minor E	astbound A	pproach RT	Main So	TH	RT	LT	TH	RT	Crossing Main Road
Hour Ending	Main No	orthbound Ap TH 73	pproach RT	Minor Ea	astbound A TH 0	pproach RT	Main So	TH 68	RT 56	LT 0	TH 0	RT 0	Crossing Main Road
7:00 8:00	Main No LT 9 9	TH 73 73	pproach RT 0 0	Minor E: LT 96 96	astbound A TH 0 0	pproach RT 11	Main So	TH 68 68	RT 56 56	LT 0 0	TH 0 0	RT 0 0	Crossing Main Road 0
7:00 8:00 9:00	Main No LT 9 9	73 73 73	pproach RT 0 0 0	Minor Ea LT 96 96 96	astbound A TH 0 0 0	pproach RT 11 11	Main So	TH 68 68 68	RT 56 56 56	0 0 0	TH 0 0 0 0	RT 0 0 0	Crossing Main Road 0 0
7:00 8:00 9:00 10:00	Main No LT 9 9 9	73 73 73 73 73 73	pproach RT 0 0 0 0 0	Minor Ea LT 96 96 96 96	astbound A TH 0 0 0 0 0	pproach RT 11 11 11 11	Main So LT 0 0 0 0 0	TH 68 68 68 68	8T 56 56 56 56	0 0 0 0	TH 0 0 0 0 0 0 0	RT 0 0 0 0 0 0	Crossing Main Road 0 0 0 0
7:00 8:00 9:00 10:00 16:00	Main No LT 9 9 9 9	73 73 73 73 73 73 73 73	pproach	Minor Ea LT 96 96 96 96 96	astbound A TH 0 0 0 0 0 0	pproach RT 11 11 11 11 11	Main So LT 0 0 0 0 0 0	TH 68 68 68 68 68	8T 56 56 56 56 56	0 0 0 0 0	TH 0 0 0 0 0 0 0 0 0	RT 0 0 0 0 0 0 0 0 0	Crossing Main Road 0 0 0 0 0 0 0
7:00 8:00 9:00 10:00 16:00 17:00	Main No. LT 9 9 9 9 9	73 73 73 73 73 73 73 73 73	pproach	Minor Ed LT 96 96 96 96 96 96 96	astbound A TH 0 0 0 0 0 0 0	pproach RT 11 11 11 11 11 11	Main So LT 0 0 0 0 0 0 0 0	TH 68 68 68 68 68 68	8T 56 56 56 56 56 56	0 0 0 0 0 0	TH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	RT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Crossing Main Road 0 0 0 0 0 0 0 0 0
7:00 8:00 9:00 10:00 16:00 17:00 18:00	Main No. LT 9 9 9 9 9 9 9	73 73 73 73 73 73 73 73 73 73	pproach RT 0 0 0 0 0 0 0 0 0	Minor E: LT 96 96 96 96 96 96 96	astbound A TH 0 0 0 0 0 0 0 0	pproach RT 11 11 11 11 11 11 11 11	Main So LT 0 0 0 0 0 0 0 0	TH 68 68 68 68 68 68 68	56 56 56 56 56 56 56	0 0 0 0 0 0	TH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	RT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Crossing Main Road 0 0 0 0 0 0 0 0 0 0 0
7:00 8:00 9:00 10:00 16:00 17:00 18:00 19:00	Main No. LT 9 9 9 9 9 9	73 73 73 73 73 73 73 73 73 73 73	pproach RT 0 0 0 0 0 0 0 0 0	Minor Ed LT 96 96 96 96 96 96 96 96	astbound A TH 0 0 0 0 0 0 0 0 0 0	pproach RT 11 11 11 11 11 11 11 11 11	Main So LT 0 0 0 0 0 0 0 0 0 0	TH 68 68 68 68 68 68 68 68	56 56 56 56 56 56 56 56 56	0 0 0 0 0 0 0	TH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	RT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Crossing Main Road 0 0 0 0 0 0 0 0 0 0 0 0 0
7:00 8:00 9:00 10:00 16:00 17:00 18:00	Main No. LT 9 9 9 9 9 9 9	73 73 73 73 73 73 73 73 73 73	pproach RT 0 0 0 0 0 0 0 0 0	Minor E: LT 96 96 96 96 96 96 96	astbound A TH 0 0 0 0 0 0 0 0	pproach RT 11 11 11 11 11 11 11 11	Main So LT 0 0 0 0 0 0 0 0	TH 68 68 68 68 68 68 68	56 56 56 56 56 56 56	0 0 0 0 0 0	TH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	RT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Crossing Main Road 0 0 0 0 0 0 0 0 0 0 0
7:00 8:00 9:00 10:00 16:00 17:00 18:00 19:00	Main No. LT 9 9 9 9 9 9	73 73 73 73 73 73 73 73 73 73 73	pproach RT 0 0 0 0 0 0 0 0 0	Minor Ed LT 96 96 96 96 96 96 96 96	astbound A TH 0 0 0 0 0 0 0 0 0 0	pproach RT 11 11 11 11 11 11 11 11 11	Main So LT 0 0 0 0 0 0 0 0 0 0	TH 68 68 68 68 68 68 68 68	56 56 56 56 56 56 56 56 56	0 0 0 0 0 0 0	TH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	RT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Crossing Main Road 0 0 0 0 0 0 0 0 0 0 0 0 0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total					
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai					
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0						
Factored 8 hour pedestrian volume	20,005	25	0	0						
% Assigned to crossing rate	23%	34%	30%	100%						
Net 8 Hour Pedestrian Volume at Cross	sing				4,610					
Net 8 Hour Vehicular Volume on Street	Net 8 Hour Vehicular Volume on Street Being Crossed									

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (f needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005	2	25		0		0	
Factored volume of delayed pedestrians	3	0		8		8		0	
% Assigned to Crossing Rate	23	3%	34	4%	30	0%	10	0%	
Net 8 Hour Volume of Total Pedestrians	3								4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

Restricted Flow Urban Conditions

Justification	Gı	ıidance Ap	proach Lane	es		Percentage Warrant						Total	Section	
dustilication	1 La	nes	2 or Mor	e Lanes	Hour Ending						Across	Percent		
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
1A	480	720	600	900	313	313	313	313	313	313	313	313		
		COMPL	IANCE %		43	43	43	43	43	43	43	43	348	43
1B	180	255	180	255	107	107	107	107	107	107	107	107		
IB.		COMPL	IANCE %		42	42	42	42	42	42	42	42	336	42
		icted Flo				Soth 1A and 1B 100% Fullfilled each of 8 hours Yes □ No No No								

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	ıidance Ap	proach Lane	es		Percentage Warrant							Total	Section
Justilication	1 la	nes	2 or Mor	e lanes	Hour Ending						Across	Percent		
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	206	206	206	206	206	206	206	206		
ZA		COMPL	IANCE %		29	29	29	29	29	29	29	29	229	29
2B	50	75	50	75	96	96	96	96	96	96	96	96		
26		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
		icted Flo			Both 2A and 2B 100% Fullfilled each of 8 hours Yes No Lesser of 2A or 2B at least 80% fulfilled each of 8 hours Yes No					y				

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Just Satisfied 8			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ▼	YES	NO 🔽
Justification 2	Delay Cross Traffic	NO 🔽		NOT JUSTIFIED	

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall %	
		X	Y (actual)	Y (warrant threshold)		Compilation	
	7:00	206	107	412	26 %		
luctification 4	8:00	186	107	424	25 %	25 %	
Justilication 4	9:00	186	107	424	25 %	25 %	
	10:00	186	107	424	25 %		

Justification	Preceding Months	% Fulfillment	Overall % Compliance	
	1-12	0 %		
Justification 5		0 %	0 %	
	25-36	0 %		

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume								
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000				
	< 1440									
Justification	1440 - 2600					Justified				
6A	2601 - 7000									
	> 7000									

Net Total 8 Hour Volume		Net Total 8 Hour Volume of Delayed Pedestrians						
	of Total Pedestrians	< 75	75 - 130	> 130				
Justification 6B	< 200							
	200 - 300							
	> 300	Not Justified						

Results	Sh	eet	Input Sheet A	nalysis S	heet	Propo	osed Collision			
Intersection:	CR7 8	Street A	Cou	unt Date:	Future Tot	al 2031 - :	Saturday			
Summary	Resu	ults								
	.lusti	fication	Compliance		Signal Ju	stified?				
			Compilation		YES	NO				
1. Minimum Vehicular	A	Total Volume	43 %			~				
	В	Crossing Volume	42 %							
2. Delay to	A	Main Road	29 %			~	_			
Traffic	В	Crossing Road	100 %							
3. Combination	1 A	Justificaton 1	42 %			~	=			
	В	Justification 2	29 %							
4. 4-Hr Volume			25 %			~				
							3			
5. Collision Exp	perienc	е	0 %			~				
							=			
6. Pedestrians	Α	Volume	Justification met			V				
	В	Delay	Justification not met			14				

Major Road: CR7

Minor Road: CR7 and Street A

Horizon Year: 2031

Saturday

Condition: Restricted Flow

Major Rd. Lanes: 1

Intersection Type: Proposed

Date: 5-Sep-17
Project No.: 1101-4125

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM REQUIREMENT 1 LANE HIGHWAYS		MINIMUM RI		COMPLIANCE			
JUSTIFICATION	DESCRIPTION			2 OR MORE LANE HIGHWAYS		Sectional		Entire	
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage	
I. /V\Inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	312	43%	43%	
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	206	121%	43%	
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	106	15%	15%	
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	96	128%	13 //	

Existing Intersection Requires 120 % Justification
Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met:	Yes	Х	No

Input Data	a Shee	et		Analysis	Sheet	Results S	Sheet	Proposed	Collision	GO TO) Justificati	on:	
What are the inte	ersecting r	roadways?	Hig	ghway 89 &	Concessio	on Rd 7/ Dea	an Dr						▼
What is the direct	ction of the	Main Road	street?	Eas	st-West	•	When was	the data colle	ected?	Future Tota	l 2031 - Sa	turday	
Justification	1 - 4: Vo	olume Wa	rrants										
a Number of la	anes on the	e Main Road	d?	2 or more	-								
b Number of la	anes on the	e Minor Roa	ıd?	1	-								
	approaches	s? 4	•										
c How many a													
· ·	anavatina a			Lluban			40.000						
d What is the	operating e	environment	?	Urban	•	Populat	tion >= 10,000	AND	Speed < 70 l	km/hr			
·				1				AND	Speed < 70 l	km/hr			
d What is the e	eight hour		ıme at the i	ntersection?		II in table bel	low)	AND			outhbound A	Approach	Pedestrians
d What is the	eight hour	vehicle volu	ıme at the i	ntersection?	(Please fi	II in table bel	low)				outhbound <i>I</i>	Approach RT	Pedestrians Crossing Main Road
d What is the e	eight hour	vehicle volu	me at the i	ntersection?	(Please fi	III in table bel	low) Main We	estbound Ap	proach	Minor Sc			Crossing Main
d What is the o	eight hour Main Ea	vehicle volu astbound Ap TH	me at the i proach RT	ntersection? Minor No	(Please fi	III in table bel	Main Wo	estbound Ap	proach RT	Minor Sc	TH	RT	Crossing Main Road
d What is the e What is the e What is the formula to the control of the con	eight hour Main Ea	vehicle volu astbound Ap TH 357	proach RT 38	Minor No	(Please fi	Approach RT 103	Main Wo	estbound Ap TH 381	proach RT 84	Minor So LT 67	TH 17	RT 23	Crossing Main Road
d What is the e What is the Hour Ending	Main Ea	vehicle volu astbound Ap TH 357 357	proach RT 38 38	Minor No LT 45 45	(Please fi	Approach RT 103 103	Main Wo	estbound Ap TH 381 381	proach RT 84 84	Minor Sc LT 67 67	TH 17 17	RT 23 23	Crossing Main Road 0
d What is the de Wh	eight hour Main Ea LT 22 22 22	vehicle volu astbound Ap TH 357 357 357	proach RT 38 38 38	Minor No LT 45 45 45	(Please fi	Approach RT 103 103 103	Main Wo	estbound Ap TH 381 381 381	Proach RT 84 84 84	Minor Sc LT 67 67 67	TH 17 17 17	RT 23 23 23	Crossing Main Road 0 0
d What is the de- What is th	Main Ea LT 22 22 22 22	astbound Ap TH 357 357 357 357 357	proach RT 38 38 38 38 38	Minor No LT 45 45 45 45	(Please fi orthbound A TH 7 7 7 7	Approach RT 103 103 103 103 103	Main Wo LT 108 108 108 108	### ##################################	Proach RT 84 84 84 84	Minor Sc LT 67 67 67 67	TH 17 17 17 17	RT 23 23 23 23 23	Crossing Main Road 0 0 0 0
d What is the de Wh	eight hour Main Ea LT 22 22 22 22 22	vehicle volu astbound Ap TH 357 357 357 357 357	proach RT 38 38 38 38 38 38	Minor No	(Please fi orthbound A TH 7 7 7 7 7	Approach RT 103 103 103 103 103	Main Wo LT 108 108 108 108	estbound Ap TH 381 381 381 381 381	84 84 84 84 84 84	Minor Sc LT 67 67 67 67 67	TH 17 17 17 17 17 17	RT 23 23 23 23 23 23	Crossing Main Road 0 0 0 0 0 0 0
d What is the de Wh	eight hour Main Ea LT 22 22 22 22 22 22	vehicle volu astbound Ap TH 357 357 357 357 357 357	me at the i	Minor No LT 45 45 45 45 45 45	(Please fi	Approach RT 103 103 103 103 103 103 103	Main Wo LT 108 108 108 108 108	### ### ##############################	84 84 84 84 84 84	Minor Sc LT 67 67 67 67 67	TH 17 17 17 17 17 17 17	23 23 23 23 23 23 23 23	Crossing Main Road 0 0 0 0 0 0 0 0 0
d What is the de Wh	eight hour Main Ea LT 22 22 22 22 22 22 22 22	vehicle volu astbound Ap TH 357 357 357 357 357 357 357 357 357	Proach RT 38 38 38 38 38 38 38 38	Minor No LT 45 45 45 45 45 45 45 45 45 45	(Please fi	Approach RT 103 103 103 103 103 103 103 103 103	Main Wo LT 108 108 108 108 108 108	estbound Ap TH 381 381 381 381 381 381 381 381	84 84 84 84 84 84 84 84	Minor Sc LT 67 67 67 67 67 67 67	TH 17 17 17 17 17 17 17 17 17	23 23 23 23 23 23 23 23 23	Crossing Main Road 0 0 0 0 0 0 0 0 0 0 0 0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total			
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai			
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0				
Factored 8 hour pedestrian volume	20,005	25	0	0				
% Assigned to crossing rate	23%	34%	30%	100%				
Net 8 Hour Pedestrian Volume at Crossing								
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000			

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zo	ne 2	Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005	25		0		0		
Factored volume of delayed pedestrians	3	0	8		8		0		
% Assigned to Crossing Rate	23	1%	34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

Restricted Flow Urban Conditions

Justification	Gu	idance Ap	proach Lane	es				Percentage	Warrant				Total	Section
dustilication	1 La	nes	2 or Mor	e Lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
1A	480	720	600	900	1,252	1,252	1,252	1,252	1,252	1,252	1,252	1,252		
IA IA		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
1B	120	170	120	170	262	262	262	262	262	262	262	262		
16		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
	Restricted Flow Signal Justification 1:													

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Lan	es				Percentage	Warrant				Total	Section
Justilication	1 la	nes	2 or Mo	re lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	990	990	990	990	990	990	990	990		
ZA		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
2B	50	75	50	75	129	129	129	129	129	129	129	129		
26		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
	Restricted Flow Signal Justification 2:													

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo		ifications 0% or More		
Justification 1	Minimun Vehicular Volume	YES 🔽	NO 🗆	YES 🔽	NO 🗆
Justification 2	Delay Cross Traffic	YES 🔽	NO 🗆	JUSTIFIED	

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance	
		X	Y (actual)	Y (warrant threshold)		·	
	7:00	990	155	198	78 %		
luctification 4	8:00	990	155	198	78 %	78 %	
Justilication 4	9:00	990	155	198	78 %	70 %	
	10:00	990	155	198	78 %		

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume									
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000					
	< 1440										
Justification	1440 - 2600					Justified					
6A	2601 - 7000										
	> 7000										

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians						
	of Total Pedestrians	< 75	75 - 130	> 130				
	< 200							
Justification 6B	200 - 300							
	> 300	Not Justified						

Results	Shee	et	Input Sheet	Analys	sis Sheet	Propo	sed Collision
Intersection: H	Highway 8	89 & Concession F	Rd 7/ Dean Dr	Count Da	ate: Future To	otal 2031 - S	Saturday
Summary F	Results	5					
	Justifica	ation	Complianc	e	Signal J	ustified?	
			p		YES	NO	
1. Minimum Vehicular	A Tot	tal Volume	100	%			
Volume	B Cro	ossing Volume	100	%			
2. Delay to Cross	A Ma	in Road	100	%	V		
Traffic	B Cro	ossing Road	100	%			
3. Combination	A Jus	stificaton 1	100	%			
	B Jus	stification 2	100	%			
4. 4-Hr Volume			78	%		V	
5. Collision Expe	erience		0	%		V	

~

Justification met

Justification not met

6. Pedestrians

A Volume

B Delay

Major Road: Highway 89

Minor Road: Dean Drive and Concession Road 7

Horizon Year: 2031

Saturday

Condition: Restricted Flow

Major Rd. Lanes: 2

Intersection Type: Existing

Date: 5-Sep-17
Project No.: 1101-4125

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM R	MINIMUM REQUIREMENT ^I 1 LANE HIGHWAYS		EQUIREMENT ORE LANE	COMPLIANCE		
JUSTIFICATION	DESCRIPTION	1 LANE H			WAYS	Sect	ional	Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
I. /V\Inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1249	139%	139%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	261	154%	137/0
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	988	110%	1010/
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	172	101%	101%

Existing Intersection Requires 120 % Justification
Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met:	X	Yes	No
•			

iput Dat	ta She	∍t		Analysis	Sheet	Results	Sheet	Propose	d Collision	GO TO) Justification	on:	
hat are the int	tersecting i	roadways?	Hig	ghway 89 &	Concession	on Rd 7/ Eliz	abeth St						_
hat is the dire	ction of the	Main Road	street?	Eas	t-West	•	When was	the data coll	ected?	uture Tota	l 2031 - Sat	urday	
ustification	1 1 - 4: V	olume Wa	irrants										
Number of I	lanes on th	e Main Road	d?	2 or more	-								
- Number of I	anes on th	e Minor Roa	id?	1	▼								
How many a	approache	s? 4	-										
What is the	operating	environment	t?	Urban	•	Popula	tion >= 10,000) AND	Speed < 70 kg	m/hr			
- What is the	eight hour	vehicle volu	ume at the i	ntersection?	(Please fi	II in tahla ha							
					,	ii iii tabic be	low)						
Larray Englisher	Main E	astbound Ap	proach		rthbound A		<u> </u>	estbound Ap	proach	Minor So	outhbound A	pproach	Pedestrians
Hour Ending	Main E	astbound Ap	pproach RT		<u> </u>		<u> </u>	estbound Ap	proach RT	Minor So	outhbound A	pproach RT	Pedestrians Crossing Main Road
7:00		-		Minor No	rthbound A	Approach	Main W	······································				• •	Crossing Main
•	LT	тн	RT	Minor No	rthbound A	Approach RT	Main W	TH	RT	LT	TH	RT	Crossing Main Road
7:00	LT 39	TH 581	RT 3	Minor No	orthbound A	Approach RT	Main W LT	TH 591	RT 80	LT 78	TH 3	RT 34	Crossing Main Road
7:00 8:00	LT 39 39	TH 581 581	RT 3 3 3	Minor No	TH 3 3	Approach RT 5	Main W LT 14	TH 591 591	RT 80 80	LT 78 78	TH 3 3	RT 34 34	Crossing Main Road 0

112

4,728

640

78 78

624

34

272

Justification 5: Collision Experience

312

4,648

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

18:00

19:00 **Total**

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total				
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai				
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0					
Factored 8 hour pedestrian volume	20,005	25	0	0					
% Assigned to crossing rate	23%	34%	30%	100%					
Net 8 Hour Pedestrian Volume at Crossing									
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000				

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005	25		0		0		
Factored volume of delayed pedestrians	3	0		8		8	0		
% Assigned to Crossing Rate	23	1%	34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									
Net 8 Hour Volume of Delayed Pedestri	ans								12

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Restricted Flow Urban Conditions

Justification	Gu	idance Ap	proach Lane	es		Percentage Warrant							Total	Section
dustilication	1 La	nes	2 or More Lanes			Hour Ending							Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
10	480	720	600	900	1,432	1,432	1,432	1,432	1,432	1,432	1,432	1,432		
1A -	COMPLIANCE %			100	100	100	100	100	100	100	100	800	100	
1B	120	170	120	170	124	124	124	124	124	124	124	124		
16		COMPL	IANCE %		73	73	73	73	73	73	73	73	584	73
	Restricted Flow Signal Justification 1:			Both 1A and 1B 100% Fullfilled each of 8 hours Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								y		

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	idance Ap	proach Land	es		Percentage Warrant							Total	Section
Justilication	1 la	nes	2 or More lanes			Hour Ending							Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
24	480	720	600	900	1,308	1,308	1,308	1,308	1,308	1,308	1,308	1,308		
2A	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100
ap.	50	75	50	75	82	82	82	82	82	82	82	82		
26	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100
	Restricted Flow Signal Justification 2:													

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Justifications Satisfied 80% or More			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ▼	YES	NO 🔽
Justification 2	Delay Cross Traffic	YES 🔽	NO 🗆		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main) X Heaviest Minor Approach Y (actual)		Required Value Y (warrant threshold)	Average % Compliance	Overall % Compliance
	7:00	1,308	115	117	98 %	
	8:00	1,308	115	117	98 %	00.0/
Justification 4	9:00	1,308	115	117	98 %	98 %
	10:00	1,308	115	117	98 %	

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume								
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000				
	< 1440									
Justification 6A	1440 - 2600					Justified				
	2601 - 7000									
	> 7000									

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians						
	of Total Pedestrians	< 75	75 - 130	> 130				
Justification 6B	< 200							
	200 - 300							
	> 300	Not Justified						

Results	She	eet	Input Sheet	Analysis	Sheet	Propo	sed Collision
Intersection: I	Highwa	ay 89 & Concession	Rd 7/ Elizabeth St	Count Date	e: Future To	otal 2031 - S	Saturday
Summary	Resu	ilts					
	Justif	fication	Compliano	e	Signal J YES	lustified?	
1. Minimum Vehicular	A	Total Volume	100	%		V	-
Volume	В	Crossing Volume	73	%		1-2	
2. Delay to Cross	A	Main Road	100	%	V		
Traffic	В	Crossing Road	100	%			
3. Combination	A	Justificaton 1	73	%		~	
	В	Justification 2	100	%		-	
4. 4-Hr Volume			98	%		V	
							=
5. Collision Exp	erience	e	0	%		•	

~

Justification met

Justification not met

6. Pedestrians

A Volume

B Delay

Major Road:

Highway 89

Minor Road: Elizabeth Street and Concession Road 7

Horizon Year: 2031

Saturday

Condition: Restricted Flow

Major Rd. Lanes: 2

Intersection Type: Existing

Date: 5-Sep-17

Project No.: 1101-4125

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM R	EQUIREMENT	MINIMUM REQUIREMENT 2 OR MORE LANE		COMPLIANCE		
JUSTIFICATION	DESCRIPTION	1 LANE H	1 LANE HIGHWAYS		HIGHWAYS		ional	Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
I. /V\Inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1429	159%	72%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	122	72%	7 2 70
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	1307	145%	48%
Traffic	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	81	48%	40%

Existing Intersection Requires 120 % Justification Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met:

Yes X No

What are the intersecting roadways? CR 7 and Street A	Input Dat	a She	et		Analysis	Sheet	Results	Sheet	Propose	d Collision		O Justification	on:	
Justification 1 - 4: Volume Warrants a Number of lanes on the Main Road? 1	What are the in	tersecting i	oadways?	CF	R 7 and Stre	et A								▼
a Number of lanes on the Main Road? b Number of lanes on the Minor Road? 1 ▼ c How many approaches? 3 ▼ d What is the operating environment? Urban ▼ Population >= 10,000 AND Speed < 70 km/hr e What is the eight hour vehicle volume at the intersection? (Please fill in table below) Main Northbound Approach LT TH RT ROAD	What is the dire	ection of the	Main Road	d street?	Nor	th-South	•	When wa	s the data coll	lected?	-uture Tota	ıl 2036 - We	eekday	
a Number of lanes on the Main Road? b Number of lanes on the Minor Road? c How many approaches? 3 d What is the operating environment? Urban Population >= 10,000 AND Speed < 70 km/hr e What is the eight hour vehicle volume at the intersection? (Please fill in table below)														
b Number of lanes on the Minor Road? 1	Justification	1 - 4: V	olume Wa	arrants										
C How many approaches? d What is the operating environment? Urban Population >= 10,000 AND Speed < 70 km/hr e What is the eight hour vehicle volume at the intersection? (Please fill in table below) Hour Ending Main Northbound Approach LT TH RT ROad ROA	a Number of I	lanes on th	e Main Roa	d?	1	•								
d What is the operating environment? Urban Population >= 10,000 AND Speed < 70 km/hr e What is the eight hour vehicle volume at the intersection? (Please fill in table below) Note: The control of the con	b Number of I	lanes on th	e Minor Roa	ad?	1	-								
d What is the operating environment? Urban Population >= 10,000 AND Speed < 70 km/hr e What is the eight hour vehicle volume at the intersection? (Please fill in table below) Note: The control of the con														
e What is the eight hour vehicle volume at the intersection? (Please fill in table below) Hour Ending Main Northbound Approach LT TH RT Road R	c How many a	approacne	s? 3											
Hour Ending	d What is the	operating	environmen	t?	Urban	-	Popula	ation >= 10,0	00 AND	Speed < 70 k	m/hr			
Hour Ending LT TH RT Crossing Main Road 7:00 8 58 0 0 0 8 0 61 54 0 0 0 0 9:00 8 58 0 0 0 8 0 61 54 0 0 0 0 10:00 8 58 0 0 0 8 0 61 54 0 0 0 0 16:00 8 58 0 0 0 8 0 61 54 0 0 0 0 17:00 8 58 0 0 0 8 0 61 54 0 0 <t< td=""><td>e What is the</td><td>eight hour</td><td>vehicle volu</td><td>ume at the i</td><td>intersection?</td><td>(Please f</td><td>ill in table be</td><td>elow)</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	e What is the	eight hour	vehicle volu	ume at the i	intersection?	(Please f	ill in table be	elow)						
TH		Main No	rthbound A	pproach	Minor E	astbound A	Approach	Main S	Southbound A	pproach	Minor W	/estbound A	pproach	
8:00 8 58 0 0 0 8 0 61 54 0 </th <th>Hour Ending</th> <th>LT</th> <th>TH</th> <th>RT</th> <th>LT</th> <th>TH</th> <th>RT</th> <th>LT</th> <th>тн</th> <th>RT</th> <th>LT</th> <th>TH</th> <th>RT</th> <th></th>	Hour Ending	LT	TH	RT	LT	TH	RT	LT	тн	RT	LT	TH	RT	
9:00 8 58 0 0 0 8 0 61 54 0 0 0 0 0 10:00 8 58 0 0 0 0 8 0 61 54 0 0 0 0 0 0 0 0 10:00 8 58 0 0 0 0 8 0 61 54 0 0 0 0 0 0 117:00 8 58 0 0 0 8 0 61 54 0 0 0 0 0 0 117:00 8 58 0 0 0 8 0 61 54 0 0 0 0 0 117:00 8 58 0 0 0 8 0 61 54 0 0 0 0 0 117:00 8 58 0 0 0 8 0 61 54 0 0 0 0 0 0 117:00 8 58 0 0 0 0 8 0 61 54 0 0 0 0 0 0 0 117:00 8 58 58 0 0 0 0 8 0 61 54 0 0 0 0 0 0 0 0 117:00 8 58 0 0 0 0 8 0 61 54 0 0 0 0 0 0	lII.	8	58	0	70	0	8	0	61		0	0	0	0
10:00 8 58 0 0 0 8 0 61 54 0 0 0 0 0 16:00 8 58 0 0 0 8 0 61 54 0 0 0 0 0 0 0 0 17:00 8 58 0 0 0 8 0 61 54 0 0 0 0 0 0 18:00 8 58 0 0 0 8 0 61 54 0 0 0 0 0 0 18:00 8 58 0 0 0 0 8 0 61 54 0 0 0 0 0 0 19:00 8 58 0 0 0 0 8 0 61 54 0 0 0 0 0 0	l			0	0								0	0
16:00 8 58 0 0 0 8 0 61 54 0 0 0 0 17:00 8 58 0 0 0 8 0 61 54 0 0 0 0 0 0 18:00 8 58 0 0 0 8 0 61 54 0 0 0 0 0 0 19:00 8 58 0 0 0 8 0 61 54 0 0 0 0 0														
17:00 8 58 0 0 0 8 0 61 54 0 0 0 0 18:00 8 58 0 0 0 8 0 61 54 0 0 0 0 19:00 8 58 0 0 0 8 0 61 54 0 0 0 0											0		0	
18:00 8 58 0 0 0 8 0 61 54 0 0 0 0 19:00 8 58 0 0 0 8 0 61 54 0 0 0 0		8		0	0	0	8	0	61		0	0	0	0
19:00 8 58 0 0 0 8 0 61 54 0 0 0 0		8		0	0		8	0	61		0	0	0	0
		8	58	0	0	0	8	0	61	54	0	0	0	0
Total 64 464 0 70 0 64 0 488 432 0 0 0 0	19:00										0		0	0
	Total	64	161	0	70	0	64	0	188	132	n	0	0	
			101						400	702				0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0	
Factored 8 hour pedestrian volume	20,005	25	0	0	
% Assigned to crossing rate	23%	34%	30%	100%	
Net 8 Hour Pedestrian Volume at Cross	sing				4,610
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005	2	25		0		0	
Factored volume of delayed pedestrians	3	0		8		8		0	
% Assigned to Crossing Rate	23	3%	34	4%	30	0%	10	10%	
Net 8 Hour Volume of Total Pedestrians	3								4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

Restricted Flow Urban Conditions

Justification	Gı	ıidance Ap	proach Lane	es				Percentage	Warrant				Total	Section
dustilication	1 La	nes	2 or Mor	e Lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
		~												
1A	480	720	600	900	259	189	189	189	189	189	189	189		
'^		COMPL	IANCE %		36	26	26	26	26	26	26	26	220	27
1B	180	255	180	255	78	8	8	8	8	8	8	8		
I B		COMPL	IANCE %		31	3	3	3	3	3	3	3	53	7
		icted Flo			Both 1A and 1I Lesser of 1A o				ırs	Yes Yes			V	

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	iidance Ap	proach Lane	es				Percentage	Warrant				Total	Section
Justilication	1 la	nes	2 or Mor	e lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	181	181	181	181	181	181	181	181		
ZA		COMPL	IANCE %		25	25	25	25	25	25	25	25	201	25
2B	50	75	50	75	70	0	0	0	0	0	0	0		
26		COMPL	IANCE %		93	0	0	0	0	0	0	0	93	12
		icted Flo			Both 2A and 2E Lesser of 2A or				ırs	Yes Yes			V	

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	re		Two Just Satisfied 8	
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ☑	YES	NO 🔽
Justification 2	Delay Cross Traffic	YES 🗆	NO 🗹		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance
		X	Y (actual)	Y (warrant threshold)		·
	7:00	181	78	427	18 %	
luctification 4	8:00	181	8	427	2 %	6 %
Justilication 4	9:00	181	8	427	2 %	0 %
	10:00	181	8	427	2 %	

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular		Net 8 F	Hour Pedestrian Volume		
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000
	< 1440					
Justification	1440 - 2600					Justified
6A	2601 - 7000					
	> 7000					

Pedestrian Delay Analysis

	Net Total 8 Hour Volume	Net Total 8 H	our Volume of Delayed P	edestrians
	of Total Pedestrians	< 75	75 - 130	> 130
	< 200			
Justification 6B	200 - 300			
	> 300	Not Justified		

10/19/2017

Results	Sh	eet	Input Sheet	Analysis	Sheet	Propo	osed Collision
Intersection: C	R 7	and Street A		Count Date	e: Future To	otal 2036 - 1	Weekday
Summary F	Resi	ults					
	Just	ification	Compliano	e		ustified?	
1. Minimum	A	Total Volume	27	%	YES	NO	
Vehicular Volume	В	Crossing Volume	7	%		☑	
2. Delay to Cross	A	Main Road	25	%		V	
Traffic	В	Crossing Road	12	%			
3. Combination	A	Justificaton 1	7	%		V	
4.411.7/.1	В	Justification 2	12	%			
4. 4-Hr Volume			6	%		✓	
					I		7
5. Collision Expe	erienc	ee	0	%		V	
					•		=
6. Pedestrians	A	Volume	Justification m	net		V	
	В	Delay	Justification not	met			

10/19/2017

Major Road: Highway 89
Minor Road: CR 7 and Street A

Horizon Year: 2036 Weekday Condition: Restricted Flow Date: 5-Sep-17

Major Rd. Lanes: 1 Project No.: 1101-4125

Intersection Type: Existing Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM REQUIREMENT		MINIMUM RI 2 OR MC		COMPLIANCE			
JUSTIFICATION	DESCRIPTION	1 LANE HI	IGHWAYS	HIGH		Sect	Entire		
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage	
I. /V\INIMUM	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	254	35%	35%	
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	181	106%	<i>33 1</i> 0	
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	76	11%	11%	
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	70	93%	11 /0	

Existing Intersection Requires 120 % Justification	
Proposed Intersection Requires 150 % Justication	

Signal Justification 7 Met:	Ye	es	Х	No

Input Dat	a She	et		Analysis	Sheet	Results 9	Sheet	Propose	d Collision) Justification	on:	
What are the int	ersecting i	roadways?	Hi	ghway 89 &	Concession	on Rd 7/ Dea	an Dr						T
What is the dire	What is the direction of the Main Road street? East-West When was the data collected? Future Total 2036 - Weekday												
Justification	1 - 4: V	olume Wa	irrants										
a Number of I	anes on th	e Main Road	d?	2 or more	, 🔽								
b Number of I	anes on th	e Minor Roa	ad?	1	•								
c How many a	approache	s? 4	•										
d What is the	operating	environment	t?	Urban	•	Popula	tion >= 10,00	0 AND	Speed < 70 l	cm/hr			
e What is the	eight hour	vehicle volu	ıme at the i	intersection?	(Please f	ill in table be	low)						
Hour Ending	Main E	astbound Ap	proach	Minor No	orthbound .	Approach	Main V	Vestbound Ap	proach	Minor So	outhbound A	pproach	Pedestrians Crossing Main
Tiour Lituring	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Road
7:00	18	387	23	21	8	52	57	388	42	36	5	20	0
8:00	18	387	23	21	8	52	57	388	42	36	5	20	0
9:00	18	387	23	21	8	52	57	388	42	36	5	20	0
10:00	18	387	23	21	8	52	57	388	42	36	5	20	0
16:00	18	387	23	21	8	52	57	388	42	36	5	20	0
17:00	18	387	23	21	8	52	57	388	42	36	5	20	0

388

3,104

336

36

288

40

20

160

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

18:00

19:00 **Total**

416

456

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

168

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total				
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Total				
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0					
Factored 8 hour pedestrian volume	20,005	25	0	0					
% Assigned to crossing rate	23%	34%	30%	100%					
Net 8 Hour Pedestrian Volume at Crossing									
Net 8 Hour Vehicular Volume on Street Being Crossed									

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005		25		0		0	
Factored volume of delayed pedestrians	3	0	8		8			0	
% Assigned to Crossing Rate	23	1%	3	4%	30	0%	10	10%	
Net 8 Hour Volume of Total Pedestrians								4,610	
Net 8 Hour Volume of Delayed Pedestri	ans								12

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Restricted Flow Urban Conditions

Justification	Gu	idance Ap	proach Lane	es			Percentage Warrant						Total	Section
dustilication	1 La	nes	2 or Mor	e Lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
1A	480	720	600	900	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057		
IA IA		COMPL	IANCE %		100	100 100		100	100	100	100	100	800	100
10	120	170	120	170	142	142	142	142	142	142	142	142		
16	COMPLIANCE %				84	84	84	84	84	84	84	84	668	84
Restricted Flow Signal Justification 1:														

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	iidance Ap	proach Land	es		Percentage Warrant							Percentage Warrant 1				Total	Section
Justilication	1 la	nes	2 or Moi	re lanes				Hour En	ding				Across	Percent				
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00						
2A	480	720	600	900	915	915	915	915	915	915	915	915						
ZA		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100				
2B	50	75	50	75	65	65	65	65	65	65	65	65						
28		COMPL	IANCE %		87	87	87	87	87	87	87	87	693	87				
		lestricted Flow nal Justification 2:											V					

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Just Satisfied 8			
Justification 1	Minimun Vehicular Volume	YES 🔽	NO 🗆		
Justification 2	Delay Cross Traffic	YES 🔽	NO 🗆	JUSTIFIED	

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance	
		X	Y (actual)	Y (warrant threshold)			
	7:00	915	81	226	36 %		
luctification 4	8:00	915	81	226	36 %	36 %	
Justilication 4	9:00	915	81	226	36 %	36 %	
	10:00	915	81	226	36 %		

Justification	Preceding Months	% Fulfillment	Overall % Compliance		
	1-12	0 %			
Justification 5		0 %	0 %		
	25-36	0 %			

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume								
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000				
	< 1440									
Justification	1440 - 2600					Justified				
6A	2601 - 7000									
	> 7000									

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians							
	of Total Pedestrians	< 75	75 - 130	> 130					
	< 200								
Justification 6B	200 - 300								
	> 300	Not Justified							

Results			<u>I</u> nput Sheet	Analysis			sed Collision
Intersection: F	lighw	ay 89 & Concession F	Rd 7/ Dean Dr	Count Date	e: Future To	otal 2036 - V	/eekday
Summary I	Resu	ılts					
	Justi	fication	Complianc	e	Signal J	lustified?	
					YES	NO	
1. Minimum Vehicular	Α	Total Volume	100	%		V	
Volume	В	Crossing Volume	84	%			
2. Delay to Cross	Α	Main Road	100	%	П	V	
Traffic	В	Crossing Road	87	%			
3. Combination	Α	Justificaton 1	84	%	V		
	В	Justification 2	87	%			
4. 4-Hr Volume			36	%		~	
5. Collision Expe	erience	Đ	0	%		V	

~

Justification met

Justification not met

6. Pedestrians

A Volume

B Delay

Major Road: Highway 89

Minor Road: Dean Drive and Concession Road 7

Horizon Year: 2036

Weekday

Condition: Restricted Flow

Major Rd. Lanes: 2

Intersection Type: Existing

Date: 5-Sep-17
Project No.: 1101-4125

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM RI	EQUIREMENT	MINIMUM RI 2 OR MC		COMPLIANCE			
JUSTIFICATION	DESCRIPTION	1 LANE HI	GHWAYS	HIGH		Sect	Entire		
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage	
I. /V\Inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1055	117%	83%	
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	141	83%	03 /0	
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	914	102%	50%	
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	85	50%	JU /6	

Existing Intersection Requires 120 % Justification
Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met:	Ye	es	Х	No

	ta Sheet	t		Analysis	Sheet	Results	Sheet	Proposed	d Collision) Justificati	on:	
What are the in	tersecting roa	adways?	Hiç	ghway 89 &	Concessio	n Rd 7/ Eliz	abeth St						•
What is the dire	ection of the N	Main Road	street?	Eas	st-West	•	When was	the data coll	ected?	Future Tota	I 2036 - We	eekday	
Justification	1 - 4: Vol	lumo Wa	rrante										
Justinication	1 1 - 4. VOI	iuiiie wa	ITAIIIS										
a Number of I	lanes on the	Main Road	1?	2 or more	•								
o Number of I	lanes on the	Minor Road	d?	1	Ŧ								
c How many a	annroachae?	4	-										
C. TIOW Many	арргоаспез:												
d What is the	operating en	nvironment	?	Urban	-	Popula	tion >= 10,000	AND	Speed < 70 k	m/hr			
						•	,) AND	Speed < 70 k	:m/hr			
d What is the	eight hour ve	ehicle volu	me at the i	ntersection?	' (Please fil	I in table be	low)				urthbound /	Annroach	Pedestrians
	eight hour ve	ehicle volu	me at the i	ntersection?	' (Please fil	l in table be	low) Main We	estbound Ap	proach	Minor So	uthbound #		Pedestrians Crossing Main
e What is the	eight hour ve	ehicle volu stbound App	me at the i	Minor No	' (Please fil orthbound A	I in table be pproach RT	Main Wo	estbound Ap TH	proach RT	Minor So	uthbound A	RT	Crossing Main Road
Hour Ending	eight hour ve	ehicle volui stbound App TH 519	proach RT	Minor No	' (Please fil	pproach RT	Main Wo	estbound Ap TH 519	proach RT 57	Minor So LT 46		RT 34	Crossing Main Road
e What is the	eight hour ve	ehicle volui stbound App TH 519 519	proach RT 3 3	Minor No	' (Please fil orthbound A	pproach RT 4 4	Main Wo	estbound Ap TH 519 519	proach RT 57 57	Minor So LT 46 46		RT 34 34	Crossing Main Road 0 0
Hour Ending 7:00 8:00	eight hour ve	ehicle volui stbound App TH 519	proach RT	Minor No	' (Please fil orthbound A	pproach RT	Main Wo	estbound Ap TH 519	proach RT 57	Minor So LT 46		RT 34	Crossing Main Road
Hour Ending 7:00 8:00 9:00	eight hour ve Main Eas LT 36 36 36 36	ehicle volumente stbound App TH 519 519 519	proach RT 3 3 3	Minor No LT 0 0 0	P (Please fill prthbound A TH 1 1 1 1 1	pproach RT 4 4 4 4	Main Wo	estbound Ap TH 519 519 519	proach RT 57 57 57	Minor So LT 46 46 46		RT 34 34 34	Crossing Main Road 0 0 0
P What is the Hour Ending 7:00 8:00 9:00 10:00	eight hour ve Main Eas LT 36 36 36 36	ehicle voluments stbound App TH 519 519 519 519 519	proach RT 3 3 3 3 3	Minor No LT 0 0 0 0	P (Please fill prthbound A TH 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	pproach RT 4 4 4 4	Main Wo	estbound Ap TH 519 519 519 519	proach RT 57 57 57 57 57	Minor Sc LT 46 46 46 46		RT 34 34 34 34	Crossing Main Road 0 0 0 0 0
7:00 8:00 9:00 10:00 16:00	eight hour ve Main Eas LT 36 36 36 36 36	ehicle voluments stbound App TH 519 519 519 519 519 519	proach RT 3 3 3 3 3 3	Minor No LT 0 0 0 0 0	P (Please fill prthbound A TH 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	pproach RT 4 4 4 4 4	Main Wo	estbound Ap TH 519 519 519 519 519	proach RT 57 57 57 57 57 57	Minor Sc LT 46 46 46 46 46		RT 34 34 34 34 34 34	Crossing Main Road 0 0 0 0 0 0 0
7:00 8:00 9:00 10:00 16:00 17:00	eight hour ve Main Eas LT 36 36 36 36 36 36 36 36	ehicle voluments stbound App TH 519 519 519 519 519 519	proach RT 3 3 3 3 3 3 3	Minor No LT 0 0 0 0 0 0	P (Please fill prthbound A TH 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	pproach RT 4 4 4 4 4 4	Main Wo	estbound Ap TH 519 519 519 519 519 519 519	57 57 57 57 57 57 57	Minor Sc LT 46 46 46 46 46 46		RT 34 34 34 34 34 34 34 34	Crossing Main Road 0 0 0 0 0 0 0 0 0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0	
Factored 8 hour pedestrian volume	20,005	25	0	0	
% Assigned to crossing rate	23%	34%	30%	100%	
Net 8 Hour Pedestrian Volume at Cross	sing				4,610
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,005		25		0		0		
Factored volume of delayed pedestrians	30		8			8		0	
% Assigned to Crossing Rate	23	1%	3	4%	30	0%	10	10%	
Net 8 Hour Volume of Total Pedestrians	3	-							4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

Restricted Flow Urban Conditions

Justification	Gu	idance Ap	proach Lane	es	Percentage Warrant								Total	Section
dustilication	1 La	1 Lanes 2 or More Lanes			Hour Ending								Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
1A	480	720	600	900	1,228	1,228	1,228	1,228	1,228	1,228	1,228	1,228		
IA IA		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
1B	120	170	120	170	86	86	86	86	86	86	86	86		
16		COMPL	IANCE %		51	51	51	51	51	51	51	51	405	51
													y	

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	idance Ap	proach Land	es				Percentage	Warrant				Total	Section
Justification	1 lanes 2 or More lanes			Hour Ending									Percent	
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	1,142	1,142	1,142	1,142	1,142	1,142	1,142	1,142		
ZA		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
2B	50	75	50	75	47	47	47	47	47	47	47	47		
28	COMPLIANCE %				63	63	63	63	63	63	63	63	501	63
													V	

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Just Satisfied 8		
Justification 1	Minimun Vehicular Volume	NO ☑	YES	NO 🔽
Justification 2	Delay Cross Traffic	NO 🗹		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance
		^	Y (actual)	Y (warrant threshold)		
	7:00	1,142	81	151	54 %	
luctification 4	8:00	1,142	81	151	54 %	54 %
Justilication 4	9:00	1,142	81	151	54 %	J4 /6
	10:00	1,142	81	151	54 %	

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume								
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000				
	< 1440									
Justification	1440 - 2600					Justified				
6A	2601 - 7000									
	> 7000									

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians							
	of Total Pedestrians	< 75	75 - 130	> 130					
	< 200								
Justification 6B	200 - 300								
	> 300	Not Justified							

Results	Sh	eet	Input Sheet	Analysis	Sheet	Propo	osed Colli
Intersection:	Highw	ay 89 & Concession	Rd 7/ Elizabeth St	Count Date	: Future To	tal 2036 - V	Weekday
Summary	Resu	ults					
	Justi	fication	Compliano	e		ustified?	
1. Minimum			<u> </u>		YES	NO	-
Vehicular	Α	Total Volume	100	%		V	
Volume	В	Crossing Volume	51	%			
2. Delay to Cross	A	Main Road	100	%		V	
Traffic	В	Crossing Road	63	%		12	
3. Combination	¹ A	Justificaton 1	51	%		V	
	В	Justification 2	63	%		12	
4. 4-Hr Volume			54	%		V	
							_
5. Collision Exp	perienc	e	0	%		V	

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Justification met

Justification not met

6. Pedestrians

A Volume

B Delay

Major Road: High

Highway 89

Minor Road: Elizabeth Street and Concession Road 7

Horizon Year: 2036

Weekday

Condition:

Major Rd. Lanes: 2

Intersection Type: Existing

Restricted Flow

Date:

5-Sep-17

Project No.: 1101-4125

Analyst: Mac

Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM R	EQUIREMENT	MINIMUM RI				
JUSTIFICATION	DESCRIPTION	1 LANE H	IGHWAYS	2 OR MORE LANE HIGHWAYS		Sectional		Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
I. /V\inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1225	136%	49%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	84	49%	4770
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	1141	127%	27%
Traffic	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	46	27%	2176

Existing Intersection Requires 120 % Justification Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met:

Yes

X No

Input Dat	a She	et		Analysis Sheet Results Sheet Proposed Collision						GO TO Justification:				
What are the in	tersecting	roadways?	Hv	wy 89 and S	treet B								•	
What is the dire	ction of the	Main Road	street?	Eas	st-West	-	When was	the data colle	ected?	Future Tota	l 2036 - We	eekday	<u> </u>	
						_								
Justification	1 - 4: V	olume Wa	rrants											
a Number of I	anes on th	e Main Road	d?	2 or more										
Number of I	anes on th	e Minor Roa	ıd?	1	▼									
		_												
c How many	approache	s? 3												
c How many		,	_	Urban	-	Popula	tion >= 10,000	AND	Speed < 70	km/hr				
d What is the	operating	environment	?				ŕ	AND :	Speed < 70	km/hr				
d What is the	operating eight hour	environment	:? ime at the i	ntersection?	(Please fil	II in table be	low)				outhbound <i>f</i>	Approach	Pedestrians	
I What is the	operating eight hour	environment	:? ime at the i	ntersection?		II in table be	low)	estbound App			outhbound <i>A</i>	Approach RT	Pedestrians Crossing Main Road	
I What is the	operating eight hour Main E	environment vehicle volu astbound Ap	me at the i	ntersection?	(Please file	Il in table be	low) Main W	estbound App	proach	Minor So			Crossing Main	
I What is the - What is the	operating eight hour Main E LT	environment vehicle volu astbound Ap	me at the i	ntersection? Minor No	(Please file	Il in table be Approach RT	Main W	estbound App	proach RT	Minor So	TH	RT	Crossing Main Road	
I What is the - What is the Hour Ending 7:00	operating eight hour Main E LT 0	environment vehicle volu astbound Ap TH 421	proach RT 46	Minor No	rthbound A	Approach RT 42	Main W LT 52	estbound App TH 471	proach RT	Minor So	TH 0	RT	Crossing Main Road	
H What is the What is the Hour Ending 7:00 8:00	operating eight hour Main E LT 0 0	environment vehicle volu astbound Ap TH 421 421	proach RT 46 46	Minor No LT 28 28	orthbound A TH 0 0	Approach RT 42 42	Main W LT 52 52	estbound App TH 471 471	proach RT 0 0	Minor So	TH 0 0	RT 0 0	Crossing Main Road 0 0	
1 What is the - What is the Hour Ending 7:00 8:00 9:00	operating eight hour Main E LT 0 0 0	environment vehicle volu astbound Ap TH 421 421 421	proach RT 46 46 46	Minor No LT 28 28 28 28	rthbound A TH 0 0 0	Approach RT 42 42 42 42	Main W LT 52 52 52 52	### ##################################	proach RT 0 0	Minor So	TH 0 0 0 0	RT 0 0 0 0	Crossing Main Road 0 0 0	
1 What is the Hour Ending 7:00 8:00 9:00 10:00	operating eight hour Main E LT 0 0 0 0	vehicle volu astbound Ap TH 421 421 421 421	proach RT 46 46 46 46	Minor No LT 28 28 28 28 28	Orthbound A TH 0 0 0 0	Approach RT 42 42 42 42 42	Main W LT 52 52 52 52 52	### ##################################	proach	Minor Sc LT 0 0 0 0	TH 0 0 0 0 0 0 0	RT 0 0 0 0 0 0 0	Crossing Main Road 0 0 0 0 0	
1 What is the Hour Ending 7:00 8:00 9:00 10:00 16:00	operating eight hour Main E LT 0 0 0 0 0	environment vehicle volu astbound Ap TH 421 421 421 421 421 421	reat the inproach RT 46 46 46 46 46	Minor No LT 28 28 28 28 28	Orthbound A TH 0 0 0 0 0 0	Approach RT 42 42 42 42 42 42	Main W LT 52 52 52 52 52	estbound App TH 471 471 471 471 471 471	Proach RT 0 0 0 0 0	Minor So LT 0 0 0 0	TH 0 0 0 0 0 0 0 0	RT 0 0 0 0 0 0 0 0 0	Crossing Main Road 0 0 0 0 0 0 0	
d What is the Hour Ending 7:00 8:00 9:00 10:00 16:00 17:00	operating eight hour Main E LT 0 0 0 0 0	vehicle volu astbound Ap TH 421 421 421 421 421 421 421	reproach RT 46 46 46 46 46 46	Minor No. LT 28 28 28 28 28 28	orthbound A TH 0 0 0 0 0 0	Approach RT 42 42 42 42 42 42 42	Main W LT 52 52 52 52 52 52 52	estbound App TH 471 471 471 471 471 471 471	Proach RT 0 0 0 0 0 0 0	Minor So LT 0 0 0 0 0	TH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	RT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Crossing Main Road 0 0 0 0 0 0 0 0 0	

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total					
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai					
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0						
Factored 8 hour pedestrian volume	20,005	25	0	0						
% Assigned to crossing rate	23%	34%	30%	100%						
Net 8 Hour Pedestrian Volume at Cross	Net 8 Hour Pedestrian Volume at Crossing									
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000					

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005		25	0		0		
Factored volume of delayed pedestrians	3	0	8		8		0		
% Assigned to Crossing Rate	23	1%	3	4%	30	0%	10	10%	
Net 8 Hour Volume of Total Pedestrians	3								4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

Restricted Flow Urban Conditions

Justification	Gu	iidance Ap	proach Land	es		Percentage Warrant							Total	Section
dustilication	1 La	nes	2 or Mor	e Lanes		Hour Ending							Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
1A	480	720	600	900	1,060	1,060	1,060	1,060	1,060	1,060	1,060	1,060		
, n		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
1B	180	255	180	255	70	70	70	70	70	70	70	70		
16		COMPL	IANCE %		27	27	27	27	27	27	27	27	220	27
	Restricted Flow Signal Justification 1:												Y	

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes			Percentage Warrant					Total	Section				
	1 lanes		2 or More lanes		Hour Ending					Across	Percent			
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	990	990	990	990	990	990	990	990		
ZA	COMPLIANCE %			100	100	100	100	100	100	100	100	800	100	
2B	50	75	50	75	28	28	28	28	28	28	28	28		
26	COMPLIANCE %			37	37	37	37	37	37	37	37	299	37	
									y					

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Justifications Satisfied 80% or More			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ☑	YES	NO 🔽
Justification 2	Delay Cross Traffic	YES 🗆	NO 🗹		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Approach Required Value		Overall % Compliance	
		X	Y (actual)	Y (warrant threshold)			
	7:00	990	70	198	35 %		
luctification 4	8:00	990	70	198	35 %	35 %	
Justification 4	9:00	990	70	198	35 %	35 %	
	10:00	990	70	198	35 %		

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

8 Hour Vehicular Volume V ₈		Net 8 Hour Pedestrian Volume						
		< 200	200 - 275	276 - 475	476 - 1000	>1000		
	< 1440							
Justification 6A	1440 - 2600					Justified		
	2601 - 7000							
	> 7000							

Net Total 8 Hour Volume of Total Pedestrians		Net Total 8 Hour Volume of Delayed Pedestrians					
		< 75	75 - 130	> 130			
	< 200						
Justification 6B	200 - 300						
	> 300	Not Justified					

Results	She	eet	Input Sheet	Analysis	Sheet	Prop	osed Collision
Intersection:	Hwy 89	and Street B		Count Date	e: Future To	otal 2036 -	Weekday
Summary	Resu	ilts					
	Justif	fication	Compliance	<u> </u>		ustified?	
d Minimum			•		YES	NO	
1. Minimum Vehicular	Α	Total Volume	100	%		V	
Volume	В	Crossing Volume	27	%			
2. Delay to Cross	A	Main Road	100	%		V	
Traffic	В	Crossing Road	37	%		-	
3. Combination	1 A	Justificaton 1	27	%		V	=
	В	Justification 2	37	%			
4. 4-Hr Volume			35	%		V	
5. Collision Ex	perience	:	0	%		₹	

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Justification met

Justification not met

6. Pedestrians

A Volume

B Delay

Major Road: Hwy 89
Minor Road: Street B
Horizon Year: 2036

Weekday

Condition: Re Major Rd. Lanes: 2

Restricted Flow

Date: 5-Sep-17

Project No.: 1101-4125

Intersection Type: Proposed A

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM R	EQUIREMENT	MINIMUM RI	EQUIREMENT DRE LANE		COMPLIANCE	
JUSTIFICATION	DESCRIPTION	1 LANE H	IGHWAYS	HIGH		Secti	onal	Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
I. /V\Inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1058	118%	41%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	69	41%	4170
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	989	110%	010/
Traffic	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	36	21%	21%

Existing Intersection Requires 120 % Justification Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met: Yes X No

Input Dat	a Shee	et		Analysis Sheet Results Sheet Proposed Collision					GO TO Justification:				
What are the in	tersecting r	oadways?	CF	R7 & Street	A								,
What is the dire	ction of the	Main Road	street?	North-South ▼ When was the data collected? Future Total 20						ıl 2036 - Sa	turday		
Justification	1 - 4: Vo	olume Wa	rrants										
a Number of I	anes on the	e Main Road	d?	1	•								
o Number of I	anes on the	e Minor Roa	d?	1	•								
: - How many	annroaches	2 3	-										
· ·			▼			1							
Í				Urban	_	Popula	ntion >= 10,000	AND	Speed < 70	km/hr			
d What is the	operating 6	environment	?	1		·	·	AND	Speed < 70	km/hr			
d What is the	operating e	environment	? me at the i	ntersection?		II in table be	elow)	AND uthbound Ap	•		/estbound A	pproach	Pedestrians
d What is the	operating e	environment	? me at the i	ntersection?	' (Please fi	II in table be	elow)		•		/estbound A TH	pproach RT	Pedestrians Crossing Main Road
d What is the	operating e	environment vehicle volu	? me at the i	ntersection?	' (Please fi	II in table be	elow) Main So	uthbound Aբ	oproach	Minor W		•	Crossing Main
I What is the - What is the	operating e eight hour Main No	environment vehicle volu rthbound Ap	? me at the i pproach RT	ntersection? Minor E	P (Please fi	Il in table be pproach RT	Main So	uthbound Ap	pproach RT	Minor W	TH	RT	Crossing Main Road
d What is the Hour Ending 7:00	operating e eight hour Main No LT 9	environment vehicle volu rthbound Ap TH 85	? me at the i pproach RT 0	ntersection? Minor E LT 96	P (Please fi	Il in table be	Main So	uthbound Ap TH 79	pproach RT 56	Minor W LT	TH 0	RT 0	Crossing Main Road
d What is the b What is the Hour Ending 7:00 8:00	operating e eight hour Main No LT 9 9	environment vehicle volu rthbound Ap TH 85 85	? me at the i pproach RT 0 0	Minor E LT 96 96	P (Please fi	pproach RT 11	Main So	uthbound Ap TH 79 79	pproach RT 56 56	Minor W LT 0 0	TH 0 0	RT 0 0	Crossing Main Road 0 0
d What is the Hour Ending 7:00 8:00 9:00	operating e eight hour Main No LT 9 9 9	environment vehicle volu rthbound Ap TH 85 85 85	? me at the i pproach RT 0 0 0	Minor E LT 96 96 96 96	astbound A TH 0 0 0	pproach RT 11 11	Main So	uthbound Ap TH 79 79 79 79	56 56 56	Minor W LT 0 0	TH 0 0 0 0	RT 0 0 0	Crossing Main Road 0 0 0
7:00 8:00 9:00 10:00	operating eleight hour Main No LT 9 9 9 9	environment vehicle volu rthbound Ap TH 85 85 85 85	? me at the i pproach RT 0 0 0	Minor E LT 96 96 96 96	astbound A TH 0 0 0 0	pproach RT 11 11 11	Main So	uthbound Ap TH 79 79 79 79 79	56 56 56 56	Minor W LT 0 0 0 0	TH 0 0 0 0 0 0 0	RT 0 0 0 0 0 0 0	Crossing Main Road 0 0 0 0
7:00 8:00 9:00 10:00 10:00	operating eleight hour Main No LT 9 9 9 9	rthbound Ap TH 85 85 85 85 85	? me at the i pproach RT 0 0 0 0	Minor E LT 96 96 96 96 96	astbound A TH 0 0 0 0 0	pproach RT 11 11 11 11	Main So LT 0 0 0 0 0	uthbound Ap TH 79 79 79 79 79	Deproach RT 56 56 56 56 56 56	Minor W LT 0 0 0 0 0	TH 0 0 0 0 0 0 0 0	RT 0 0 0 0 0 0 0 0 0	Crossing Main Road 0 0 0 0 0 0 0
8:00 9:00 10:00 16:00 17:00	operating eleight hour Main No LT 9 9 9 9 9	rthbound Ap TH 85 85 85 85 85 85	me at the i	Minor E LT 96 96 96 96 96 96 96	astbound A TH 0 0 0 0 0 0	pproach RT 11 11 11 11 11	Main So LT 0 0 0 0 0 0 0	uthbound Ap TH 79 79 79 79 79 79 79 79	56 56 56 56 56 56	Minor W LT 0 0 0 0 0 0	TH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	RT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Crossing Main Road 0 0 0 0 0 0 0 0 0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

 a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0	
Factored 8 hour pedestrian volume	20,005	25	0	0	
% Assigned to crossing rate	23%	34%	30%	100%	
Net 8 Hour Pedestrian Volume at Cross	sing				4,610
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005	2	25		0		0	
Factored volume of delayed pedestrians	3	0		8		8		0	
% Assigned to Crossing Rate	23	3%	34	4%	30	0%	10	0%	
Net 8 Hour Volume of Total Pedestrians	3								4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gu	idance Ap	proach Lane	es				Percentage	Warrant				Total	Section
dustilication	1 Lanes 2 or More Lanes Hour Ending									Across	Percent			
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
1A	480	720	600	900	336	336	336	336	336	336	336	336		
IA	COMPLIANCE %			47	47	47	47	47	47	47	47	373	47	
1B	180	255	180	255	107	107	107	107	107	107	107	107		
16	COMPLIANCE %		42	42	42	42	42	42	42	42	336	42		
	Restricted Flow Signal Justification 1:					3 100% Fullfil r 1B at least 8			urs	Yes Yes			>	

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gu	idance Ap	proach Lane	es				Percentage	Warrant				Total	Section
Justilication	1 laı	1 lanes 2 or More lanes Hour Ending							Across	Percent				
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	229	229	229	229	229	229	229	229		
ZA		COMPL	IANCE %		32	32	32	32	32	32	32	32	254	32
2B	50	75	50	75	96	96	96	96	96	96	96	96		
28		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
		icted Flo			Both 2A and 2 Lesser of 2A o				ırs	Yes Yes			V	

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Justifications Satisfied 80% or More			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ☑	YES	NO 🔽
Justification 2	Delay Cross Traffic	YES 🗆	NO 🗹		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall %
		X	Y (actual)	Y (warrant threshold)		
	7:00	229	107	399	27 %	
luctification 4	8:00	229	107	399	27 %	27 %
Justilication 4	9:00	229	107	399	27 %	21 70
	10:00	229	107	399	27 %	

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume								
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000				
	< 1440									
Justification	1440 - 2600					Justified				
6A	2601 - 7000									
	> 7000									

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians							
	of Total Pedestrians	< 75	75 - 130	> 130					
	< 200								
Justification 6B	200 - 300								
	> 300	Not Justified							

Results	Sh	eet	Input Sheet	Analysis	Sheet	Propo	sed Collision			
Intersection: 0	CR7 8	& Street A		Count Dat	e: Future To	tal 2036 - S	Saturday			
Summary	Resi	ults								
	Just	ification	Compliance	e	Signal J					
1. Minimum					YES	NO				
Vehicular	Α	Total Volume	47	%		~				
Volume	В	Crossing Volume	42	%						
2. Delay to Cross	A	Main Road	32	%		~				
Traffic	В	Crossing Road	100	%						
3. Combination	A	Justificaton 1	42	%		~	=			
	В	Justification 2	32	%						
4. 4-Hr Volume			27	%		~	=			
							_			
5. Collision Exp	erienc	ee	0	%		V				
							3			
6. Pedestrians	A	Volume	Justification me	et		V				
	B Delay		Justification not i	met						

Major Road: CR7 Minor Road:

CR7 and Street A

Horizon Year: 2036

Saturday

Condition: Restricted Flow Date: 5-Sep-17 Major Rd. Lanes: 1 Project No.: 1101-4125

Intersection Type: Proposed Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM RI	EQUIREMENT	MINIMUM RI 2 OR MC		COMPLIANCE			
JUSTIFICATION	DESCRIPTION	1 LANE HI	IGHWAYS	HIGH		Sect	Entire		
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage	
i. /viinimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	335	47%	47%	
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	229	135%	77 /0	
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	106	15%	15%	
Traffic	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	96	128%	13 /0	

Existing Intersection Requires 120 % Justification
Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met:	Yes	Х	No

Input Data Sheet				Analysis	Sheet	Results 9	Sheet	Proposed	d Collision) Justificati	on:	
What are the int	tersecting i	oadways?	Hiç	ghway 89 &	Concessio	on Rd 7/ Dea	an Dr				Justinouti	JII.	_
What is the dire	ection of the	Main Road	street?	Eas	st-West	•	When was	the data colle	ected?	Future Tota	l 2036 - Sa	turday	
Justification	1 - 4: V	olume Wa	rrants										
a Number of I	anes on th	e Main Road	d?	2 or more	. •								
o Number of I	anes on th	e Minor Roa	ıd?	1	▼								
				,									
c How many a	approache	s? 4	Ŧ										
·						1							
c How many a				Urban	•	Populat	tion >= 10,000	AND	Speed < 70 l	km/hr			
·				Urban	•	Populat	tion >= 10,000	AND	Speed < 70 l	cm/hr			
d What is the	operating	environment	?	1		·	,	AND	Speed < 70 I	km/hr			
d What is the	operating eight hour	environment vehicle volu	? me at the i	ntersection?	(Please fil	II in table bel	low)						Podestrians
d What is the	operating eight hour	environment vehicle volu astbound Ap	me at the i	ntersection?	(Please file	Il in table bel	low) Main W	estbound Ap	proach	Minor So	outhbound A		Pedestrians Crossing Main
I What is the	operating eight hour	environment vehicle volu	? me at the i	ntersection?	(Please fil	II in table bel	low)				outhbound <i>f</i>	Approach RT	
I What is the - What is the Hour Ending 7:00	operating eight hour	environment vehicle volu astbound Ap	me at the i	ntersection?	(Please file	Approach RT 112	low) Main W	estbound Ap	proach	Minor So		RT 27	Crossing Main
Hour Ending 7:00 8:00	operating operating operating operating operating operating operations operating operations operating oper	environment vehicle volu astbound Ap	me at the i	ntersection? Minor No	(Please file	Approach RT 112 112	Main W	estbound Ap	proach RT	Minor So LT 77 77	TH	RT 27 27	Crossing Main Road
d What is the What is the Hour Ending 7:00	operating eight hour Main E	environment vehicle volu astbound Ap TH 416	proach RT	Minor No	rthbound A	Approach RT 112	Main Wo	estbound Ap TH 443	proach RT 98	Minor So	TH 20	RT 27	Crossing Main Road
1 What is the Hour Ending 7:00 8:00 9:00 10:00	operating of eight hour Main Education LT 26 26	environment vehicle volu astbound Ap TH 416 416	proach RT 40 40	Minor No LT 46 46	orthbound A TH 8 8	Approach RT 112 112	Main Wo	estbound Ap TH 443 443	proach RT 98 98	Minor So LT 77 77	TH 20 20	RT 27 27	Crossing Main Road 0 0
J What is the What is the Hour Ending 7:00 8:00 9:00	operating of eight hour Main Education LT 26 26 26 26	vehicle volu astbound Ap TH 416 416 416	proach RT 40 40 40	Minor No LT 46 46 46	rthbound A TH 8 8 8 8	Approach RT 112 112 112	Main Wo LT 114 114 114	estbound Ap TH 443 443 443	proach RT 98 98 98	Minor So LT 77 77 77	TH 20 20 20 20	RT 27 27 27 27	Crossing Main Road 0 0 0
1 What is the Hour Ending 7:00 8:00 9:00 10:00	operating eight hour Main E LT 26 26 26 26	vehicle volu astbound Ap TH 416 416 416 416	proach RT 40 40 40 40	Minor No LT 46 46 46 46	Orthbound A TH 8 8 8 8	Approach RT 112 112 112 112	Main Wo	### ##################################	proach RT 98 98 98 98	Minor Sc LT 77 77 77 77	TH 20 20 20 20 20 20	RT 27 27 27 27 27	Crossing Main Road 0 0 0 0
d What is the Hour Ending 7:00 8:00 9:00 10:00 16:00	operating eight hour Main E LT 26 26 26 26 26	environment vehicle volu astbound Ap TH 416 416 416 416 416	proach RT 40 40 40 40 40	Minor No LT 46 46 46 46 46	Orthbound A TH 8 8 8 8 8	Approach RT 112 112 112 112 112	Main W LT 114 114 114 114 114	estbound Ap TH 443 443 443 443 443	proach RT 98 98 98 98 98	Minor So LT 77 77 77 77 77	TH 20 20 20 20 20 20 20	RT 27 27 27 27 27 27	Crossing Main Road 0 0 0 0 0 0
d What is the Hour Ending 7:00 8:00 9:00 10:00 16:00 17:00	operating eight hour Main E LT 26 26 26 26 26 26 26	environment vehicle volu astbound Ap TH 416 416 416 416 416 416	2? Inne at the inproach RT 40 40 40 40 40 40	Minor No LT 46 46 46 46 46 46	orthbound A TH 8 8 8 8 8	In table bel Approach RT	Main W. LT 114 114 114 114 114 114 114	estbound Ap TH 443 443 443 443 443 443	98 98 98 98 98 98	Minor So LT 77 77 77 77 77	TH 20 20 20 20 20 20 20 20 20	RT 27 27 27 27 27 27 27 27	Crossing Main Road 0 0 0 0 0 0 0 0 0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

 a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zor	ne 2	Zone 3 (i	f needed)	Zone 4 (if needed)	Total	
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total	
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0		
Factored 8 hour pedestrian volume	20,	20,005		25		0		0		
% Assigned to crossing rate	23	3%	34	1%	30%		100%			
Net 8 Hour Pedestrian Volume at Cross							4,610			
Net 8 Hour Vehicular Volume on Street Being Crossed										

	Zon	ie 1	Zoi	ne 2	Zone 3 (i	f needed)	Zone 4 (i	f needed)	Total	
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Iotai	
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0		
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0		
Factored volume of total pedestrians	20,005		25		0		0			
Factored volume of delayed pedestrians	3	0	8		8			0		
% Assigned to Crossing Rate	d to Crossing Rate 23%				30%		100%			
Net 8 Hour Volume of Total Pedestrians	3			-		-			4,610	
Net 8 Hour Volume of Delayed Pedestrians										

Intersection: Highway 89 & Concession Rd 7/ Dean Dr

Count Date: Future Total 2036 - Saturday

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	ıidance Ap	proach Lane	es		Percentage Warrant								
Justilication	1 La	nes	2 or Mor	e Lanes		Hour Ending								Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
1A	480	720	600	900	1,427	1,427	1,427	1,427	1,427	1,427	1,427	1,427		
IA.		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
1B	120	170	120	170	290	290	290	290	290	290	290	290		
15		COMPLIANCE %			100	100	100	100	100	100	100	100	800	100
	Restricted Flow					Both 1A and 1B 100% Fullfilled each of 8 hours Yes ▼ No.								
	Signal Justification 1:				Lesser of 1A or 1B at least 80% fulfilled each of 8 hours				urs					

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	ıidance Ap	proach Lane	es		Percentage Warrant								
Justilication	1 la	nes	2 or Mor	e lanes		Hour Ending								
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	1,137	1,137	1,137	1,137	1,137	1,137	1,137	1,137		
24		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
2B	50	75	50	75	143	143	143	143	143	143	143	143		
26		COMPLIANCE %			100	100	100	100	100	100	100	100	800	100
	Restricted Flow Signal Justification 2:											No No		

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Justifications Satisfied 80% or More			
Justification 1	Minimun Vehicular Volume	YES 🔽	NO 🗆	YES 🔽	NO 🗆
Justification 2	Delay Cross Traffic	JUSTIFIED			

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance	
		X	Y (actual)	Y (warrant threshold)			
	7:00	1,137	166	152	100 %		
luctification 4	8:00	1,137	166	152	100 %	100 %	
Justilication 4	9:00	1,137	166	152	100 %	100 %	
	10:00	1,137	166	152	100 %		

Justification	Preceding Months	% Fulfillment	Overall % Compliance	
	1-12	0 %		
Justification 5		0 %	0 %	
	25-36	0 %		

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular		Net 8 Hour Pedestrian Volume								
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000					
	< 1440										
Justification	1440 - 2600					Justified					
6A	2601 - 7000										
	> 7000										

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians						
	of Total Pedestrians	< 75	75 - 130	> 130				
Justification 6B	< 200							
	200 - 300							
	> 300	Not Justified						

Input Sheet Analysis Sheet **Proposed Collision Results Sheet** Intersection: Highway 89 & Concession Rd 7/ Dean Dr Count Date: Future Total 2036 - Saturday **Summary Results** Signal Justified? Justification Compliance YES NO 1. Minimum A Total Volume 100 % Vehicular Volume B Crossing Volume 100 % 2. Delay to A Main Road 100 % Cross Traffic **~** B Crossing Road 100 % 3. Combination A Justificatin 1 100 **~** B Justification 2 100 % 4. 4-Hr Volume 100 % ~

5. Collision Expe	erience	0 %		V	
C. Dadaatriana					
6. Pedestrians	A Volume	Justification met		V	
	B Delay	Justification not met	_		

Major Road: Highway 89

Minor Road: Dean Drive and Concession Road 7

Horizon Year: 2036

Saturday

Condition: Restricted Flow

Major Rd. Lanes: 2
Intersection Type: Existing

n Type: Existing Analyst: Madeleine Ferguson

Date:

5-Sep-17

Project No.: 1101-4125

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM R	EQUIREMENT	MINIMUM RI		COMPLIANCE			
JUSTIFICATION	DESCRIPTION	1 LANE H	GHWAYS	2 OR MORE LANE HIGHWAYS		Secti	Entire		
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage	
I. /V\Inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1424	158%	158%	
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	289	170%	150 %	
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	1135	126%	111%	
Traffic	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	188	111%	111 /0	

Existing Intersection Requires 120 % Justification Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met:	X	Yes	No

Input Dat	a She	et		Analysis	Sheet	Results 9	Sheet	Propose	d Collisio) Justificatio	on:	
What are the in	tersecting r	roadways?	Н	ghway 89 &	Concession	on Rd 7/ Eliz	abeth St						•
What is the dire	ction of the	e Main Road	street?	Eas	t-West	•	When was	the data coll	ected?	Future Tota	l 2036 - Sat	turday	
Justification	1 - 4: Vo	olume Wa	rrants										
a Number of I	anes on th	e Main Road	d?	2 or more	-								
b Number of I	anes on th	e Minor Roa	ıd?	1	•								
c How many	approaches	s? 4	▼										
d What is the	operating e	environment	:?	Urban	-	Popula	tion >= 10,000) AND	Speed < 70	km/hr			
e What is the	eight hour	vehicle volu	me at the	intersection?	(Please fi	II in table be	low)						
Harris English	Main E	astbound Ap	proach	Minor No	rthbound A	Approach	Main Westbound Approach			Minor Southbound Approach			Pedestrians
Hour Ending	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Crossing Main Road
7:00	45	658	4	1	4	6	16	670	93	90	3	39	0
8:00	45	658	4	1	4	6	16	670	93	90	3	39	0
9:00	45	658	4	1	4	6	16	670	93	90	3	39	0
10:00	45	658	4	1	4	6	16	670	93	90	3	39	0
16:00	45	658	4	1	4	6	16	670	93	90	3	39	0
17:00	45	658	4	1	4	6	16	670	93	90	3	39	0
18:00	45	658	4	1	4	6	16	670	93	90	3	39	0
10.00	4.5	CEO	4	1 4	4	_	4.0	070		00	1 1	20	1 0

128

744

5,360

720

24

Justification 5: Collision Experience

360

5,264

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total					
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai					
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0						
Factored 8 hour pedestrian volume	20,005	25	0	0						
% Assigned to crossing rate	23%	34%	30%	100%						
Net 8 Hour Pedestrian Volume at Crossing										
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000					

	Zone 1		Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)		Total		
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total		
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0			
Total 8 hour pedestrians delayed greater than 10 seconds	ayed 10		1	6	2	4	0	0			
Factored volume of total pedestrians	20,005		25		0		0				
Factored volume of delayed pedestrians	3	0	8		8		0				
% Assigned to Crossing Rate	23	1%	34%		30%		100%				
Net 8 Hour Volume of Total Pedestrians											
Net 8 Hour Volume of Delayed Pedestri	ans								12		

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	iidance Ap	proach Lane	es	Percentage Warrant								Total	Section
dustilication	1 Lanes 2 or More Lanes			Hour Ending								Across	Percent	
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
				~										
1A	480	720	600	900	1,629	1,629	1,629	1,629	1,629	1,629	1,629	1,629		
'^		COMPLIANCE %			100	100	100	100	100	100	100	100	800	100
1B	120	170	120	170	143	143	143	143	143	143	143	143		
I B		COMPLIANCE %			84	84	84	84	84	84	84	84	673	84
												V		

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant							Total	Section	
Justilication	1 lanes 2 or More lanes		re lanes	Hour Ending						Across	Percent			
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	1,486	1,486	1,486	1,486	1,486	1,486	1,486	1,486		
ZA		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
2B	50	75	50	75	95	95	95	95	95	95	95	95		
26	COMPLIANCE %			100	100	100	100	100	100	100	100	800	100	
			Both 2A and 2 Lesser of 2A o				ırs	Yes Yes	V					

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo		ifications 0% or More		
Justification 1	Minimun Vehicular Volume	YES 🔽	NO 🗆	YES 🔽	NO 🗆
Justification 2	Delay Cross Traffic	YES 🔽	NO 🗆	JUSTIFIED	

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance	
		X	Y (actual)	Y (warrant threshold)		·	
	7:00	1,486	132	115	100 %		
luctification 4	8:00	1,486	132	115	100 %	100 %	
Justilication 4	9:00	1,486	132	115	100 %	100 %	
	10:00	1,486	132	115	100 %		

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume								
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000				
	< 1440									
Justification	1440 - 2600					Justified				
6A	2601 - 7000									
	> 7000									

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians						
	of Total Pedestrians	< 75	75 - 130	> 130				
	< 200							
Justification 6B	200 - 300							
	> 300	Not Justified						

Input Sheet Analysis Sheet **Proposed Collision Results Sheet** Intersection: Highway 89 & Concession Rd 7/ Elizabeth St Count Date: Future Total 2036 - Saturday **Summary Results** Signal Justified? Justification Compliance YES NO 1. Minimum A Total Volume 100 % Vehicular ~ Volume B Crossing Volume 84 % 2. Delay to A Main Road 100 % Cross Traffic **~** B Crossing Road 100 % 3. Combination A Justificatin 1 84 ~ B Justification 2 100 % 4. 4-Hr Volume 100 % ~

~

V

0

Justification met

Justification not met

%

5. Collision Experience

A Volume

B Delay

6. Pedestrians

Major Road: Highway 89

Minor Road: Elizabeth Street and Concession Road 7

Horizon Year: 2036

Saturday

Condition: Restricted Flow

Major Rd. Lanes: 2 Project No.: 1101-4125

Intersection Type: Existing Analyst: Madeleine Ferguson

Date:

5-Sep-17

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM REQUIREMENT 1 LANE HIGHWAYS		MINIMUM REQUIREMENT 2 OR MORE LANE HIGHWAYS		COMPLIANCE		
JUSTIFICATION	DESCRIPTION					Sectional		Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
I. /V\Inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1626	181%	84%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	142	84%	0470
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	1484	165%	55%
Traffic	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	94	55%	JJ /6

Existing Intersection Requires 120 % Justification	
Proposed Intersection Requires 150 % Justication	

Signal Justification 7 Met:	Yes	Х	No

Input Data Sheet			Analysis	Sheet	Results S	Sheet	Proposed	Collisio) Justificati	on:		
What are the int	ersecting i	oadways?	Hv	vy 89 and S	treet B								
What is the dire	ction of the	Main Road	street?	Eas	st-West	V	When was	the data colle	ected?	Future Total	l 2036 - Sa	turday	
Justification	1 - 4: V	olume Wa	rrants										
a Number of I	anes on th	e Main Road	d?	2 or more	, 🖵								
Number of I	anes on th	e Minor Roa	d?	1	-								
				,									
- How many	nnroache	2 3	Ţ										
Ť			T										
Ť				Urban	•	Popula	tion >= 10,000	AND	Speed < 70	km/hr			
I What is the	operating	environment	?	1			ŕ	AND :	Speed < 70	km/hr			
d What is the	operating eight hour	environment	? me at the i	ntersection?		II in table be	low)	AND :			outhbound A	Approach	Pedestrians
What is the	operating eight hour	environment	? me at the i	ntersection?	(Please fil	II in table be	low)				outhbound <i>A</i>	Approach RT	Pedestrians Crossing Main Road
What is the	operating of eight hour	environment vehicle volu astbound Ap	? me at the i	ntersection?	(Please file	Il in table be	low) Main W	estbound App	proach	Minor So			Crossing Main
- What is the - What is the	operating operating operating of the control operation operations of the control operation operation operations of the control operation operations of the control operation operations of the control operation operations operations of the control operations operations of the control operations operations of the control operations operations operations of the control operations operations operations operations operations operations operations of the control operations op	environment vehicle volu astbound Ap	? me at the i proach RT	ntersection? Minor No	(Please file	Il in table be Approach RT	Main W	estbound App	proach RT	Minor So	TH	RT	Crossing Main Road
- What is the - What is the - Hour Ending 7:00	operating eight hour Main Ea LT	environment vehicle volu astbound Ap TH 455	me at the i	Minor No	(Please file	Il in table be	Main W LT 54	estbound App TH 485	proach RT	Minor So	TH 0	RT 0	Crossing Main Road
- What is the - What is the Hour Ending 7:00 8:00	operating of eight hour Main Education Communication Comm	environment vehicle volu astbound Ap TH 455 455	? me at the ii proach RT 37 37	Minor No	(Please file orthbound A TH 0 0	Approach RT 55 55	Main W LT 54 54	estbound App TH 485 485	proach RT 0 0	Minor So	TH 0 0	RT 0 0	Crossing Main Road 0 0
- What is the - What is the Hour Ending 7:00 8:00 9:00	operating eight hour Main Ei LT 0 0 0	environment vehicle volu astbound Ap TH 455 455 455	me at the i	Minor No LT 41 41 41	Prthbound A TH 0 0 0	Approach RT 55 55 55	Main W LT 54 54 54 54	### ##################################	proach RT 0 0	Minor So	TH 0 0 0 0	RT 0 0 0 0	Crossing Main Road 0 0
- What is the - What is the Hour Ending 7:00 8:00 9:00 10:00	operating eight hour Main Ei LT 0 0 0	vehicle volu astbound Ap TH 455 455 455 455	? me at the i proach RT 37 37 37 37	Minor No LT 41 41 41 41	orthbound A TH 0 0 0 0	Approach RT 55 55 55	Main W LT 54 54 54 54 54	estbound App TH 485 485 485 485	proach	Minor So	TH 0 0 0 0 0 0 0	RT 0 0 0 0 0 0 0	Crossing Main Road 0 0 0 0
7:00 8:00 9:00 16:00	operating eight hour Main Ei LT 0 0 0 0	environment vehicle volu astbound Ap TH 455 455 455 455 455	? me at the i proach RT 37 37 37 37 37	Minor No LT 41 41 41 41 41	orthbound A TH 0 0 0 0 0	Il in table bei	Main W LT 54 54 54 54 54	estbound App TH 485 485 485 485 485	Proach RT 0 0 0 0 0	Minor So LT 0 0 0 0	TH 0 0 0 0 0 0 0 0	RT 0 0 0 0 0 0 0 0 0	Crossing Main Road 0 0 0 0 0 0 0
8:00 9:00 10:00 16:00 17:00	operating eight hour Main E LT 0 0 0 0 0	vehicle volu astbound Ap TH 455 455 455 455 455 455	? me at the i proach RT 37 37 37 37 37 37	Minor No LT 41 41 41 41 41 41	orthbound A TH 0 0 0 0 0 0	I in table bel Approach	Main W LT 54 54 54 54 54 54	### ### ##############################	Proach RT 0 0 0 0 0 0	Minor So LT 0 0 0 0 0	TH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	RT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Crossing Main Road 0 0 0 0 0 0 0 0 0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

 a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total			
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai			
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0				
Factored 8 hour pedestrian volume	20,005	25	0	0				
% Assigned to crossing rate	23%	34%	30%	100%				
Net 8 Hour Pedestrian Volume at Crossing								
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000			

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (f needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005		25		0		0	
Factored volume of delayed pedestrians	3	0		8		8		0	
% Assigned to Crossing Rate	23	3%	3	4%	30	0%	10	0%	
Net 8 Hour Volume of Total Pedestrians	3								4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gu	idance Ap	proach Lane	es				Percentage	Warrant				Total	Section
dustilication	1 La	nes	2 or Mor	e Lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
1A	480	720	600	900	1,127	1,127	1,127	1,127	1,127	1,127	1,127	1,127		
IA.		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
40	180	255	180	255	96	96	96	96	96	96	96	96		
1B	·	COMPL	IANCE %		38	38	38	38	38	38	38	38	301	38
		icted Flo			Both 1A and 1I Lesser of 1A o				ırs	Yes Yes			V	

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	iidance Ap	proach Land	es				Percentage	Warrant				Total	Section
Justification	1 la	nes	2 or Moi	re lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	1,031	1,031	1,031	1,031	1,031	1,031	1,031	1,031		
ZA		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
2B	50	75	50	75	41	41	41	41	41	41	41	41		
28		COMPL	IANCE %		55	55	55	55	55	55	55	55	437	55
		icted Flo			Both 2A and 2 Lesser of 2A o				ırs	Yes Yes			V	

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	re		Two Justifications Satisfied 80% or More			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ☑	YES	NO 🔽		
Justification 2	Delay Cross Traffic	YES 🗆	NO 🗹		NOT JUSTIFIED		

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance
		X	Y (actual)	Y (warrant threshold)		
	7:00	1,031	96	184	52 %	
luctification 4	8:00	1,031	96	184	52 %	52 %
Justilication 4	9:00	1,031	96	184	52 %	52 %
	10:00	1,031	96	184	52 %	

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular		Net 8 F	lour Pedestrian Volume		
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000
	< 1440					
Justification	1440 - 2600					Justified
6A	2601 - 7000					
	> 7000					

	Net Total 8 Hour Volume	Net Total 8 H	our Volume of Delayed P	edestrians
	of Total Pedestrians	< 75	75 - 130	> 130
	< 200			
Justification 6B	200 - 300			
	> 300	Not Justified		

					_		
Results	Sh	eet	Input Sheet A	nalysis Shee		Propo	sed Collision
Intersection: I	Hwy 8	39 and Street B	Co	unt Date: Futui	e Tot	al 2036 - S	Saturday
Summary	Res	ults					
	Just	tification	Compliance	l		stified?	
		-		YE	3	NO	
1. Minimum Vehicular	Α	Total Volume	100 %			~	
Volume	В	Crossing Volume	38 %				
2. Delay to Cross	Α	Main Road	100 %			~	
Traffic	В	Crossing Road	55 %			-	
3. Combination	Α	Justificaton 1	38 %			~	
	В	Justification 2	55 %				
4. 4-Hr Volume			52 %			~	
							-
5. Collision Exp	eriend	ce	0 %			~	
							-
6. Pedestrians	Δ	Volume	Justification met				1

~

Justification met

Justification not met

A Volume

B Delay

Major Road:Hwy 89Condition:Restricted FlowDate:5-Sep-17Minor Road:Street BMajor Rd. Lanes:2Project No.:1101-4125

Horizon Year: 2036 Intersection Type: Proposed Analyst: Madeleine Ferguson

Saturday

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM RI	EQUIREMENT	MINIMUM RI 2 OR MC			COMPLIANCE	
JUSTIFICATION	DESCRIPTION	1 LANE HI	IGHWAYS	HIGH		Sect	onal	Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
I. /V\Inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	1125	125%	56%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	95	56%	JU //0
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	1030	114%	40%
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	68	40%	40 /6

Existing Intersection Requires 120 % Justification	Signal Justification 7 Met:	Yes	Х	No
Proposed Intersection Requires 150 % Justication				_

Input Dat	a Shee	et		Analysis	Sheet	Results	Sheet	Propose	d Collisio		O Justificati	on:	
What are the in	tersecting r	oadways?	CF	R 7 and Stre	et A								•
What is the dire	ction of the	Main Road	street?	Nor	th-South	•	When was	the data coll	lected?	Sensitivity	Analysis 20	36 - Week	day
Justification	1 - 4: Vo	olume Wa	rrants										
a Number of I	anes on the	e Main Road	1?	1	•								
Number of I	anes on the	e Minor Roa	d?	1	v								
c How many a	approaches	? 3	▼										
Í			_	Urban	-	Popula	ution >= 10 000	AND	Speed < 70	km/hr			
d What is the	operating 6	environment	?	Urban	(Please fi	·	ution >= 10,000) AND	Speed < 70	km/hr			
d What is the	operating e	environment	? me at the i	ntersection?	(Please fi	II in table be	elow)						
d What is the	operating e eight hour Main No	environment vehicle volu rthbound Ap	? me at the i	ntersection?	(Please fi	II in table be	elow) Main So	uthbound A į	oproach	Minor W	/estbound A		Pedestrians Crossing Main
d What is the	operating e	environment	? me at the i	ntersection?	(Please fi	II in table be	elow)		pproach RT		/estbound A TH	pproach RT	
d What is the - What is the Hour Ending 7:00	operating e eight hour Main No LT 8	environment vehicle volu rthbound Ap TH 58	? me at the i pproach RT 0	Minor E	(Please fi	Il in table be	Main So	uthbound Ap TH 61	oproach RT	Minor W	TH 0	RT 0	Crossing Main
Hour Ending 7:00 8:00	operating e eight hour Main No LT 8 8	environment vehicle volu rthbound Ap TH 58 58	? me at the i pproach RT 0 0	Minor E	(Please fi	pproach RT 8 8	Main So	uthbound Ap TH 61 61	pproach RT 74 74	Minor W LT 0 0	TH 0 0	RT 0 0	Crossing Main Road 0 0
1 What is the What is the Hour Ending 7:00 8:00 9:00	operating e eight hour Main No LT 8 8 8	environment vehicle volu rthbound Ap TH 58 58 58	? me at the i proach RT 0 0	Minor Education? Minor Education 86 86 86	(Please fi	pproach RT 8 8 8	Main So	uthbound Ap TH 61 61 61	pproach RT 74 74 74 74	Minor W LT 0 0	TH 0 0 0 0	RT 0 0 0	Crossing Main Road 0 0 0
d What is the Hour Ending 7:00 8:00 9:00 10:00	operating e eight hour Main No LT 8 8	environment vehicle volu rthbound Ap TH 58 58	? me at the i pproach RT 0 0	Minor E	(Please fi	pproach RT 8 8	Main So	uthbound Ap TH 61 61	pproach RT 74 74 74 74 74	Minor W LT 0 0	TH 0 0	RT 0 0	Crossing Main Road 0 0
7:00 8:00 9:00 16:00	operating e eight hour Main No LT 8 8 8	environment vehicle volu rthbound Ap TH 58 58 58	? me at the i proach RT 0 0	Minor Education? Minor Education 86 86 86	(Please fi	pproach RT 8 8 8	Main So	uthbound Ap TH 61 61 61	74 74 74 74 74 74	Minor W LT 0 0	TH 0 0 0 0	RT 0 0 0	Crossing Main Road 0 0 0
7:00 8:00 9:00 10:00 17:00	operating eight hour Main No LT 8 8 8 8 8	rthbound Ap TH 58 58 58 58 58	me at the i	Minor E: LT	(Please fi	pproach RT 8 8 8 8 8	Main So	uthbound Ap TH 61 61 61 61 61 61	74 74 74 74 74 74 74 74	Minor W LT 0 0 0	TH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	RT 0 0 0 0 0 0	Crossing Main Road 0 0 0 0 0
7:00 8:00 9:00 10:00 10:00 17:00 18:00	operating eleight hour Main No LT 8 8 8 8 8	rthbound Ap TH 58 58 58 58	? me at the i pproach RT 0 0 0 0	Minor E: LT	(Please fi astbound A TH 0 0 0 0	pproach RT 8 8 8 8	Main So LT 0 0 0 0 0	uthbound Ap TH 61 61 61 61 61	74 74 74 74 74 74 74 74	Minor W LT 0 0 0 0 0	TH 0 0 0 0 0 0 0 0	RT 0 0 0 0 0 0 0 0	Crossing Main Road 0 0 0 0 0 0 0
8:00 9:00 10:00 16:00 17:00	operating eight hour Main No LT 8 8 8 8 8	rthbound Ap TH 58 58 58 58 58	me at the i	Minor E: LT	(Please fi	pproach RT 8 8 8 8 8	Main So LT 0 0 0 0 0 0 0	uthbound Ap TH 61 61 61 61 61 61	74 74 74 74 74 74 74 74	Minor W LT 0 0 0 0 0 0	TH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	RT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Crossing Main Road 0 0 0 0 0 0 0 0 0

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

 a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total		
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai		
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0			
Factored 8 hour pedestrian volume	20,005	25	0	0			
% Assigned to crossing rate	23%	34%	30%	100%			
Net 8 Hour Pedestrian Volume at Cross	sing				4,610		
Net 8 Hour Vehicular Volume on Street Being Crossed							

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (f needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005	2	25		0	0		
Factored volume of delayed pedestrians	3	0		8		8		0	
% Assigned to Crossing Rate	23	3%	34	4%	30	0%	10	0%	
Net 8 Hour Volume of Total Pedestrians								4,610	
Net 8 Hour Volume of Delayed Pedestri								12	

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	ıidance Ap	proach Lane	es		Percentage Warrant							Total	Section
dustilication	1 La	nes	2 or More Lanes			Hour Ending							Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
1A	480	720	600	900	295	295	295	295	295	295	295	295		
"		COMPLIANCE %			41	41	41	41	41	41	41	41	328	41
1B	180	255	180	255	94	94	94	94	94	94	94	94		
I B		COMPL	IANCE %		37	37	37	37	37	37	37	37	295	37
	Restricted Flow Signal Justification 1:									No No	Y			

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	iidance Ap	proach Land	es		Percentage Warrant							Total	Section
Justinication	1 la	nes	2 or Moi	re lanes				Hour En	nding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	201	201	201	201	201	201	201	201		
ZA		COMPL	ANCE %		28	28	28	28	28	28	28	28	223	28
2B	50	75	50	75	86	86	86	86	86	86	86	86		
28		COMPL	IANCE %		100	100	100	100	100	100	100	100	800	100
	Restricted Flow Signal Justification 2:										V			

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Just Satisfied 8	ifications 0% or More		
Justification 1	Minimun Vehicular Volume	NO ☑	YES	NO 🔽	
Justification 2	Delay Cross Traffic	YES 🗆	NO 🗹		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall %
		X	Y (actual) Y (warrant threshol			
	7:00	201	94	415	23 %	
luctification 4	8:00	201	94	415	23 %	23 %
Justilication 4	9:00	201	94	415	23 %	23 %
	10:00	201	94	415	23 %	

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume								
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000				
	< 1440									
Justification	1440 - 2600					Justified				
6A	2601 - 7000									
	> 7000									

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians						
	of Total Pedestrians	< 75	75 - 130	> 130				
	< 200							
Justification 6B	200 - 300							
	> 300	Not Justified						

Results	Sh	eet	Input Sheet	Analysis	s Sheet	Propo	sed Collision		
Intersection: 0	CR 7	and Street A		Count Date	e: Sensitivity	/ Analysis 2	2036 - Weekday		
Summary	Res	ults							
	.lust	ification	Compliance	Δ	Signal J	ustified?			
			Compilation		YES	NO			
1. Minimum Vehicular	A	Total Volume	41	%		✓			
Volume	В	Crossing Volume	37	%					
2. Delay to Cross	A	Main Road	28	%		V	_		
Traffic	В	Crossing Road	100	%		14.			
3. Combination	A	Justificaton 1	37	%		V	_		
	В	Justification 2	28	%					
4. 4-Hr Volume			23	%		V			
							7		
5. Collision Exp	erienc	ee	0	%		☑			
							3		
6. Pedestrians	A	Volume	Justification me	et		✓			
	В	Delay	Justification not i	met		12.			

Major Road: Highway 89 Minor Road: CR 7 and Street A

Horizon Year: 2036 Weekday Condition: Restricted Flow Date: Major Rd. Lanes: 1 Project No.: 1101-4125

Intersection Type: Existing Analyst: Madeleine Ferguson

18-Oct-17

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM R	EQUIREMENT	MINIMUM RI	EQUIREMENT DRE LANE		COMPLIANCE	
JUSTIFICATION	DESCRIPTION	1 LANE H	IGHWAYS	HIGHWAYS		Sect	ional	Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
I. /V\inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	293	41%	41%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	200	118%	7170
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	93	13%	13%
Traffic	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	86	115%	13%

Existing Intersection Requires 120 % Justification	
Proposed Intersection Requires 150 % Justication	

Signal Justification 7 Met:	Ye	es	Х	No

Input Dat	a She	et		Analysis	Sheet	Results	Sheet	Proposed	d Collisio		O Justificati	on:		
What are the int	tersecting	roadways?	Co	ounty Road 5	50 and Stre	eet C					o datinouti	····	▼	
What is the dire	ection of the	e Main Road	street?	Nor	th-South	•	When was	the data colle	ected?	Sensitivity	Analysis 20	36 - Week	kday	
Justification	Justification 1 - 4: Volume Warrants													
a Number of I	lanes on th	e Main Road	d?	1	-									
b Number of I	lanes on th	e Minor Roa	d?	1	•									
c How many a	approache	s? 3	•											
·			2	Urban	-	Populs	ation >= 10,000	AND	Speed < 70	km/hr				
d - What is the														
d What is the	, ,			1		·	ŕ	,,,,,						
d What is thee What is the	, ,			1		·	ŕ	,,,,,						
e What is the	eight hour		me at the i	ntersection?		II in table be	elow)	uthbound Ap			/estbound A	pproach	Pedestrians	
	eight hour	vehicle volu	me at the i	ntersection?	(Please fil	II in table be	elow)				/estbound A	pproach RT	Pedestrians Crossing Main Road	
e What is the	eight hour	vehicle volu	me at the i	ntersection?	(Please file	Il in table be	elow) Main So	uthbound Ap	proach	Minor V			Crossing Main	
e What is the	eight hour	vehicle volu orthbound Ap	me at the i	ntersection? Minor E	(Please filestbound A	Il in table be pproach RT	Main So	uthbound Ap	proach RT	Minor V	TH	RT	Crossing Main Road	
e What is the Hour Ending 7:00	eight hour Main No LT	vehicle volu orthbound Ap TH 250	pproach RT 5 5	Minor E	(Please filestbound A TH 0	Il in table be	Main So	uthbound Ap TH 222	proach RT	Minor V LT	TH 0	RT 48	Crossing Main Road	
e What is the Hour Ending 7:00 8:00	eight hour Main No LT 0 0	vehicle volu orthbound Ap TH 250 250	me at the i	Minor Ea	(Please file	pproach RT 0 0	Main So LT 47 47	uthbound Ap TH 222 222	proach RT 0 0	Minor V LT 5 5	TH 0 0	RT 48 48	Crossing Main Road 0	
e What is the Hour Ending 7:00 8:00 9:00	eight hour Main No LT 0 0 0	orthbound Ap TH 250 250 250	pproach RT 5 5 5 5	Minor E	(Please file	pproach RT 0 0 0	Main So LT 47 47 47	uthbound Ap TH 222 222 222	proach RT 0 0	Minor V LT 5 5 5	TH 0 0 0 0	RT 48 48 48	Crossing Main Road 0 0	
e What is the Hour Ending 7:00 8:00 9:00 10:00	eight hour Main No LT 0 0 0 0	vehicle volu orthbound Ap TH 250 250 250 250 250	pproach RT 5 5 5 5	Minor Education Control Contro	(Please files) astbound A TH 0 0 0 0	pproach RT 0 0 0 0	Main So LT 47 47 47 47	uthbound Ap TH 222 222 222 222 222	proach RT 0 0 0 0	Minor V LT 5 5 5 5	TH 0 0 0 0 0 0 0	RT 48 48 48 48	Crossing Main Road 0 0 0 0 0	
e What is the Hour Ending 7:00 8:00 9:00 10:00 16:00	eight hour Main No LT 0 0 0 0 0	orthbound Ap TH 250 250 250 250 250	pproach RT 5 5 5 5 5 5	Minor El LT 0 0 0 0 0	(Please files) astbound A TH 0 0 0 0 0	pproach RT 0 0 0 0 0	Main So LT 47 47 47 47 47	uthbound Ap TH 222 222 222 222 222	proach	Minor V LT 5 5 5 5	TH 0 0 0 0 0 0 0 0	RT 48 48 48 48 48	Crossing Main Road 0 0 0 0 0 0 0	
e What is the Hour Ending 7:00 8:00 9:00 10:00 16:00 17:00	eight hour Main No LT 0 0 0 0 0	vehicle volu orthbound Ap TH 250 250 250 250 250 250 250 250	proach RT 5 5 5 5 5 5	Minor Education? Minor Education Control Cont	(Please files astbound ATH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	pproach RT 0 0 0 0 0 0	Main So LT 47 47 47 47 47 47	uthbound Ap TH 222 222 222 222 222 222 222	Proach RT 0 0 0 0 0 0	Minor V LT 5 5 5 5 5 5	TH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	48 48 48 48 48 48	Crossing Main Road 0 0 0 0 0 0 0 0 0	
e What is the Hour Ending 7:00 8:00 9:00 10:00 16:00 17:00 18:00	eight hour Main No LT 0 0 0 0 0 0	vehicle volu orthbound Ap TH 250 250 250 250 250 250 250 250	proach RT 5 5 5 5 5 5 5	Minor E	(Please filestbound ATH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	pproach RT 0 0 0 0 0 0 0	Main So LT 47 47 47 47 47 47 47	uthbound Ap TH 222 222 222 222 222 222 222 222 222	Proach RT 0 0 0 0 0 0 0	Minor V LT 5 5 5 5 5 5 5 5	TH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	48 48 48 48 48 48 48	Crossing Main Road 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total				
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai				
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0					
Factored 8 hour pedestrian volume	20,005	25	0	0					
% Assigned to crossing rate	23%	34%	30%	100%					
Net 8 Hour Pedestrian Volume at Crossing									
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000				

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005	25		0		0		
Factored volume of delayed pedestrians	3	0	8		8		0		
% Assigned to Crossing Rate	23	1%	34	4%	30	0%	10	0%	
Net 8 Hour Volume of Total Pedestrians									
Net 8 Hour Volume of Delayed Pedestri	ans								12

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	iidance Ap	proach Lane	es		Percentage Warrant							Total Across	Section
Justilication	1 Lanes		2 or Mor	e Lanes		Hour Ending								Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
		~												
1A	480	720	600	900	577	577	577	577	577	577	577	577		
16		COMPL	IANCE %		80	80 80		80	80	80	80	80	641	80
10	180	255	180	255	53	53	53	53	53	53	53	53		
15	1B COMPLIANCE %				21	21	21	21	21	21	21	21	166	21
	Restricted Flow				Both 1A and 1B 100% Fullfilled each of 8 hours Yes No.						V			
	Signal Justification 1:					Lesser of 1A or 1B at least 80% fulfilled each of 8 hours Yes No						~		

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Lan	es		Percentage Warrant						Total	Section	
Justilication	1 la	nes	2 or Mo	re lanes				Hour En	ding				Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	524	524	524	524	524	524	524	524		
ZA		COMPLIANCE %			73	73	73	73	73	73	73	73	582	73
2B	50	75	50	75	5	5	5	5	5	5	5	5		
28	COMPLIANCE %				7	7	7	7	7	7	7	7	53	7
	Restricted Flow Signal Justification 2:				Both 2A and 2B 100% Fullfilled each of 8 hours Lesser of 2A or 2B at least 80% fulfilled each of 8 hours							y		

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Justifications Satisfied 80% or More			
Justification 1	Minimun Vehicular Volume	YES	NO 🔽		
Justification 2	Delay Cross Traffic	YES 🗆	NO 🗹		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance	
		X	Y (actual)	Y (warrant threshold)			
	7:00	524	53	252	21 %		
lustification 4	8:00	524	53	252	21 %	21 %	
Justification 4	9:00	524	53	252	21 %	21 %	
	10:00	524	53	252	21 %		

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume							
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000			
	< 1440								
Justification	1440 - 2600					Justified			
6A	2601 - 7000								
	> 7000								

	Net Total 8 Hour Volume	Net Total 8 Hour Volume of Delayed Pedestrians						
	of Total Pedestrians	< 75	75 - 130	> 130				
Justification 6B	< 200							
	200 - 300							
	> 300	Not Justified						

Cross Traffic B Crossing Road 7 % 3. Combination A Justification 1 21 % B Justification 2 7 %	Results	She	eet	Input Sheet	Analysis	Sheet	Prope	osed Collision
Justification Compliance Signal Justified? YES NO 1. Minimum Vehicular Volume B Crossing Volume B Crossing Volume 21 % 2. Delay to Cross Traffic B Crossing Road 73 % Traffic B Crossing Road 7 % 3. Combination A Justification 1 B Justification 2 7 % 4. 4-Hr Volume Signal Justified? YES NO V V 4. 4-Hr Volume Signal Justified? YES NO V V 4. 4-Hr Volume Signal Justified? YES NO V V 4. 4-Hr Volume Signal Justified? YES NO V V V V V V 4. 4-Hr Volume					Count Date	e: Sensitivity	Analysis :	2036 - Weekday
1. Minimum Vehicular Volume 80 %	Summary			Compliano	<u>.</u>	Signal Ju	stified?	7
Vehicular Volume B Crossing Volume 21 % 2. Delay to Cross Traffic B Crossing Road 73 % 3. Combination A Justification 1 21 % B Justification 2 7 % 4. 4-Hr Volume 21 %	1. Minimum			·		YES	NO	
2. Delay to Cross A Main Road 73 % Traffic B Crossing Road 7 % 3. Combination A Justification 1 21 % B Justification 2 7 % 4. 4-Hr Volume 21 %							~	
Traffic B Crossing Road 7 % 3. Combination A Justification 1 21 % B Justification 2 7 % 4. 4-Hr Volume 21 %	2. Delay to	_						=
B Justification 2 7 % 4. 4-Hr Volume 21 %		В	Crossing Road	7	%		•	
4. 4-Hr Volume 21 %	3. Combination	A	Justificaton 1	21	%		~	
21 %		В	Justification 2	7	%			
5. Collision Experience 0 %	4. 4-Hr Volume			21	%		~	
5. Collision Experience 0 %								7
	5. Collision Exp	erience	•	0	%		~	

~

Justification met

Justification not met

6. Pedestrians

A Volume

B Delay

Major Road: County Road 50

Condition: Restricted Flow Minor Road: Street C Major Rd. Lanes: 1

Horizon Year: 2036 Intersection Type: Proposed Analyst: Madeleine Ferguson

Weekday

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

JUSTIFICATION		MINIMUM RI	EQUIREMENT	MINIMUM RI 2 OR MC			COMPLIANCE	
	DESCRIPTION	1 LANE HI	IGHWAYS	HIGH		Sect	ional	Entire
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
1. Minimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	575	80%	80%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	523	308%	00 /0
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	52	7%	7%
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	5	7%	/ /0

Existing Intersection Requires 120 % Justification	
Proposed Intersection Requires 150 % Justication	

Signal Justification 7 Met:	Yes	Х	No

Date:

18-Oct-17

Project No.: 1101-4125

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total					
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai					
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0						
Factored 8 hour pedestrian volume	20,005	25	0	0						
% Assigned to crossing rate	23%	34%	30%	100%						
Net 8 Hour Pedestrian Volume at Crossing										
Net 8 Hour Vehicular Volume on Street Being Crossed										

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	20,005		25		0		0	
Factored volume of delayed pedestrians	3	30		8		8	0		
% Assigned to Crossing Rate	23	3%	34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									
Net 8 Hour Volume of Delayed Pedestri	ans								12

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	ıidance Ap	proach Lane	es		Percentage Warrant							Total	Section
dustilication	1 Lanes 2 or More Lanes			e Lanes	Hour Ending								Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
		~												
1A	480	720	600	900	358	358	358	358	358	358	358	358		
'^		COMPL	IANCE %		50	50	50	50	50	50	50	50	398	50
1B	180	255	180	255	120	120	120	120	120	120	120	120		
I B		COMPL	IANCE %		47	47	47	47	47	47	47	47	376	47
Restricted Flow Signal Justification 1:											V			

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Gı	uidance Ap	proach Land	es		Percentage Warrant								Section
Justilication	1 lanes 2		2 or Moi	re lanes		Hour Ending								Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	238	238	238	238	238	238	238	238		
ZA		COMPLIANCE %			33	33	33	33	33	33	33	33	264	33
ap.	50	75	50	75	109	109	109	109	109	109	109	109		
28	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100
												V		

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Justifications Satisfied 80% or More			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ☑	YES	NO 🔽
Justification 2	Delay Cross Traffic	YES 🗆	NO 🗹		NOT JUSTIFIED

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance	
		X	Y (actual)	Y (warrant threshold)			
	7:00	238	120	394	30 %		
luctification 4	8:00	238	120	394	30 %	30 %	
Justification 4	9:00	238	120	394	30 %	30 %	
	10:00	238	120	394	30 %		

Justification	Preceding Months	% Fulfillment	Overall % Compliance		
	1-12	0 %			
Justification 5		0 %	0 %		
	25-36	0 %			

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

8 Hour Vehicular Volume V ₈		Net 8 Hour Pedestrian Volume								
		< 200	200 - 275	276 - 475	476 - 1000	>1000				
	< 1440									
Justification	1440 - 2600					Justified				
6A	2601 - 7000									
	> 7000									

Net Total 8 Hour Volume		Net Total 8 Hour Volume of Delayed Pedestrians								
	of Total Pedestrians	< 75	75 - 130	> 130						
Justification 6B	< 200									
	200 - 300									
	> 300	Not Justified								

Results Sheet		Input Sheet	Analysis	Sheet		Propo	osed Collision				
Intersection: C	CR7 8	& Street A	C	Count Date	: Sensitivi	ity Aı	nalysis 2	2036 - Saturday			
Summary I	Res	ults									
	Just	ification	Compliance		Signal Justified?						
1. Minimum Vehicular	A	Total Volume	50 %	%	YES		NO V	_			
Volume	В	Crossing Volume	47 %	%							
2. Delay to Cross	A	Main Road	33 %	%			~	=			
Traffic	В	Crossing Road	100 %	%							
3. Combination	A	Justificaton 1	47 %	%			~				
	В	Justification 2	33 %	%							
4. 4-Hr Volume			30 %	%			~]			
								3			
5. Collision Experience		0 %	%			V					
								-			
6. Pedestrians	Α	Volume	Justification met				~				
	В	Delay	Justification not me	et	_						

Major Road: CR7

Minor Road: CR7 and Street A

Horizon Year: 2036 Saturday Condition: Major Rd. Lanes: 1

Restricted Flow

Date: Project No.: 1101-4125

18-Oct-17

Intersection Type: Proposed

Analyst:

Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM R	EQUIREMENT	MINIMUM RI 2 OR MC			COMPLIANCE	
JUSTIFICATION	DESCRIPTION	1 LANE H	1 LANE HIGHWAYS		WAYS	Sect	Entire	
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage
I. /V\Inimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	357	50%	50%
Vehicular Volume	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	237	139%	30 /6
2. Delay to Cross	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	120	17%	17%
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	109	145%	17 70

Existing Intersection Requires 120 % Justification
Proposed Intersection Requires 150 % Justication

Signal Justification 7 Met: X No Yes

Input Dat	a Shee	et		Analysis	Sheet	Results	Sheet	Proposed	Collisio) Justificati	on:	
What are the in	ersecting r	oadways?	Co	unty Road	50 and Stre	eet C							_
What is the dire	ction of the	Main Road	street?	No	rth-South	•	When was	he data colle	ected?	Sensitivity	Analysis 20)36 - Satur	day
Justification	1 - 4: Vo	olume Wa	rrants										
a Number of I	anes on th	e Main Road	l?	1	•								
o Number of I	anes on the	e Minor Roa	d?	1	•								
n - How many :	approaches	3											
Í		,				1							
Í				Urban	•	Popula	ition >= 10,000	AND :	Speed < 70) km/hr			
d What is the	operating (environment	?	,		·	ŕ	AND :	Speed < 70) km/hr			
d What is the	operating of	environment	? me at the i	ntersection?		II in table be	low)	AND :		_	estbound <i>A</i>	pproach	Pedestrians
d What is the	operating of	environment	? me at the i	ntersection?	' (Please fil	II in table be	low)			_	/estbound A	pproach RT	Pedestrians Crossing Main Road
d What is the	operating e eight hour Main No	environment vehicle volu	? me at the in	ntersection?	' (Please fil	II in table be	low) Main So	uthbound Ap	proach	Minor W			Crossing Main
d What is the	operating of eight hour Main No LT	environment vehicle volu orthbound Ap	me at the in	Minor E	' (Please fil astbound A	Il in table be pproach RT	Main So	uthbound Ap	proach RT	Minor W	TH	RT	Crossing Main Road
d What is the Hour Ending 7:00	operating eight hour Main No LT 0	environment vehicle volui orthbound Ap TH 232	me at the in	Minor E LT	P (Please file astbound A TH 0	Il in table be	Main So	uthbound Ap TH 178	proach RT	Minor W LT	TH 0	RT 41	Crossing Main Road
d What is the b What is the Hour Ending 7:00 8:00	operating of eight hour Main No. LT 0 0	environment' vehicle volui orthbound Ap TH 232 232	proach RT 2 2	Minor E LT 0 0	astbound A TH 0 0	pproach RT 0 0	Main So	uthbound Ap TH 178 178	proach RT 0 0	Minor W LT 9 9	TH 0 0	RT 41 41	Crossing Main Road 0 0
d What is the b What is the Hour Ending 7:00 8:00 9:00	operating of eight hour Main No LT 0 0 0	environment vehicle volui orthbound Ap TH 232 232 232 232	proach RT 2 2 2	Minor E LT 0 0 0	astbound A TH 0 0 0	pproach RT 0 0 0	Main So LT 15 15	uthbound Ap TH 178 178 178	proach RT 0 0 0	Minor W LT 9 9 9	TH 0 0 0	RT 41 41 41	Crossing Main Road 0 0 0
d What is the Hour Ending 7:00 8:00 9:00 10:00	operating of eight hour Main No. LT 0 0 0 0	vehicle volui vrthbound Ap TH 232 232 232 232 232	eproach RT 2 2 2 2	Minor E LT 0 0 0 0	astbound A TH 0 0 0 0	pproach RT 0 0 0 0	Main So LT 15 15 15 15	uthbound Ap TH 178 178 178 178	proach RT 0 0 0 0	Minor W LT 9 9 9 9	TH 0 0 0 0 0 0 0	RT 41 41 41 41	Crossing Main Road 0 0 0 0 0
d What is the Hour Ending 7:00 8:00 9:00 10:00 16:00	operating of eight hour Main No. LT 0 0 0 0 0	vehicle volui vrthbound Ap TH 232 232 232 232 232 232	eproach RT 2 2 2 2 2	Minor E LT 0 0 0 0 0	astbound A TH 0 0 0 0 0	pproach RT 0 0 0 0 0	Main So LT 15 15 15 15	uthbound Ap TH 178 178 178 178 178 178	proach RT 0 0 0 0 0	Minor W LT 9 9 9 9	TH 0 0 0 0 0 0 0 0	RT 41 41 41 41 41	Crossing Main Road 0 0 0 0 0 0
8:00 9:00 10:00 16:00 17:00	operating of eight hour Main No LT 0 0 0 0 0	environment' vehicle volui orthbound Ap TH 232 232 232 232 232 232 232 232 232	reproach RT 2 2 2 2 2 2 2	Minor E LT 0 0 0 0 0 0	astbound A TH 0 0 0 0 0 0	pproach RT 0 0 0 0 0 0	Main So LT 15 15 15 15 15 15	uthbound Ap TH 178 178 178 178 178 178 178	proach	Minor W LT 9 9 9 9 9	TH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	RT 41 41 41 41 41 41 41 41	Crossing Main Road 0 0 0 0 0 0 0 0 0

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

^{*} Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

 a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1	Zone 2	Zone 3 (if needed)	Zone 4 (if needed)	Total
	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Assisted Unassisted	Iotai
Total 8 hour pedestrian volume	10,000 5	10 5	0 0	0 0	
Factored 8 hour pedestrian volume	20,005	25	0	0	
% Assigned to crossing rate	23%	34%	30%	100%	
Net 8 Hour Pedestrian Volume at Cross	sing				4,610
Net 8 Hour Vehicular Volume on Street	Being Crossed				2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zor	ne 1	Zo	ne 2	Zone 3 (i	if needed)	Zone 4 (f needed)	Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Total
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,	005		25		0		0	
Factored volume of delayed pedestrians	3	0		8		8		0	
% Assigned to Crossing Rate	23	3%	3	4%	30	0%	10	0%	
Net 8 Hour Volume of Total Pedestrians	3								4,610
Net 8 Hour Volume of Delayed Pedestri	ans								12

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Gı	idance Ap	proach Lane	es		Percentage Warrant						Total	Section	
dustinication	1 Lanes		2 or More Lanes			Hour Ending							Across	Percent
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
	480	720	600	900	477	477	477	477	477	477	477	477		
1A	COMPLIANCE %				66	66	66	66	66	66	66	66	530	66
1B	180	255	180	255	50	50	50	50	50	50	50	50		
16		COMPL	IANCE %		20	20	20	20	20	20	20	20	157	20
	Restricted Flow Signal Justification 1:										>			

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant						Total	Section		
Justilication	1 lanes 2 or More lanes		re lanes		Hour Ending							Across	Percent	
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	427	427	427	427	427	427	427	427		
ZA	COMPLIANCE %			59	59	59	59	59	59	59	59	474	59	
2B	50	75	50	75	9	9	9	9	9	9	9	9		
26		COMPL	IANCE %		12	12	12	12	12	12	12	12	96	12
	Restricted Flow Signal Justification 2:				Both 2A and 2B 100% Fullfilled each of 8 hours Lesser of 2A or 2B at least 80% fulfilled each of 8 hours						y			

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or Mo	Two Justifications Satisfied 80% or More			
Justification 1	Minimun Vehicular Volume	YES 🗆	NO ▼	YES	NO 🔽
Justification 2	Delay Cross Traffic		NOT JUSTIFIED		

Justification 4: Four Hour Volume

Justification	Time Period	Total Volume of Both Heaviest Mine Approaches (Main) Approach		Required Value	Average % Compliance	Overall %
		X	Y (actual)	Y (warrant threshold)		
	7:00	427	50	295	17 %	
Instification 4	8:00	427	50	295	17 %	17 %
Justilication 4	9:00	427	50	295	17 %	17 %
	10:00	427	50	295	17 %	

Justification 5: Collision Experience

Justification	Preceding Months	% Fulfillment	Overall % Compliance
	1-12	0 %	
Justification 5		0 %	0 %
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

	8 Hour Vehicular	Net 8 Hour Pedestrian Volume							
	Volume V ₈	< 200	200 - 275	276 - 475	476 - 1000	>1000			
	< 1440								
Justification	1440 - 2600					Justified			
6A	2601 - 7000								
	> 7000								

Pedestrian Delay Analysis

Net Total 8 Hour Volume of Total Pedestrians		Net Total 8 Hour Volume of Delayed Pedestrians					
		< 75	75 - 130	> 130			
Justification 6B	< 200						
	200 - 300						
	> 300	Not Justified					

Results Sheet Input Sheet Analysis Sheet Proposed Collision						
Intersection:	Intersection: County Road 50 and Street C Count Date: Sensitivity Analysis 2036 - Saturday					
Summary	Resi	ults				
	Just	ification	Complian	ce		Justified?
d Minimum			·		YES	NO
1. Minimum Vehicular	Α	Total Volume	66	%		✓
Volume	В	Crossing Volume	20	%		
2. Delay to Cross	Α	Main Road	59	%		V
Traffic	В	Crossing Road	12	%		V
3. Combination	1 A	Justificaton 1	20	%		V
	В	Justification 2	12	%		V
4. 4-Hr Volume			17	%		V
5. Collision Exp	perienc	ee	0	%		V

~

Justification met

Justification not met

6. Pedestrians

A Volume

B Delay

Major Road: County Road 50
Minor Road: Street C

2036

Saturday

Horizon Year:

Condition: Restricted Flow Major Rd. Lanes: 1

Intersection Type: Proposed

Date: 18-Oct-17 Project No.: 1101-4125

Analyst: Madeleine Ferguson

OTM Book 12 - Table 19 - Justification 7 - Projected Volumes (Traffic Signal Justification for Future Development - Traffic Impact Studies)

		MINIMUM REQUIREMENT 1 LANE HIGHWAYS		MINIMUM REQUIREMENT 2 OR MORE LANE HIGHWAYS		COMPLIANCE			
JUSTIFICATION	DESCRIPTION					Sectional		Entire	
		Free Flow	Restricted Flow	Free Flow	Restricted Flow	Numerical	Percentage	Percentage	
I. /\linimum	A. Vehicle Volume, All Approaches (Avg. Hour)	480	720	600	900	476	66%	66%	
	B. Vehicle Volume, Along Minor Streets (Avg. Hour)	120	170	120	170	426	251%		
2. Delay to Cross Traffic	A. Vehicle Volume, Major Street (Avg. Hour)	480	720	600	900	50	7%	7%	
	B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour)	50	75	120	170	9	12%		

Existing Intersection Requires 120 % Justification	
Proposed Intersection Requires 150 % Justication	

Signal Justification 7 Met: Yes X No

APPENDIX H

Relevant TAC GDGCR / The County of Simcoe By-Law No 5544 Excerpts OF

THE CORPORATION OF THE COUNTY OF SIMCOE

Being a by-law to regulate the construction, alteration or change in the use of any private or public entranceway, gate or other structure or facility that permits access to a County road.

WHEREAS Section 9 of the *Municipal Act, 2001*, S.O. 2001, c.25 as amended ("*Municipal Act, 2001*",) provides that the Corporation of the County of Simcoe ("County") has the capacity, rights, powers and privileges of a natural person for the purpose of exercising its authority under this or any other Act;

AND WHEREAS Section 10(2) of the *Municipal Act, 2001*, provides that County Council may regulate matters for purposes related to health, safety and well-being of the inhabitants of the County;

AND WHEREAS Sections 27 and 35 of the *Municipal Act, 2001*, authorize County Council to pass a by-law to prohibit or regulate the construction, alteration or change in use of any entranceway, gate or other structure or facility that permits access to a County road in respect of highways in its jurisdiction or under joint jurisdiction;

AND WHEREAS pursuant to section 227 of the *Municipal Act, 2001*, it is the role of the officers and employees of the County to establish administrative practices and procedures to implement County Council's decisions;

AND WHEREAS Section 391 of the *Municipal Act*, 2001, authorizes the municipality to impose fees and charges on persons for services or activities provided or done by or on behalf of it; for costs payable by it for services or activities provided or done by or on behalf of any other municipality or any local board; and for the use of its property including property under its control;

AND WHEREAS Sections 398 and 446 of the *Municipal Act, 2001*, authorizes the County to request that the lower-tier municipalities add the costs of completing any matter or thing it has authority to direct to be done in this By-law if the person directed to do so is in default, to the tax roll and collect the amount due in the same manner as property taxes;

AND WHEREAS pursuant to section 425 of the *Municipal Act, 2001*, the County may pass by-laws providing that a person who contravenes a by-law of the municipality is guilty of an offence;

AND WHEREAS pursuant to section 15(1) of the *Police Services Act*, R.S.O. 1990, c.P.15 County Council may appoint persons to enforce the by-laws of the County;

AND WHEREAS by adoption of Corporate Services Committee Report No. CS 07-204, County Council deems it necessary to repeal By-law No. 4206 as amended and to enact a new entrance by-law to regulate the construction, alteration or change in the use of any private or public entranceway, gate or other structure or facility that permits access to a County road and to provide for the issuing of permits related thereto.

NOW THEREFORE be it resolved that Council of the Corporation of the County of Simcoe enacts as follows:

SECTION 1 - INTERPRETATION

1.1 SHORT TITLE

This by-law will be known and may be cited as the Entrance By-law.

1.2 HEADING

The headings inserted in this by-law are inserted for convenience only and are not to be used as a means of interpretation.

1.3 SCHEDULES

Schedules attached to this by-law form part of this by-law and have the same force and effect as if the information in them were contained in the body of this by-law.

1.4 SINGULAR, ETC

The necessary grammatical changes required to make the provisions hereof apply to corporations, partnerships, trusts and individuals, male or female, and to include singular or plural meaning where the context so requires, will in all cases be assumed as though fully expressed.

1.5 **DEFINITIONS**

For the purpose of this by-law, the following words shall have the meaning ascribed herein:

- 1.5.1 "Boulevard" means that portion of the highway, paved or unpaved between the County property line and the Curb Line but does not include the sidewalk.
- 1.5.2 "**Bridge**" means a public bridge forming part of a highway or on, over or across which a highway passes.

- 1.5.3 "Commercial Entrance" means an Entrance opening on to a County Road from a retail or service business.
- 1.5.4 "County" means The Corporation of the County of Simcoe.
- 1.5.5 "County Road" means all common and public highways, any part of which is intended for or used by general public for the passage of vehicles and pedestrians and includes the area between the lateral property lines thereof within the geographical limits of the County of Simcoe over which the County has jurisdiction, including where jurisdiction is obtained by agreement with the lower-tier municipality.
- 1.5.6 **"Curb Line"** means the line of the curb, or, where no curb is constructed, the edge of the traveled portion of the highway.
- 1.5.7 **"Entrance**" means an area of ingress and egress to a privately or publicly owned parcel from a County Road.
- 1.5.8 **"Entrance Permit"** means a permit issued by the Transportation Maintenance Manager of the County.
- 1.5.9 "Farm Entrance" means an Entrance opening on to a County Road from an active farm and is to be used for access to one or more barns, out-buildings and/or a farm residence.
- 1.5.10 "Field Entrance" means an Entrance opening on to a County Road from an agricultural field.
- 1.5.11 "Industrial Entrance" means an Entrance opening on to a County Road from an industrial facility.
- 1.5.12 "Institutional Entrance" means an Entrance opening on to a County Road from an institutional facility.
- 1.5.13 "Intersection" means an intersection of a County Road with another Public Road.
- 1.5.14 "Local Road" means a public highway under the jurisdiction of a lower-tier municipality within the County of Simcoe.
- 1.5.15 "Minimum Sight Distance" means the distance measured from the centre line of the entrance at a height of 1.05 metres above grade, which represents the driver's eye level, and at an offset of 3.0 metres from the edge of pavement, to a point on the centre of the upstream and downstream lane of the County Road at a height of 1.05 metres, which represents the object height.

- 1.5.16 "Multi-Unit Residential Entrance" means an Entrance opening on to a County Road from a multi-unit residential dwelling containing more than two separate, self-contained dwelling units and includes apartment buildings, condominiums and all other forms of multi-unit ownership.
- 1.5.17 "Municipal Law Enforcement Officer" includes a person appointed pursuant to section 15(1) of the *Police Services Act* by the County Council for the purpose of carrying out the enforcement of this by-law.
- 1.5.18 "**Mutual Entrance**" means an Entrance opening on to a County Road that provides shared access to serve separate existing lots or for two or more main buildings on one lot.
- 1.5.19 "Owner" shall mean the Person that is the owner of the property abutting the County Road that is accessed by an Entrance.
- 1.5.20 **"Person**" includes the applicant whether an individual or a corporation and the successors, assigns, heirs, executors, administrators, or other legal representatives of a person to whom the context may apply according to law.
- 1.5.21 "Public Road" means all common and public highways, any part of which is intended for or used by the general public for the passage of vehicles and pedestrians and includes the area between the lateral property lines thereof.
- 1.5.22 "Residential Entrance" means an Entrance opening on to a County Road from a private residence or from a multi-unit residential dwelling containing not more than two separate, self-contained dwelling units.
- 1.5.23 "Temporary Entrance" means an Entrance opening on to a County Road that provides access to property for a limited period, not to exceed 6 months, for the purpose of construction, repairs or improvements to that property or to facilitate a staged development.

SECTION 2 - PERMITS AND ENTRANCES

2.1 GENERAL CONSIDERATIONS

The staff of the County administering this by-law will consider the following criteria when reviewing applications for new Entrances or alterations to Entrances:

- 2.1.1 public safety;
- 2.1.2 protection of the public through the orderly control of traffic movements onto and from County Roads, including possible requirements for left and/or right turn lanes;
- 2.1.3 providing legal access onto County Roads from adjacent private or public property;
- 2.1.4 required sight distance, safe grade, and alignment conditions for all traffic using the proposed Entrance;
- 2.1.5 maintaining the orderly flow of the traffic traveling on the County Roads;
- 2.1.6 no undue interference with the safe movement of through traffic;
- 2.1.7 protection of the public investment in the County Roads and minimizing County expenditures on the maintenance of private or public Entrances; and
- 2.1.8 reducing future maintenance problems and reconstruction costs.

2.2 PERMITS REQUIRED

- 2.2.1 Entrance Permits are required for:
 - 2.2.1.1 construction of a new Entrance:
 - 2.2.1.2 changing the design of an existing Entrance;
 - 2.2.1.3 changing the location of an existing Entrance;
 - 2.2.1.4 changing the use of or classification of an existing Entrance;
 - 2.2.1.5 paving an existing entrance; and

2.2.1.6 construction of a Temporary Entrance for the use of any part of the highway right-of-way as a means of temporary access.

2.3 ENTRANCE PERMIT APPLICATION

- 2.3.1 The Entrance Permit Application Form is available at the County's Administration Building and at www.county.simcoe.on.ca.
- 2.3.2 All applications are to be completed and delivered or mailed to the office of the County c/o the Transportation and Engineering Department, Transportation Construction Manager with the applicable application fee, in the Fees and Charges By-law, and detailed plans and specifications to the satisfaction of the Transportation Maintenance Manager of the Transportation and Engineering Department.
- 2.3.3 For Commercial, Industrial, Institutional and Multi-Unit Residential Entrances and Public Road Intersections, engineering drawings (plan and profile) of the Entrance, including related grading and drainage details, shall be submitted to the County c/o the Transportation and Engineering Department, Transportation Construction Manager as part of the application for an Entrance Permit.
- 2.3.4 A sketch of the proposed location of the Entrance must accompany every application. The sketch must provide enough information to enable staff to locate the Entrance in the field i.e. dimensions to buildings and/or landmarks such as fences, hedgerows, tree lines, property lines, etc. In addition, the applicant shall stake out or suitably mark the location of the proposed Entrance for inspection by County staff.
- 2.3.5 Upon approval, the Entrance Permit will be forwarded to the applicant. Entrance Permits will expire six months following the date of issue if the Entrance is not completed. An Entrance Permit may be extended for one year from the date of issue upon written request. In the event of a plan of subdivision for which draft approval has lapsed, any Entrance Permit issued applicable to the plan will become null and void.
- 2.3.6 The applicant or their contractor shall notify the Transportation Maintenance Manager of the Transportation and Engineering Department at least 48 hours prior to commencement of construction of the Entrance.

- 2.3.7 It is the responsibility of the applicant to ensure that the construction of the Entrance is in accordance with the requirements of all applicable regulatory agencies having jurisdiction.
- 2.3.8 Applicants are bound by the conditions contained in the Entrance Permit.

2.4 EXISTING ENTRANCES

One legally existing Entrance to each lot of record at the time of the passage of this by-law will be permitted.

2.5 NEW ENTRANCES

- 2.5.1 Subject to section 2.5.2, Entrance Permits may be issued:
 - 2.5.1.1 for existing lots where no access has been previously established;
 - 2.5.1.2 for new Public Roads which intersect with County Roads; and
 - 2.5.1.3 where a new Entrance replacing an existing Entrance can be shown to establish superior Entrance standards and specifications.
- 2.5.2 New Entrances shall not be permitted to individual residential lots created on County Roads following June 30, 1996, except in urban settlement areas designated in Official Plans.
- 2.5.3 Where a subdivision or individual lot fronts on both a County Road and a Local Road, the Entrance will be from the Local Road, where feasible.
- 2.5.4 Direct access from single lots on to County Roads from a new plan of subdivision or condominium is not permitted.
- 2.5.5 Only one new Entrance will be permitted for each existing lot of record, if no alternate access exists and required safety measures can be provided.

2.6 TEMPORARY ENTRANCES

2.6.1 Entrance Permits may be issued for the construction of an Entrance for a specified period of time. Entrance Permits, when issued will be clearly marked as "temporary" and will specify the

date of expiry. In the event that the applicant requires an extension to the expiry date of a Temporary Entrance Permit, the applicant may apply in writing requesting an extension, provided this application is made at least 15 days prior to the current expiry date. The applicant will be required to submit the applicable fee for the entrance classification. The Transportation Maintenance Manager and/or the Transportation Construction Manager may require a security deposit for Temporary Entrances as a condition of approval. The amount of the security will vary with the circumstances.

- 2.6.2 Upon the expiry of a Temporary Entrance Permit, the applicant will be required to remove the Entrance and to restore the Boulevard to its original condition. Security deposits may be returned at such time as the County staff has inspected the site and are satisfied that the work is properly complete.
- 2.6.3 If at the expiry of a Temporary Entrance Permit, the applicant fails to remove the Entrance and restore the Boulevard to its original condition, the County may use the security deposit to perform the work on the applicant's behalf. If additional funds are required above and beyond the security deposit to complete the work, the County may request that the Treasurer of the local municipality include any part of the fees and charges imposed by the County to the tax roll pursuant to the provisions of sections 398 and 446 of the *Municipal Act*, 2001.

2.7 MUTUAL ENTRANCES

- 2.7.1 Mutual Entrances are discouraged due to potential ownership problems and should only be considered if individual Entrances are not possible due to physical constraints or because it is impractical to build a road due to the small number of lots involved. Entrance Permits may be issued for new Mutual Entrances, the conversion of an existing Entrance to serve separate existing lots, or for two or more main buildings on one lot provided that:
 - 2.7.1.1 the main buildings have the same use and qualify for the same entrance standard as set out in Section 3;
 - 2.7.1.2 the County Road frontage to the combined lots is 50 metres or greater;
 - 2.7.1.3 Minimum Sight Distance requirements are met; and

2.7.1.4 the proposed Mutual Entrance will not adversely affect traffic safety on the County Road.

2.8 ENTRANCE LOCATIONS

- 2.8.1 Generally, Entrances onto County Roads must be a minimum of:
 - 2.8.1.1 55 metres from an Intersection for residential, farm or field lots:
 - 2.8.1.2 100 metres from an Intersection for commercial, institutional, industrial or multi-unit residential lots; and
 - 2.8.1.3 15 metres from an "at grade" railway crossing (measured from centre-line of Entrance to the property line abutting the railway right-of-way).
- 2.8.2 Generally, Entrances onto County Roads are not permitted:
 - 2.8.2.1 adjacent to a lane which is identified for the purpose of an exclusive turning movement including, but not limited to, channelization, acceleration or deceleration;
 - 2.8.2.2 where Minimum Sight Distance requirements are not met; and
 - 2.8.2.3 where the Entrance would violate the design guidelines of the Ministry of Transportation, Transportation Association of Canada and County, whichever guideline is more restrictive.
- 2.8.3 The County may restrict the placement of an Entrance onto a County Road in the interest of public safety. New Entrances must be located so as to provide, in the opinion of the Transportation Maintenance Manager or Transportation Construction Manager of the Transportation and Engineering Department:
 - 2.8.3.1 no undue interference with the safe movement of public traffic, pedestrians, or other users of the County Roads; and
 - 2.8.3.2 favourable vision, grade, and alignment conditions for all traffic using the proposed Entrance to the County Road.

2.9 ENTRANCES ADJACENT TO BRIDGES

An Entrance adjacent to a Bridge or other structure which may interfere with the clear vision of traffic using the Entrance must be located so that it meets the minimum stopping sight distance requirements identified in section E.3 of the MTO Geometric Design Standards for Ontario Highways Manual, as amended.

2.10 EXCEPTIONS

- 2.10.1 Exceptions may be granted for proposed Entrances on existing lots where Minimum Sight Distance requirements cannot be met, subject to approval being granted by the General Manager of Corporate Services including the review and recommendation of the Transportation Maintenance Manager.
- 2.10.2 The applicant is required to submit a written request (with the applicable fee) to the General Manager of Corporate Services which sets out the reason an exception is requested.
- 2.10.3 If an exception is granted, it may be granted with conditions and the applicant may be required to enter into a Development Agreement with the County to be prepared and registered on title to the property in question at the applicant's expense.
- 2.10.4 The applicant is entitled to an appeal of the General Manager of Corporate Services decision which appeal will be to the Corporate Services Committee.
- 2.10.5 An appeal must be submitted in writing within 20 days of the date of the notice of decision to the County Clerk, with the applicable filing fee, as set out in the Fees and Charges By-law.
- 2.10.6 The Corporate Services Committee will hold a hearing and provide an opportunity for the applicant to be heard. No new evidence can be submitted to this Committee.
- 2.10.7 The decision of the Corporate Services Committee will be provided in writing to the applicant within 30 days of the hearing.
- 2.10.8 The Corporate Services Committee can attach such conditions as are reasonable to its decision including the entering into a Development Agreement with the County to be prepared and registered on title to the property in question at the applicant's expense. This decision is final and binding.

SECTION 3 - ENTRANCE STANDARDS AND SIGHT DISTANCES:

3.1 ENTRANCE STANDARDS

- 3.1.1 The maximum width of a Commercial, Industrial, Institutional, Multi-Unit Residential or Farm Entrance is 9.0 metres, unless otherwise approved by the Transportation Maintenance Manager or Transportation Construction Manager or his or her designate.
- 3.1.2 Residential Entrances must have a width of 5.0 to 6.0 metres and be constructed in accordance with Schedule "A" and Schedule "B" of this by-law.
- 3.1.3 The minimum turning radius for a Residential Entrance is 3.0 metres. The minimum turning radius for a Commercial Entrance is 15.0 metres. The turning radius at Intersections must be either 20 metres; or a 12.5/20 metre or 16/80 metre compound curve.
- 3.1.4 The minimum size of Entrance culvert is 450 mm in diameter. The length and diameter of the culvert will be based on site conditions and drainage flow volumes.
- 3.1.5 Entrance construction materials must meet Ontario Provincial Standards or be approved by the Transportation Maintenance Manager or Transportation Construction Manager or his or her designate.
- 3.1.6 If the Entrance requires a Bridge, the design of the Bridge must be prepared by a qualified professional engineer and is subject to the approval of the Transportation Maintenance Manager or Transportation Construction Manager or his or her designate.
- 3.1.7 All Entrance culverts must be constructed to the proper grade to provide the free and unimpeded flow of water through the culvert.
- 3.1.8 Concrete headwalls must not be higher than the level of the road shoulder at the rounding and must meet Ontario Provincial Standards unless otherwise approved by the Transportation Maintenance Manager or Transportation Construction Manager or his or her designate.
- 3.1.9 Each Entrance to a County Road must be designed, constructed and maintained in a manner that will prevent surface water from being discharged via the Entrance or adjoining property onto the County Road.

3.2 SIGHT DISTANCES

- 3.2.1 Where the posted speed limit is 80 km/h, new Entrances must meet all of the following minimum requirements:
 - 3.2.1.1 Minimum Sight Distance as per Table 1 and Table 2, as applicable;
 - 3.2.1.2 horizontal curve is 400 metre radius or greater; and
 - 3.2.1.3 maximum grade on the County Road is 3% or less.
- 3.2.2 Where the posted speed limit is less than 80km/h, new Entrances must meet all of the following minimum requirements:
 - 3.2.2.1 Minimum Sight Distance as per Table 1 and Table 2, as applicable;
 - 3.2.2.2 horizontal curve is 300m radius or greater; and
 - 3.2.2.3 maximum grade on the County Road is 6% or less.

TABLE 1

Speed Limit - km/h	Minimum Sight Distance (Metres)*
50	135
60	170
70	200
80	230

TABLE 2

Posted Speed Limit - km/h	Decrease for l	Jpgrade	Increase for Downgrade		
-	3%	6%	3%	6%	
50	- 5m.	- 5m.	nil	+5m.	
60	- 5m.	- 5m.	+5m.	+10m.	
70	- 5m.	- 10m.	+5m.	+10m.	
80	-10m.	- 15m.	+10m.	+15m.	

^{*} Table 2 provides factors (in metres) where the Entrance is located on a grade on the County Road.

SECTION 4 - INSPECTION AND MAINTANENCE

4.1 INSPECTION

4.1.1 A field inspection may be carried out by County staff upon completion of the Entrance.

- 4.1.2 The County may require that modifications be performed if the installation of the Entrance does not conform to the plans and specifications submitted to obtain the Entrance Permit.
- 4.1.3 In the event that modifications are required, the County shall provide written notice of the modifications to the applicant at the applicant's address as shown on the Entrance Permit application. The applicant shall carry out the required modifications within 45 days of the date of the written notice and is responsible for the cost of the inspection and any modifications required.
- 4.1.4 If the applicant fails to carry out the required modifications within 45 days, as set out above, the County may have the required modifications completed by employees or agents of the County. The County may request that the Treasurer of the local municipality include any part of the fees and charges incurred by the County to the tax roll pursuant to the provisions of sections 398 and 446 of the *Municipal Act*, 2001.

4.2 MAINTENANCE

- 4.2.1 Upon approval of a culvert installation, the culvert will become the property of the County and all subsequent maintenance and repairs will be the responsibility of the County.
- 4.2.2 The Owner of a property, served by an Entrance, shall be responsible for maintaining the surface of each Entrance for a distance extending from the property line to the shoulder of the County Road.
- 4.2.3 The County shall maintain only that portion of the Entrance from the traveled portion of the road to the outer edge of the shoulder.

SECTION 5 - REVOCATION, APPEAL AND COSTS

5.1 REVOCATION OF PERMITS

- 5.1.1 The County may revoke an Entrance Permit issued under this bylaw for the following reasons:
 - 5.1.1.1 it was issued based on mistaken, false or incorrect information;
 - 5.1.1.2 in the opinion of the Transportation Maintenance Manager of the Transportation and Engineering Department, the construction is substantially

suspended or discontinued for a period of more than one year;

- 5.1.1.3 it was issued in error;
- 5.1.1.4 the applicant requests in writing that it be revoked; or
- 5.1.1.5 a condition of the Entrance Permit has not been complied with.
- 5.1.2 In the event that the applicant breaches any of the conditions contained in the Entrance Permit, the County may use its own employees or agents to complete the work required under the Entrance Permit or to remove the Entrance works and re-instate the prior roadway condition and may collect the cost of the work pursuant to the provisions of sections 398 and 446 of the *Municipal Act*, 2001.

5.2 APPEALS

- 5.2.1 An applicant may appeal the decision of the Transportation Maintenance Manager of the Transportation and Engineering Department with respect to the issuance of the Entrance Permit or any of its conditions to the Corporate Services Committee.
- 5.2.2. The applicant is required to submit a written notice of appeal to the Transportation Maintenance Manager of the Transportation and Engineering Department which sets out the reasons for the appeal and must be accompanied by the applicable fee prescribed in Schedule "C" and the Fees and Charges By-law.
- 5.2.3 The decision by the Corporate Services Committee is final and binding.

5.3 COSTS

- 5.3.1 All costs associated with an Entrance Permit are the responsibility of the applicant. These costs may include, but are not limited to, applicable Entrance Permit application fees, construction materials and labour, utilities, traffic control devices, layout, surveying, legal costs and removal of non-conforming works. Refer to current Fees and Charges By-law for applicable fees.
- 5.3.2 Where an applicant fails to comply with the requirements or provisions of this by-law, the County may recover the expense by requesting that the Treasurer of the local municipality include any part of the fees and charges incurred by the County to the tax roll

pursuant to the provisions of sections 398 and 446 of the *Municipal Act, 2001*.

SECTION 6 - ADMINISTRATION AND ENFORCEMENT

- 6.1 This by-law will be administered by the General Manager of Corporate Services and his or her designate except the provisions regarding recovery of costs which will be administered by the County's Treasurer and his or her designate.
- 6.2 This by-law shall be enforced by the persons appointed pursuant to section 15 of the *Police Services Act* and referred to in this by-law as Municipal Law Enforcement Officers.
- 6.3 No Person shall create or alter an Entrance or change the classification or use of an Entrance onto a County Road without first having applied for and obtained an Entrance Permit from the County.
- 6.4 Any Person who contravenes any of the provisions of this by-law is guilty of an offence and upon conviction is liable to a fine as provided for in the *Provincial Offences Act*, R.S.O. 1990, as amended, and such fine is recoverable under the *Provincial Offences Act*, R.S.O. 1990, as amended.
- 6.5 If a Person has been convicted of an offence under this by-law, pursuant to section 431 of the *Municipal Act, 2001*, the court in which the conviction has been entered may, in addition to any other penalty or other remedy imposed, make an order prohibiting the continuation or repetition of the offence.

SECTION 7 - GENERAL

7.1 SEVERABILITY

If any provision of this by-law is declared invalid for any reason by a court of competent jurisdiction, the remainder of this by-law shall still continue in force.

7.2 REPEAL

By-law No. 4206 as amended is hereby repealed.

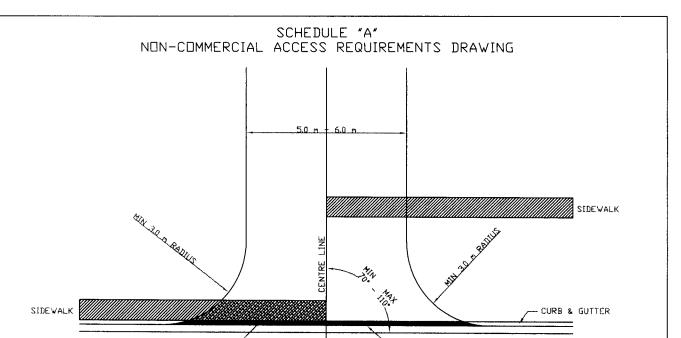
7.3 EFFECTIVE DATE

This by-law will come into force and take effect on the date it is passed by the Council of the County.

By-law read a first, second and third time and finally enacted this 25th day of September, 2007.

Tony Guergis, Warden

Glen Knox, County Clerk

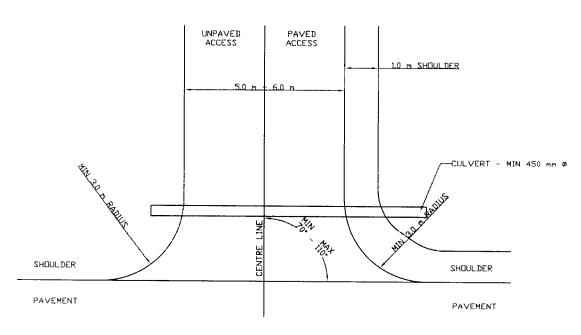


EXISTING CURB & GUTTER

RAMPED SIDEWALK

DEPRESSED CURB

- PAVEMENT



Notes:

VINIMUM RADIUS SHALL BE NO LESS THEN 3.0m

CCCESS WIDTH SHOULD BE A MINHUM OF 5.0m

3. THE ANGLE IN WHICH AN ACCESS SHALL APPROACH THE COUNTY ROAD

SHALL BE A MINHUM OF 70° AND A MAXIMUM OF 110°

4. MINIMUM DITCH SLOPE OF 2 : 1

COUNTY OF SINCOP

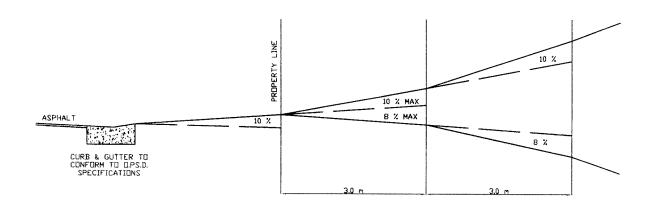
County of Sincop

Transportation
Department
Administration
Centre
Middurst, DN
LOL 1X0

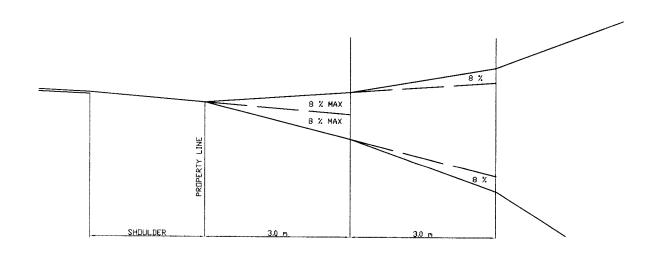
Drawing Title:
Simcop County Non-Commercial
ACCESS Requirements:

Scale: NTS Date: March 13, 2006
Transporation Construction Manager:
ST-002

SCHEDULE "B" STANDARD ACCESS PROFILE DRAWING



EXISTING GUTTER



EXISTING DITCH

County of Simcoe

Transportation
Department
Administration
Centre Midhurst,
ON LOL 1X0



Drawing Title:

Simcoe County Standard
Access Profile

Scale: NTS Date: March 14, 2006 Drawing No: Iransportation Construction Manager: ST-003

James E. Hunter

ST-003

ENTRANCE BY-LAW #5544 SCHEDULE "C" ENTRANCE PERMIT APPLICATION FEE SCHEDULE



THE CORPORATION OF THE COUNTY OF SIMCOE TRANSPORTATION AND ENGINEERING DEPARTMENT 1110 HIGHWAY 26, COUNTY ADMINISTRATION CENTRE MIDHURST, ONTARIO LOL 1X0

PH: 705-726-9300 FAX: 705-727-7984

ENTRANCE PERMIT APPLICATION FEE SCHEDULE

Entrance Classification	<u>Fees</u>
Residential, Farm, Field	\$100.00
Commercial, Industrial, Institutional, Multi-unit Residential, Mutual Access, Public Road, Temporary	\$150.00
All Classifications Pave an Existing Entrance	\$100.00

Exception Requests	<u>Fees</u>
Requests to Corporate Services Committee for an Exception to the By-law's Minimum Sight Distance requirements - Development Agreement required	\$100 (*plus actual costs)

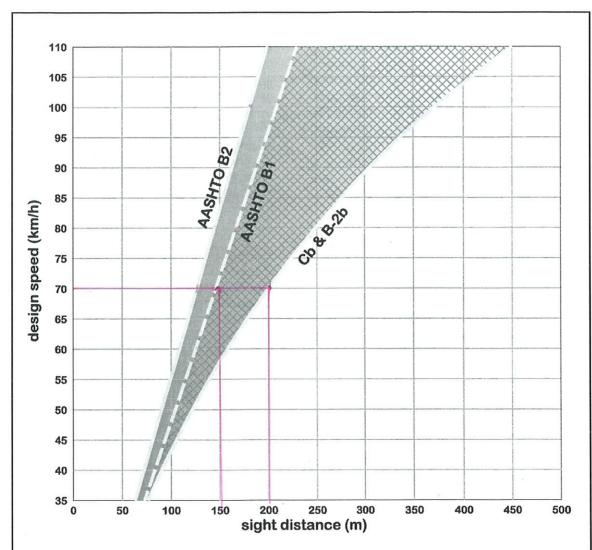
<u>Appeals</u>	<u>Fees</u>
Appeals to Corporate Services Committee for an Exception to the By-law Requirements	\$125.00

Notes:

- Entrances to municipally owned properties are exempt from the above-noted fees.
- Temporary Entrance applications will require a security deposit (minimum \$2,000 to a maximum of \$10,000) depending on the circumstances.
- Completed applications should be returned to the address identified above.
- Application fees are payable by cash, cheque or money order payable to: The Corporation
 of the County of Simcoe



Figure 2.3.3.4b Sight Distance for Turning Movements with Vehicles approaching in the Intended Direction of Travel



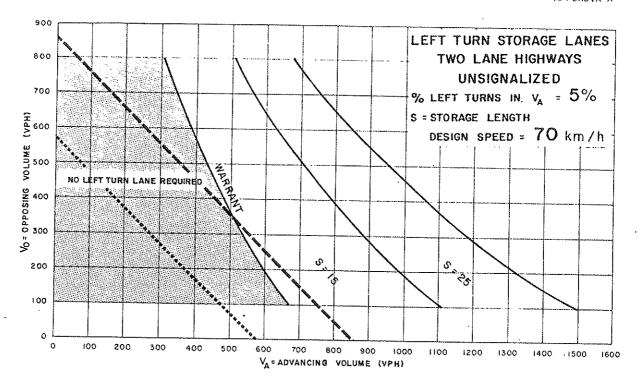
Area bounded by AASHTO B1 and B-2b (crosshatched) – design domain for sight distance for passenger vehicle to turn left onto a two-lane roadway without being overtaken by a vehicle approaching from the right.

Area bounded by AASHTO B2 and Cb (shaded) – design domain for sight distance for passenger vehicle to turn right onto a two-lane roadway without being overtaken by a vehicle approaching from the left.

December 2011 Page 2.3.3.9

APPENDIX I

MTO GDSOH Auxiliary Lane Warrants



TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

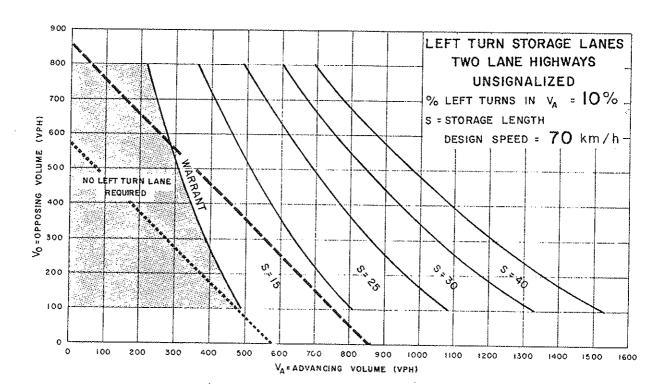
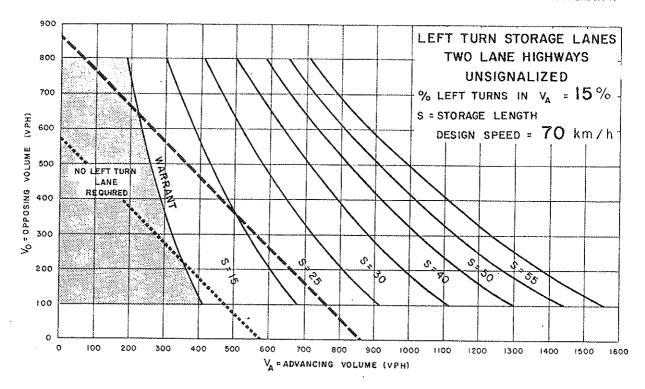


Figure EA-10



TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

TRAFFIC SIGNALS MAY BE WARRANTED IN
"FREE FLOW" URBAN AREAS

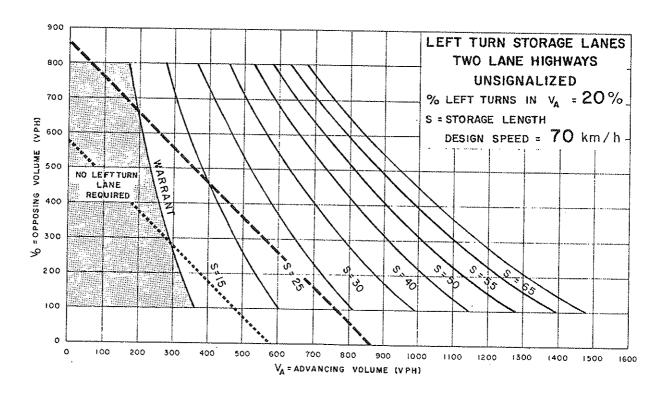
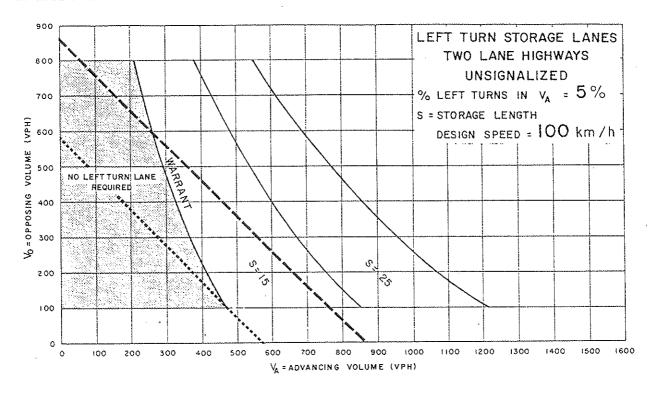


Figure EA-11



TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL
AREAS OR URBAN AREAS WITH RESTRICTED FLOW

TRAFFIC SIGNALS MAY BE WARRANTED IN

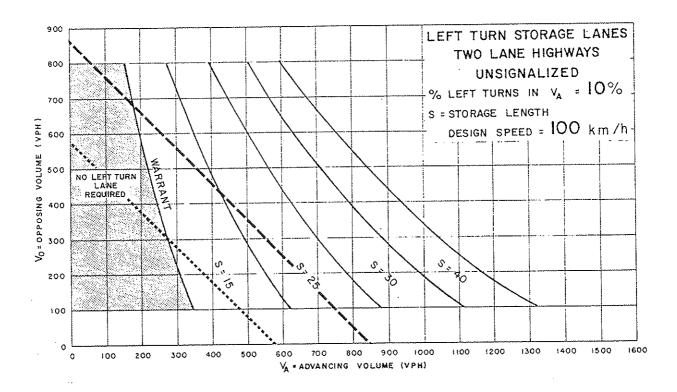
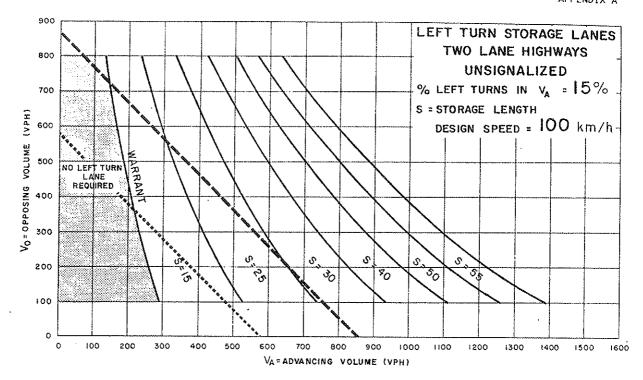


Figure EA-22

AT-GRADE INTERSECTIONS APPENDIX A



TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

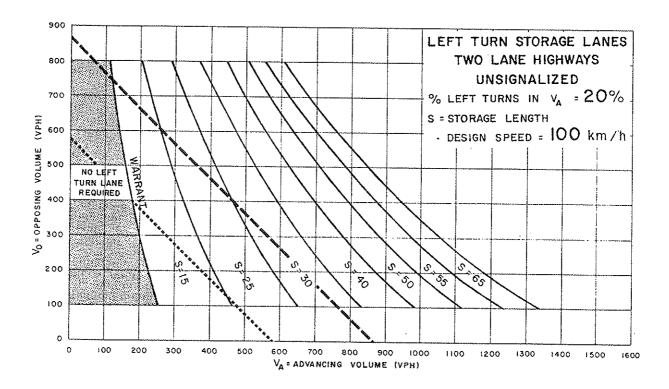
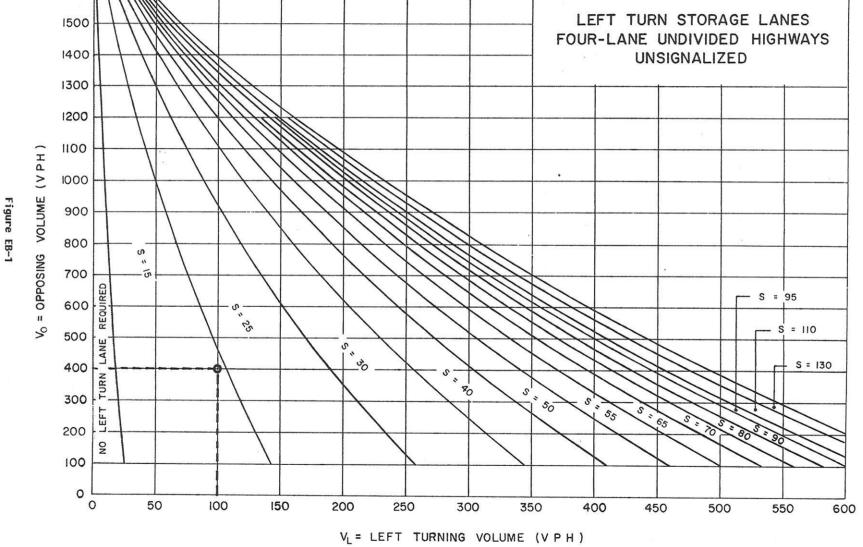


Figure EA-23

1600



APPENDIX J

Adjala-Tosorontio By-Law Excerpts

AS AMENDED BY ONTARIO MUNICIPAL BOARD DECISION PL130594 DATED OCTOBER 30, 2013

THE CORPORATION OF THE TOWNSHIP OF ADJALA-TOSORONTIO

BY-LAW NO. 13-14

A BY-LAW TO AMEND ZONING BY-LAW NO. 03-57, AS AMENDED OF THE TOWNSHIP OF ADJALA-TOSORONTIO TO REZONE CERTAIN LANDS ALONG BOTH NORTH AND SOUTH SIDES OF HIGHWAY 89 BETWEEN COUNTY ROAD #50 AND THE LANDS BORDERING THE TOWN OF NEW TECUMSETH SITUATED AT LOT 32 CONCESSIONS 6 & 7 IN THE FORMER TOWNSHIP OF ADJALA AND PART OF LOT 1 CONCESSIONS 6 & 7 IN THE FORMER TOWNSHIP OF TOSORONTIO FOR THE PURPOSES OF IMPLEMENTING AN EMPLOYMENT CORRIDOR

WHEREAS Zoning By-law No. 03-57, as amended, constitutes the comprehensive Zoning By-law for the Township of Adjala-Tosorontio save and except those lands within the Oak Ridges Moraine area and regulates the use of lands and the character, location and the use of buildings and structures within the Township of Adjala-Tosorontio;

AND WHEREAS it is deemed necessary and desirable to further amend By-law No. 03-57, as amended by rezoning the lands described above from their existing zone to the Employment (E) Zone;

AND WHEREAS authority to pass this By-law is provided pursuant to Section 34 of the Planning Act, R.S.O. 1990 c.P. 13, as amended;

AND WHEREAS this By-law amendment will conform to the Official Plan of the Township of Adjala-Tosorontio;

NOW THEREFORE the Council of the Corporation of the Township of Adjala-Tosorontio enacts as follows:

- 1. THAT Schedule "B-8" to By-law 03-57, as amended, is hereby further amended by changing the zoning of Lot 32 Concession 6 and Lot 32 Concession 7 in the former Adjala Township and in Part of Lot 1 Concession 6 and Part of Lot 1 Concession 7 in the former Tosorontio Township from Agriculture (A) Zone, General Commercial (C1) Zone, General Commercial Exceptions 1, 4, and 7 (C1-1, C1-4, C1-7), Highway Service Commercial (C2) Zone, Institutional (I) Zone, Hamlet Residential (HR1) Zone, Hamlet Residential Exceptions 10, 11, and 13 (HR1-10, HR1-11, HR1-13), Estate Residential Zone, General Industrial (M1) Zone, and General Industrial Exceptions 1, 4, and 9 (M1-1, M1-4, M1-9) Zone to Employment (E) Zone, subzone E1, E1 Exceptions (E1-1, E1-2, E1-3) Zone, E-1 Hold (E1(H-1)) Zone, subzone E2, (E2 Exception E2-1) Zone and E-2 Hold (E2(H-1)) on Schedule "A", attached hereto.
- 2. **THAT** Section 2 Definitions, of By-law 03-57, as amended, is hereby further amended by adding the following:
 - "2.4 a) Agricultural Supply Outlet shall mean wholesale sales and/or service of agricultural-related products in support of the farming community."
 - "2.5 a) Animal Hospital or Veterinary Clinic shall mean an office use for the temporary accommodation, care and impoundment of animals within an enclosed building but does not include a kennel."
 - "2.7 a) Auction Facility shall mean the premises used for the sale of items from time to time, in which the price is determined through bidding and may include a staging area for large items on the day of the sale."

- "2.14 a) Cardlock Facility means an unmanned premise where petroleum and propane products are purchased for the use of fleet and/or professional drivers."
- "2.29 a) Distribution Facility means a building or structure used to store products for re-distribution, and may include facilities for the service and repair of the vehicles used for distribution."
- "2.30 a) Dry Use means a use which uses water for domestic purposes only and results only in the production of domestic sewage. Domestic Sewage includes waste from toilet, kitchen, shower and sink waste from offices, factories, institutions, retail or other similar places of employment and restaurants and banquet halls. Domestic sewage does not include chemical or industrial plant effluent that is used in the manufacturing, fabricating, production or assembly processes nor waste as a result of the wholesale processing of food (such as canning or meat packing)."
- "2.44 a) Greenhouses shall mean a building with a glass or plastic roof used for the growing of flowers, fruit, vegetables, plants, shrubs, trees and similar vegetation for any purpose which may include associated retail of plants, supplies and seasonal items."
- "2.68 a) Machinery and Equipment Sales and Service shall mean the use of any lot, structure or building where new and/or used equipment for agricultural or construction uses are stored or displayed for sale, rent, or repair."
- "2.68 b) Manufacturing, fabricating, assembling and/or processing and operations of materials shall mean the creation or assembling of standardized material by skill or labour for the making or treatment of a product but shall not mean an outdoor bulk storage yard used for materials for storage or sale."
- "2.89 a) A Self-Storage Facility shall mean a facility for the temporary storage of household, recreational, commercial or seasonal equipment, vehicles or boats and will generally have a secured storage unit or locker with access by way of a loading door."
- "2.90 a) Service Station shall mean a building or structure used for the servicing and repairing of motorized vehicles and trailers, but does not include the sale of petroleum or hydrogen products."
- "2.104 a) Wholesale Establishment shall mean the building and premises for the wholesale distribution of products or goods to other wholesale or retail establishments but not including wholesale directly for public retail."
- THAT By-law 03-57, as amended, be further amended by adding Section 21 – Employment (E) Zone comprised of subzones E1 and E2. The E1 Zone is comprised of commercial industrial uses and the E2 Zone is comprised of light industrial park uses :
 - "Section 21 Employment (E) Zone
 - 21.1 <u>Permitted Uses</u> within the Employment Zone are identified on the following Table 1. Permitted uses in a zone are marked with a letter 'x' in the column for that zone corresponding with the row for that permitted use.

Within the Employment Zone, no person shall use any lot or erect, alter or use any building or structure for any purpose except one or more of the following uses:

Table 1 – Permitted Uses in the Employme	E1 Zone	E2 Zone
Zone	E1 Zone	EZ Zone
Agricultural and Related Uses		
An agricultural supply outlet	X	
An animal hospital or veterinary clinic	Х	X
A farm produce storage facility	Х	
A feed mill	Х	X
Greenhouses	X X X	
A welding or machine shop	X	
Machinery & equipment sales and service establishment	X	
A seed cleaning plant	Х	
Automotive and Related Uses		
A bus or trucking operation	X	X
Cardlock Facility	X	X
Distribution Facility		X
A parking lot, parking structure or commuter	X	X X X
lot		
Service Station	X	Х
Building Trades and Related Uses		
A contractor or trades shop	X	
A saw mill	X	X
2		
General Industrial and Related Uses		
An auction facility	X	
Manufacturing, fabricating, assembling		X
and/or processing of materials and		
operations		
A self storage facility	X	X
A warehouse	X	X
A wholesale establishment	Х	
Eviating upon at the time of page 22 of the	X	X
Existing uses at the time of passage of the	_ ^	

21.2 Zone Requirements

Within the Employment (E) Zone, no person shall use any lot, or erect, alter, or use any building or structure for any purpose except in accordance with the following provisions:

Zone	Use	Lot Stand	Yard Standard (m)					
	Туре	Frontage (metres)	Area (ha)	Maximum Coverage	Front	Int Side	Ex Side	Rear
E1	Private services	60m	.8	25%	15.0	5.0	15.0	7.5
	Municipal Services	30m	.4	50%	10.0	5.0	10.0	7.5
E2	Private Services	60m	.8	30%	15.0	5.0	15.0	5.0
	Municipal Services	30m	.4	50%	10.0	5.0	10.0	5.0

- 21.2.1 All development is subject to Ministry of Transportation review and approval within the required MTO setbacks. All development fronting County Road #50 is subject to County of Simcoe review and approval within their required setbacks;
- 21.2.2 Building Heights shall correspond with provisions set out in Section 3 General Provisions of By-law 03-57.

- 21.3 Parking and Loading Spaces shall be provided in accordance with Section 3.12 and 3.24 of By-law 03-57, and the following:
 - 21.3.1 All entrances, aisles. loading and parking areas shall be surfaced with a hard surface such as asphalt, concrete or interlock paving stone so as to provide a surface that is durable and dust free.
 - 21.3.2 Parking and loading areas shall not be located between Highway 89 and the closest building exterior. Parking and loading areas located on the interior or exterior side yards shall be effectively screened with suitable landscaping.
 - 21.3.3 Minimum parking requirements for the E1 and E2 zones are set out in Table 2 below. In the event of a conflict with Section 3.24 of Zoning By-law 03-57, the more stringent parking standard shall apply:

Tabl	e 2 Minimum Parking Red	quirements for E-1 Zone and E-2 Zone
.1	Agricultural Supply Outlet, Greenhouses and Self-Storage Facility	1 space per 35m² (377 ft²) of total gross floor area with a minimum of 25 spaces
.2	Auction Facility	1 space per 30m ² (323 ft ²) of gross floor area
.3	Service Station	3 spaces / service bay plus one space for every 20m² (215 ft²) of net floor space for office uses
.4	Cardlock Facility	3 spaces (minimum)
.5	Distribution Facility	1 space per 20m ² (215ft ²) of gross floor area plus 1 space for every 150m ² (1615ft ²) of gross floor area of non- office component
.6	Bus or Trucking Operation	1 parking space per 100m² (1076 ft²) of gross floor area or 1.5 spaces per employee per shift, whichever is more stringent
.7	Contractor, Trades Shop including a Welding or Machine Shop	1 parking space per 35m² (377 ft²) of gross floor area
.8	Farm Produce Storage Facility, Feed Mill, Saw Mill and Seed Cleaning Plant	1 parking space per 50m² (538 ft²) of gross floor area
.9	Animal Hospital or Veterinary Clinic	5 spaces per practitioner
.10	Machinery and Equipment Sales and Service Establishment	1 parking space per 19m² (204.5 ft²) of gross floor area
.11	Manufacturing, Fabricating, Assembling and/or Processing of Material and Operations	1 parking space per 50m² (538 ft²) of gross floor area or 1.5 spaces per employee per shift, whichever is more stringent
.12	Parking Lot, Parking Structure	1.5 spaces per employee
.13	Warehouse or Wholesale Establishment	1 parking space per 100 m² (1076 ft²) of gross floor area or 1.5 parking spaces per employee per shift, whichever is more stringent

21.4 Special Provisions

- 21.4.1 Where development abuts a zone permitting residential uses, either a continuous landscape buffer having a minimum width of 2.0 metre (6.6 feet) or a continuous 2.0 metre (6.6 feet) high tight board fence shall be provided on all common lot lines shall be provided as a minimum treatment.
- 21.4.2 Generally, no outside storage or inventory is to be permitted within any yard located between Highway 89 and the closest building exterior. Outside storage may be permitted through Site Plan so long as visual screening, using a combination of berming, opaque fencing and/or effective landscape treatment, is provided. The maximum height for permitted storage shall not exceed 5 m (16.4 ft).
- 21.4.3 In addition to landscape treatment required under Site Plan approval, a continuous 5.0m landscape buffer shall be provided to the satisfaction of the Township on all lots abutting Highway 89.
- 21.4.4 All development shall provide structures to contain garbage or refuse and be approved under Site Plan Control.
- 21.4.5 All development is subject to Site Plan Control as approved by Council or as delegated. Each site plan shall provide the appropriate Site Plan Layout, Site Grading/Servicing, Landscape and Architectural Plans by their respective qualified professional in accordance with By-law 01-17 as amended.
- 21.4.6 The continuation of existing residential uses are permitted.
- 21.4.7 Site Plan approval shall be subject to the completion and acceptance by the Township of a Market Study if the size of any single use structure proposed within the Employment (E) Zone is greater than 3,252m2 (35,000 ft²) in area. The Market Study shall be peer reviewed in accordance with Township Official Plan policies.
- 21.4.8 Uses permitted under the Employment (E) Zone are permitted accessory retail for products created on-site.

21.5 Holding Provisions

- 21.5.1 The Holding provision, indicated by the symbol 'H' preceding a zone classification sets out that a holding bylaw is in force and further development is held until Council is satisfied that certain conditions have been met. To remove the holding symbol 'H', it is necessary to amend this Zoning By-law.
- 21.5.2 Where an existing dwelling unit is located on lands subject to the Holding symbol 'H', an addition or alteration to that dwelling is permitted while the holding symbol is in effect. Such addition or alteration shall be undertaken in conformity with the provisions of Employment Lands (E) Zone.

- 21.5.3 Any land that is subject to the Holding symbol 'H' shall maintain its lot area and lot frontage as it existed on the day of passing of this zoning by-law.
- 21.5.4 All lands within the Employment Lands (E) Zone are subject to a Hold (H) provision which may only be considered for removal following the approval and registration of a Site Plan Agreement.
- 21.5.5 All lands abutting an Open Space Conservation (OSC) Zone or an Open Space Recreation (OSR) Zone will require the preparation and acceptance of Floodplain mapping and/or Meanderbelt or similar studies, as required, to the satisfaction of the Nottawasaga Valley Conservation Authority and the Township of Adjala-Tosorontio prior to the removal of any Hold (H-1).

21.6 Zone Exceptions:

21.6.1 Schedule B-8, Part of the West Part of Lot 32, Concession 7, Highway 89 (Adjala), PIF: 010-003-123-00

Notwithstanding anything to the contrary found in this Bylaw, the lands zoned E1-1 shall be used for an Ambulance Service and accessory uses in addition to the permitted uses in the E Zone.

All other provisions of the Employment (E) Zone shall apply.

21.6.2 Schedule B-8, Part Lot 1, Concession 7, Tosorontio By-law 91-49, PIF: 020-002-073-00

Notwithstanding anything to the contrary found in this Bylaw, the lands zoned E1-2 shall be subject to the following provisions:

- i) The minimum lot frontage shall be 20 metres;
- ii) The minimum lot area shall be 800 square metres;
- iii) The minimum lot depth shall be 39 metres;
- iv) The buildings existing on the property on the date of passage of this By-law shall be deemed to comply with the interior side yard and rear setback requirements of the Employment Lands (E) Zone.

All other provisions of the Employment (E) Zone shall apply.

21.6.3 Schedule B-8, Part of the East Half of Lot 1, Concession 6 being Block 16 on Plan 51M-502, 4936 Dean Drive, Tosorontio By-law 00-5, PIF: 020-002-030-16-00

Notwithstanding anything to the contrary found in this Bylaw, the following provisions shall apply to lands zoned E2-1.

The minimum distance between a light industrial use and any residential use shall be 30 metres.

All other requirements of the Employment (E) Zone shall apply.

21.6.4 Schedule B-8, Part of the West Part Lot 32, Concession 6 (Adjala) PIF: 010-003-086-00

Notwithstanding anything to the contrary found in this Bylaw, the following provisions shall apply to the lands zoned E1-3:

A ready-mix concrete batching plant and portable asphalt plant shall be permitted uses on this site along with the necessary ancillary uses such as truck storage and outdoor storage of aggregate materials.

All other provisions of the Employment (E) Zoning shall apply.

- 21.7 THAT Schedule "A" is hereby declared to form part of this By-law.
- 21.8 **THAT** this By-law shall come into force on the date of passage and take effect the day after the last date for filing a notice of appeal where no notice of appeal is received, or, where a notice of appeal is received, upon the approval of the Ontario Municipal Board, and, in either case, in accordance with the provisions of the Planning Act, R.S.O. 1990, Ch. P.13, as amended.
- 21.9 **THAT,** notwithstanding anything contrary to the rules of procedure, this By-law, having been introduced and read a first and second time this 2nd day of April, 2013.

AS AMENDED BY ONTARIO MUNICIPAL BOARD DECISION PL130594 DATED OCTOBER 30, 2013

MAYOR TOM WALSH

AS AMENDED BY ONTARIO MUNICIPAL BOARD DECISION PL130594 DATED OCTOBER 30, 2013

CLERK BARBARA KANE

21.10 Read and considered a third time and finally passed this 6th day of May, 2013.

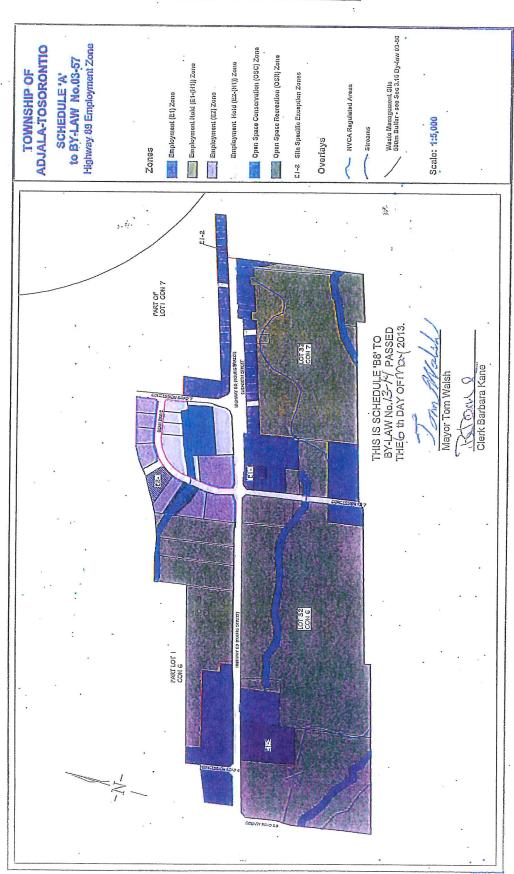
AS AMENDED BY ONTARIO MUNICIPAL BOARD DECISION PL130594 DATED OCTOBER 30, 2013

MAYOR TOM WALSH

AS AMENDED BY ONTARIO MUNICIPAL BOARD DECISION PL130594
DATED OCTOBER 30, 2013

CLERK BARBARA KANE

Schedule 'A' to By-law No. 13-14



AS AMENDED BY ONTARIO MUNICIPAL BOARD DECISION PL130594 DATED OCTOBER 30, 2013

APPENDIX K

MTO Highway Access Management Guidelines Excerpts

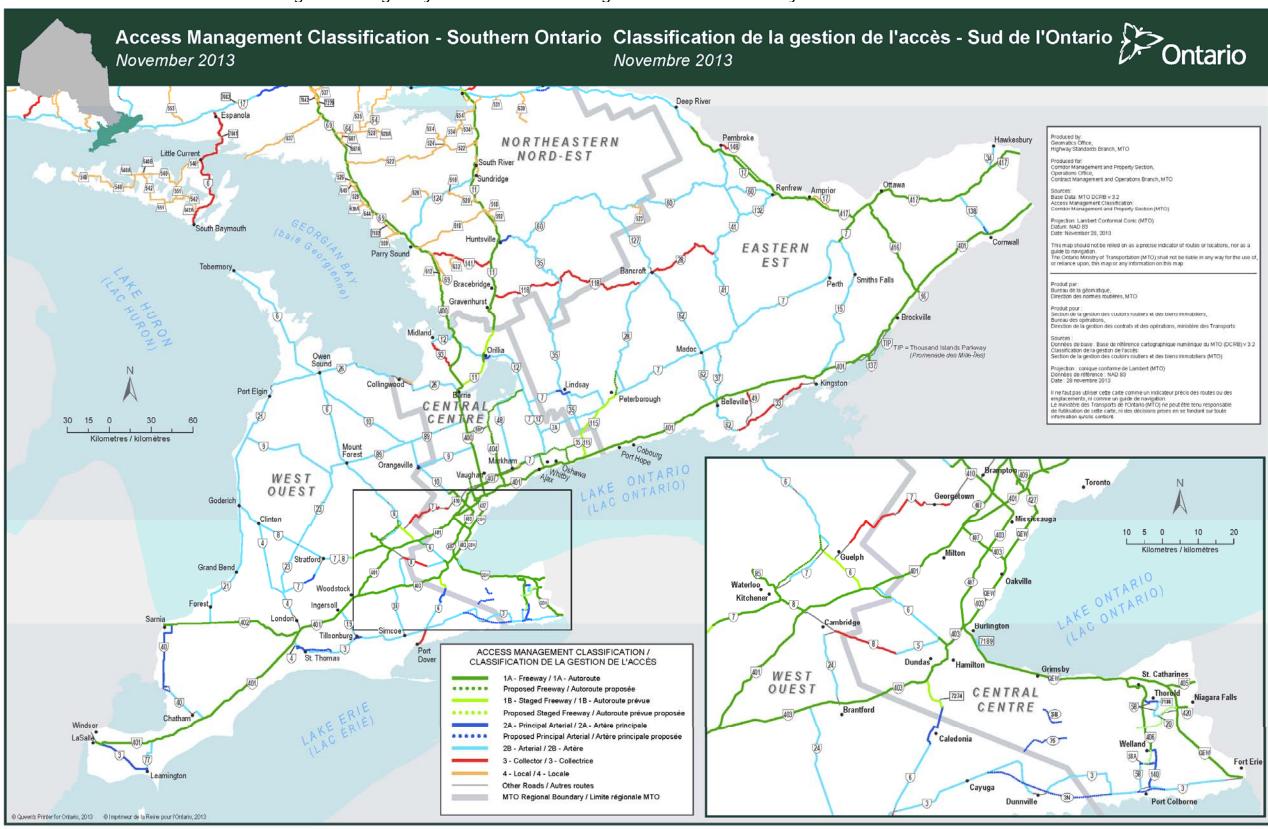


Figure 5: Highways in the Access Management Classification System - Southern Ontario

Table 1.	C	, of otopdordo	for the enceine	and dancity	, of workers of	acces compostion tunes
Table 4:	Summarv	v oi standards	for the spacing	i and density	<i>i</i> oi various ad	ccess connection types

	Highway Access Management Classification System Category Controlled-Access Highway (CAH) or King's Highway (KH)			Minimum Interchange Spacing*	Public Road Intersection Spacing Signalized / Unsignalized Commercial / Private Road Access Spacing Signalized / Unsignalized**		Total Private Access Density*** / km / side	Minimum Total Pre-Severance Frontage Requirement for the Creation of a New Lot of Record****	
							New Access Connection	Mutual Access	
1A	\ 	Freeway	Fully CAH	3.0 - 8.0 km - Desirable	N/A	N/A	N/A	N/A	N/A
1B	-	Staged Freeway	rully CAH	2.0 km - Minimum	3.0 - 8.0 km - Desirable ^a 2.0 km - Minimum ^a	N/A	N/A	N/A	N/A
2A		Principal Arterial	Fully CAH	3.0 - 8.0 km - Desirable 2.0 km - Minimum	3.0 - 8.0 km - Desirable ^a 2.0 km - Minimum ^a	N/A	N/A	N/A	N/A
2B	3 -	Arterial	CAH / KH	N/A	1600 m – Desirable ^b 800 m - Minimum ^c	1600 m – Desirable ^b 800 m - Minimum ^c	4	500 m	250 m
3	3 -	Collector	КН	N/A	800 m - Minimum ^c	800 m - Minimum ^c	6	300 m	150 m
4	۱-	Local	КН	N/A	400 m - Minimum ^c	400 m - Minimum ^c	8	250 m	125 m

(The colours shown above correspond to the colour for each Access Management Classification system category of the proposed highway on the maps in Figure 6 and Figure 7.)

All existing access connections to legal lots of record are permitted to remain. Creation of a new access connection for the creation of a new lot (e.g. severance by consent) or change in access connection use (e.g. land use change – Residential / Farmstead to Commercial) is strictly controlled in accordance with this chart and the Highway Access Management Guideline.

- * Desirable or minimum spacing between interchanges is measured from the centre point of the crossing road from one interchange to the centre point of the crossing road of the next interchange
- ** New Commercial / Private Road access connections will only be considered if there is no existing Public Road or other Commercial / Private Road access located within the specified spacing requirement, regardless of which side of the highway it is located. New Commercial / Private Road access connections shall be located in accordance with the specified spacing requirement, which is measured from the centreline of the existing Public Road or other Commercial / Private Road.
- ***Total Private Access Density per km per side is the maximum density for any one side of the highway. The creation of a new access connection for the creation of a new lot (e.g. severance by consent) will only be considered if the Access Density can accommodate the new access connection, regardless if the Minimum Total Pre-Severance Frontage Requirement is met. Should the Access Density be maximized, but the total frontage of the lot of record equals or exceeds the Minimum Total Frontage Requirement for a new access connection, a Mutual Access may be considered provided it meets all other requirements outlined in the Mutual Access section of this guideline.
- **** The creation of a new access connection for the creation of a new lot (e.g. severance by consent) requires that the lot of record meet the Minimum Total Pre-Severance Frontage Requirements for a new access connection, in addition to the Access Density requirement. Where the total pre-severance frontage is less than the minimum for a new access connection, a Mutual Access may be considered provided it meets the Minimum Total Pre-Severance Frontage Requirements for a Mutual Access and all other requirements outlined in the Mutual Access section of this guideline.
- ^a New Public Road connections will only be considered at approved locations for future grade-separated interchanges.
- bMTO requires all requests for new Public Roads or new Commercial / Private Roads to meet the 1600 m desirable spacing as indicated. Consideration by MTO to reduce the spacing below 1600 m to any point down to and including the 800 m minimum will only be considered based on the submission of a Traffic Impact Study. The Traffic Impact Study shall clearly indicate and support a reduction in spacing that will not affect the overall role, function, mobility and design characteristics of the highway corridor.
- ^c Minimum spacing is based on a 70 km/h posted speed limit or greater on the highway. MTO will consider a reduction in the Public Road or Commercial / Private Road spacing requirement where the posted speed limit is lower than 70 km/h based on the submission of a Traffic Impact Study and the recommended reduction meets the requirements of Ontario Traffic Manual Book 12. MTO will work cooperatively with municipalities/developers to determine appropriate intersection spacing and other roadway characteristics where needed to support intensification and more compact development within communities.

5.4.4 Number of private access connections permitted per kilometre (Access Density)



The access density calculation determines the maximum number of private access connections permitted per kilometre on each side of the highway. If there are already a maximum number of private access connections, MTO will typically decline the permit application (although it may consider a <u>mutual access</u> connection, discussed in section <u>5.5.8</u>).

Access density refers to the number of private access connections per kilometre on each side of a highway. The higher the Access Management Classification of the highway, the lower the access density permitted.

To determine the total access density permitted for a class of highway, MTO measures the distance in metres between existing intersections from centreline to centreline, and then multiplies this distance by the Access Density Factor from <u>Table 5</u>. Each class of highway has its own Access Density Factor.

Table 5: Access density factors for creating a new lot of record

Access Management Classification System Category	Access Density /km/side	Access Density Factor	
2A - Principal Arterial	N/A	N/A	
2B - Arterial	4/km/side	.004	
ZD – Al terial	(4/1000 m)		
3 – Collector	6/km/side	.006	
3 – Conector	(6/1000 m)	.000	
4 – Local	8/km/side	008	
4 – Local	(8/1000 m)	.008	

Figure 11: Functional Intersection Area - Desirable Offset Spacing Criteria - Private Access Connections

Functional Intersection Area - Desirable Offset Spacing Criteria - Private Access Connections				
Clearance Type	Desirable Offset Spacing Criteria			
A – Upstream on the highway	100 km/h Posted Speed = 250 m			
	90 km/h Posted Speed = 220 m			
	80 km/h Posted Speed = 185 m			
	70 km/h Posted Speed = 160 m			
	60 km/h Posted Speed = 130 m			
	50 km/h Posted Speed = 105 m			
B – Downstream on the highway	100 km/h Posted Speed = 250 m			
	90 km/h Posted Speed = 220 m			
	80 km/h Posted Speed = 185 m			
	70 km/h Posted Speed = 160 m			
	60 km/h Posted Speed = 130 m			
	50 km/h Posted Speed = 105 m			
C – Approach side on the Public Road	Desirable = 85 m			
	Minimum = 45 m			
D – Departure side on the Public Road	Desirable = 85 m			
	Minimum = 45 m			

Notes:

Private access connections are typically Residential, Farmstead, Field or Auxiliary accesses. They do not include Public Road or Commercial / Private Road access connections.

Distances provided in this Figure are provided to demonstrate minimum offset spacings for private access connections for corner and non-corner properties, in order to protect the safety and operational integrity of the intersection.

Desirable offset spacing criteria typically apply to requests for new private access connections or a change in use / upgrade of an existing access connection.

All distances are measured from the end of radius of the Public Road to the start of radius at the private access.

Private access connections are not permitted within a channelization, auxiliary lane, taper or similar facility. Where such facilities exist, the offset spacing criteria will be measured from the start / end of the taper.

Corner properties, which have frontage on both the Provincial Highway and the Public Road shall obtain all access from the Public Road.

Existing private access connections which fall with the desirable offset spacing criteria are constraints located within the Functional Intersection Area and will be permitted to remain for their existing use.

This Figure is not to be interpreted that MTO would grant an access connection to the Provincial Highway for corner properties where the lot frontage would meet or exceed the minimum offset spacing criteria.

For Principal Arterials:

- A & B are not applicable. Direct highway access is not permitted.
- C & D are not applicable where interchanges exist or are proposed. Reference Figures 15, 16 and 17.
- C & D are applicable where at-grade intersections are present and are not to be upgraded to interchanges.

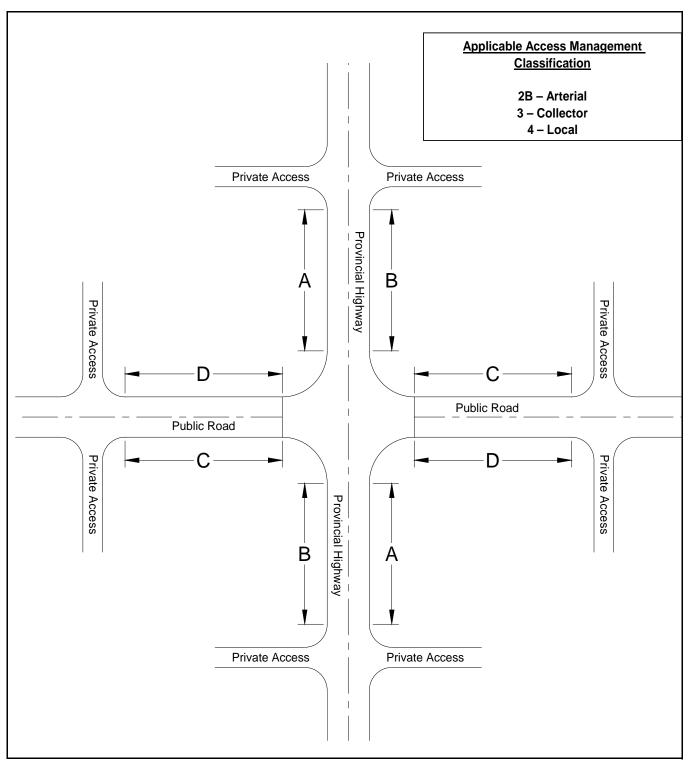


Figure 13: Functional Intersection Area - Desirable Offset Spacing Criteria – Public Road and Medium / High Volume Commercial / Private Road Access Connections

Functional Intersection Area - Desirable Offset Spacing Criteria - Public Road and Commercial / Private Road Access Connections (Medium / High Volume Traffic Generators)				
Access Management Classification	Desirable Offset Spacing Criteria			
Class 2A - Principal Arterial	400 m / 800 m (see Notes)			
Class 2B - Arterial				
Class 3 - Collector	400 m			
Class 4 - Local				

Notes:

All new Public Road connections, which are to be located downstream of an existing highway intersection, shall meet the desirable offset spacing criteria in accordance with the above table.

All new medium / high volume Commercial / Private Road access connections, which are to be located downstream of an existing highway intersection, shall meet the desirable spacing offset criteria in accordance with the above table.

For Principal Arterials where at-grade intersections are present and are not to be upgraded to interchanges, the desirable offset spacing is 400 m. However, where interchanges are proposed, the desirable offset spacing is 800 m.

A medium / high volume Commercial / Private Road access connection is one that provides access to a commercial

development which is a medium / large traffic generator, and which warrants intersection improvements on the Public Road.

MTO requires the submission of a Traffic Impact Study for all commercial developments which are medium / high volume traffic generators. A Traffic Impact Study will determine the warranted improvements for both the highway intersection as well as the Commercial / Private Road access connection on the intersecting Public Road.

Desirable offset spacing distances may be increased / decreased based upon MTO's review of a Traffic Impact Study.

Distances provided in this Figure are provided to demonstrate desirable offset spacing for Public Roads and medium / high volume Commercial / Private Road access connections for corner and non-corner properties, in order to protect the safety and operational integrity of the intersection.

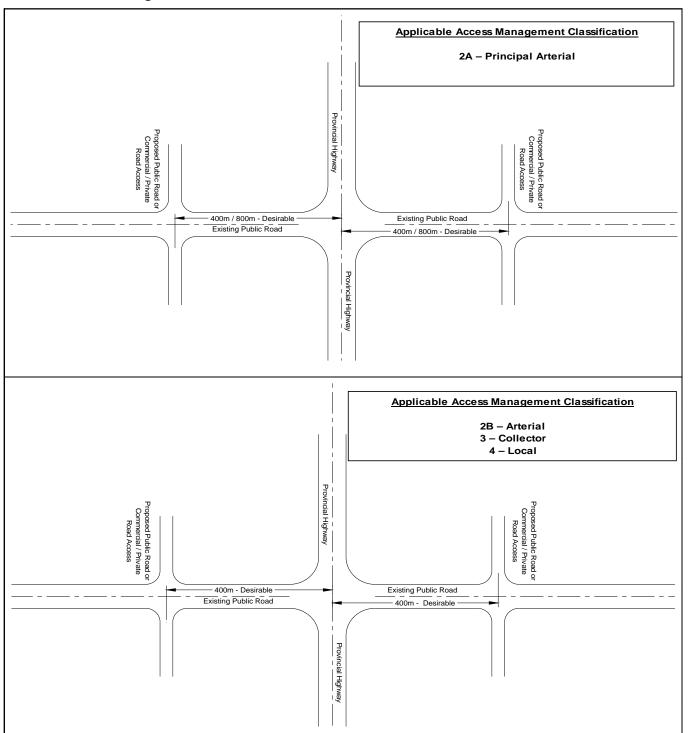
Corner properties, which have frontage on both the Provincial Highway and the Public Road shall obtain all access from the Public Road.

Desirable offset spacing criteria typically apply to requests for new Public Road and new medium / high volume Commercial / Private Road access connections.

All distances are measured from the centreline of the highway intersection to the centreline of the proposed Public Roads or proposed medium / high volume Commercial / Private Road access connection.

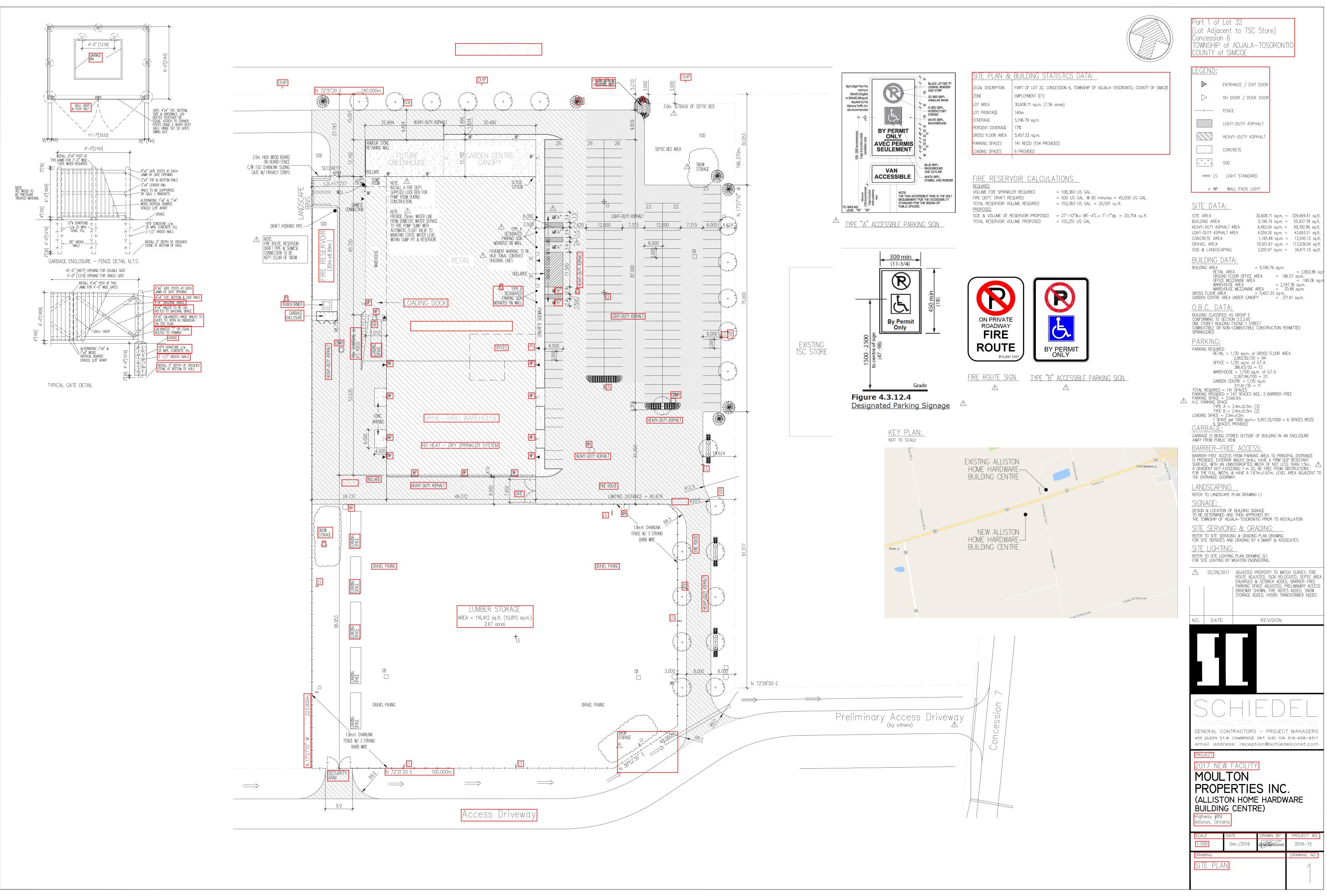
Existing Public Road or Commercial / Private Road access connections which fall with the desirable offset spacing criteria

are constraints located within the Functional Intersection Area and will be permitted to remain for their existing use.



APPENDIX L

Home Hardware Site Plan



30,608.71 sq.m. = 329,469.41 sq.ft. 5,196.79 sq.m. = 55,937.78 sq.ft. 6,483.04 sq.m. = 69,782.86 sq.ft. 4,059.26 sq.m. = 43,693.51 sq.ft. 1,165.48 sq.m. = 12,545.12 sq.ft. 10,501.67 sq.m. = 113,039.04 sq.ft. 3,202.47 sq.m. = 34,471.10 sq.ft.

LOADING SPACE = 3.5m.x12m. 1 SPACE per 1000 sq.m.= 5,457.33/1000 = 6 SPACES REQ'D

405 QUEEN ST.W. CAMBRIDGE ONT. N3C 1G6 519-658-9317 email address: reception@schiedelconst.com

2016-15

FIGURES

Figure 2: Boundary Road Network

Figure 3: Existing Entrances (1/2)

Figure 4: Existing Entrances (2/2)

Figure 5: 2017 Existing Traffic Volumes

Figure 6: Background Primary Trip Distribution – Home Hardware

Figure 7: Background Pass-By Trip Distribution – Home Hardware

Figure 8: Background Primary Trip Assignment – Home Hardware

Figure 9: Background Pass-By Trip Assignment – Home Hardware

Figure 10: Background Total Trip Assignment – Home Hardware

Figure 11: 2026 Future Background Traffic Volumes – Home Hardware

Figure 12: 2031 Future Background Traffic Volumes – Home Hardware

Figure 13: 2036 Future Background Traffic Volumes – Home Hardware

Figure 14: Total Primary Trip Distribution – Home Hardware + Industrial

Figure 15: Total Pass-By Trip Distribution – Home Hardware

Figure 16: Total Primary Trip Assignment – Home Hardware

Figure 17: Total Pass-By Assignment – Home Hardware

Figure 18: Total Trip Assignment – Industrial

Figure 19: 2026 Future Total

Figure 20: 2031 Future Total

Figure 21: 2036 Future Total

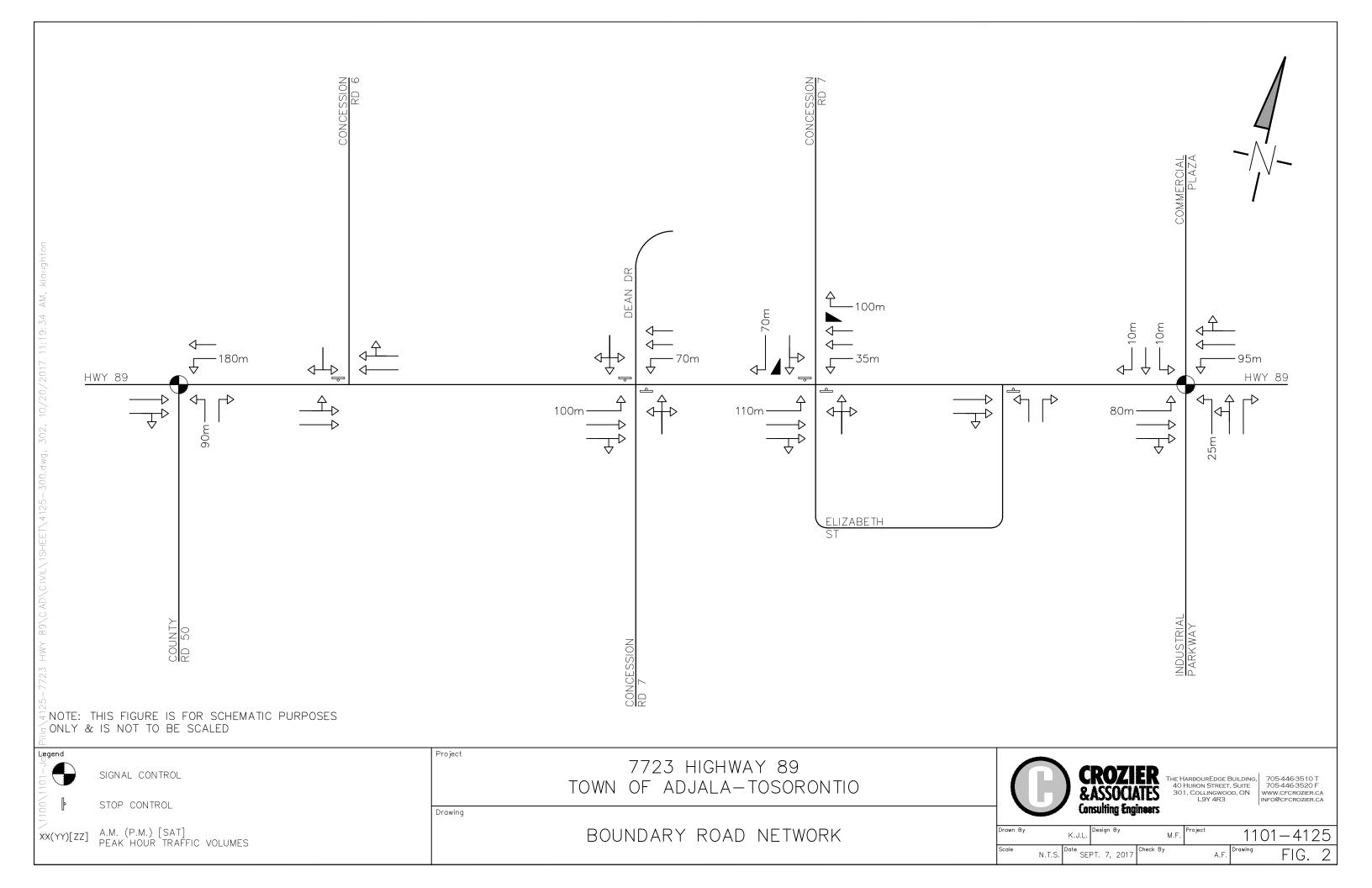
Figure 22: Sensitivity Analysis Trip Distribution

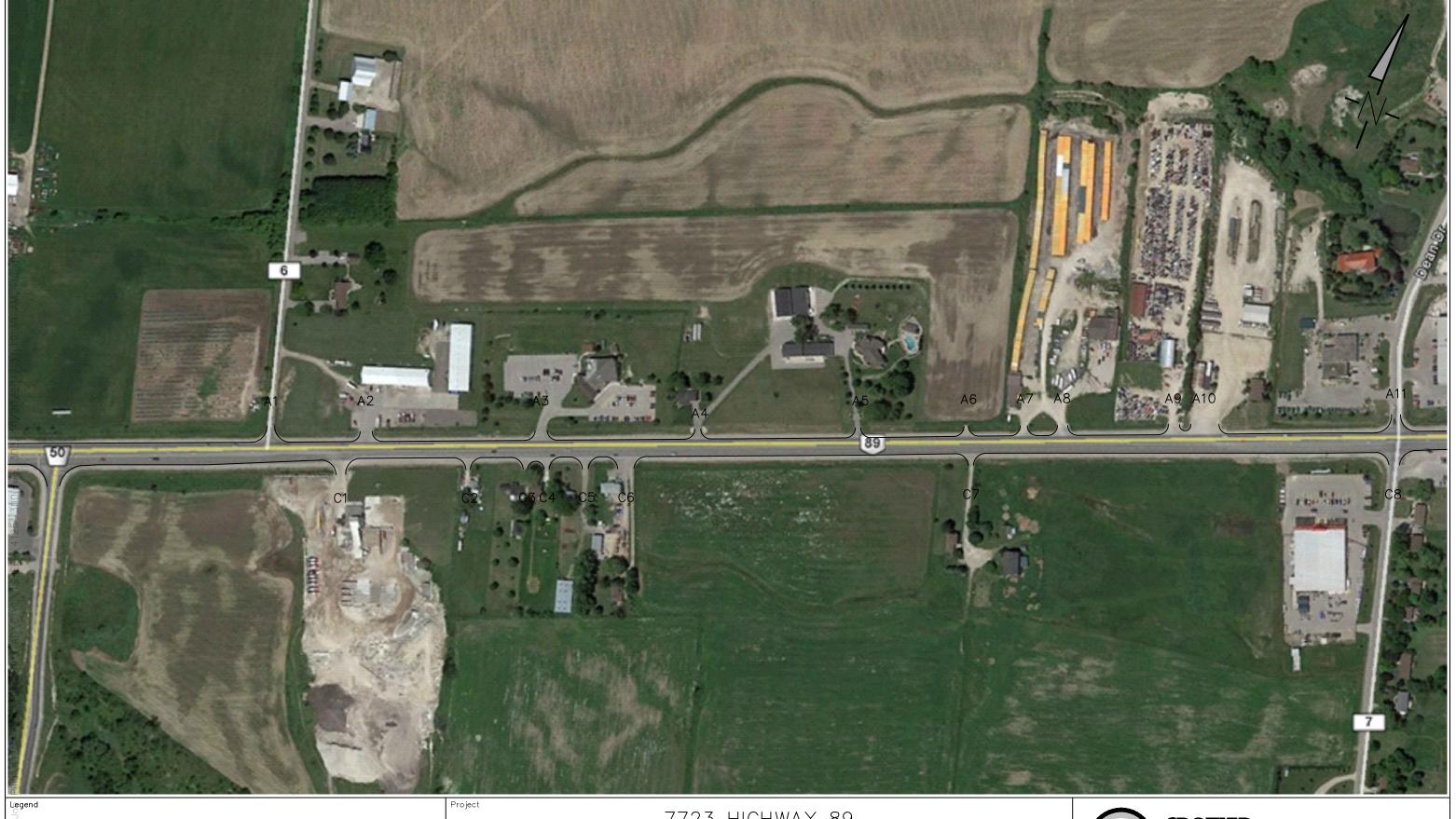
Figure 23: Sensitivity Analysis Trip Assignment

Figure 24: Sensitivity Analysis 2036 Future Total

Figure 25: Potential Access Locations







7723 HIGHWAY 89 TOWN OF ADJALA-TOSORONTIO

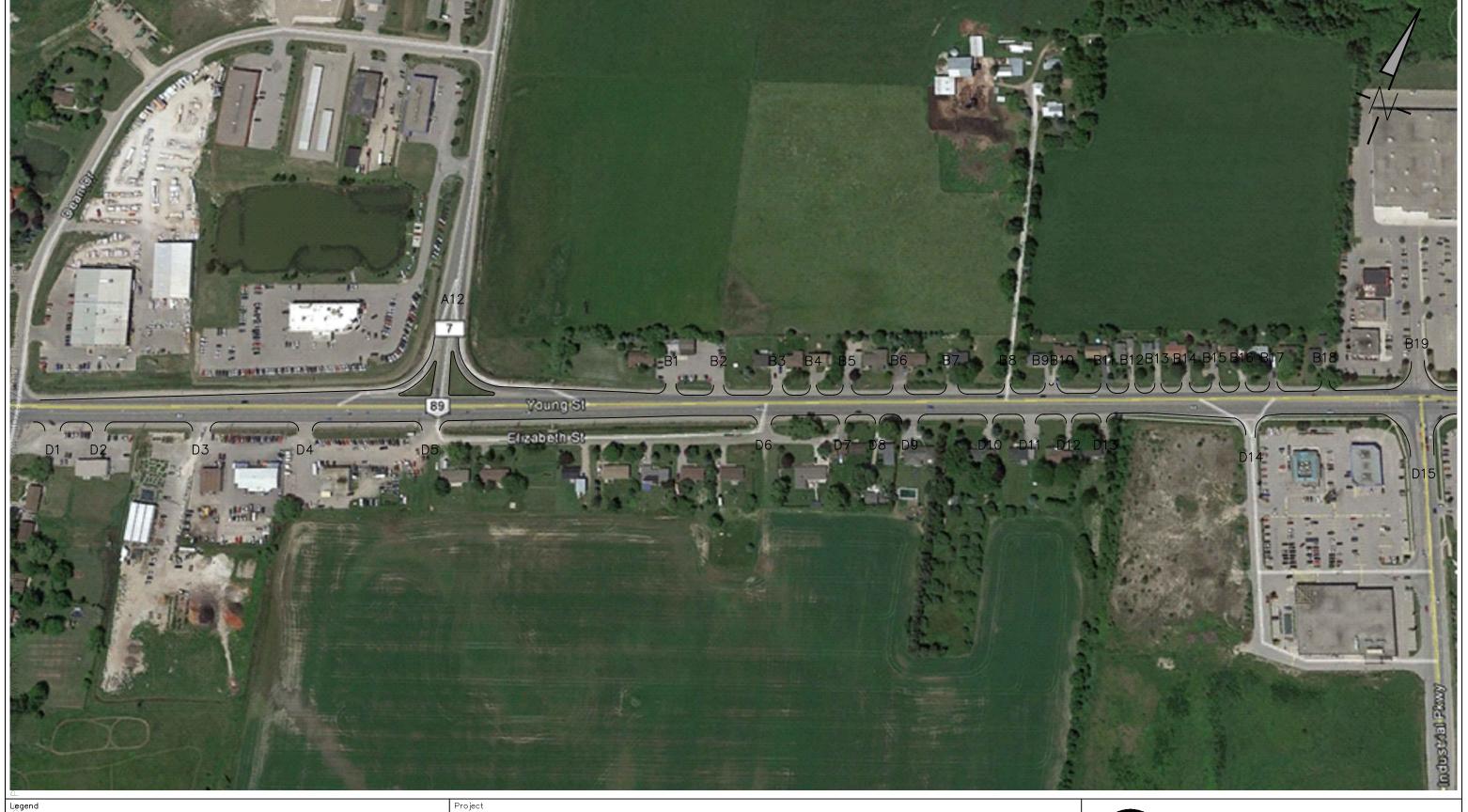
Drawing

EXISTING ACCESS LOCATIONS COUNTY ROAD 50 TO DEAN DRIVE



THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3

1101-4125 K.J.L. N.T.S. Date SEPT. 7, 2017 FIG. 3



7723 HIGHWAY 89 TOWN OF ADJALA-TOSORONTIO

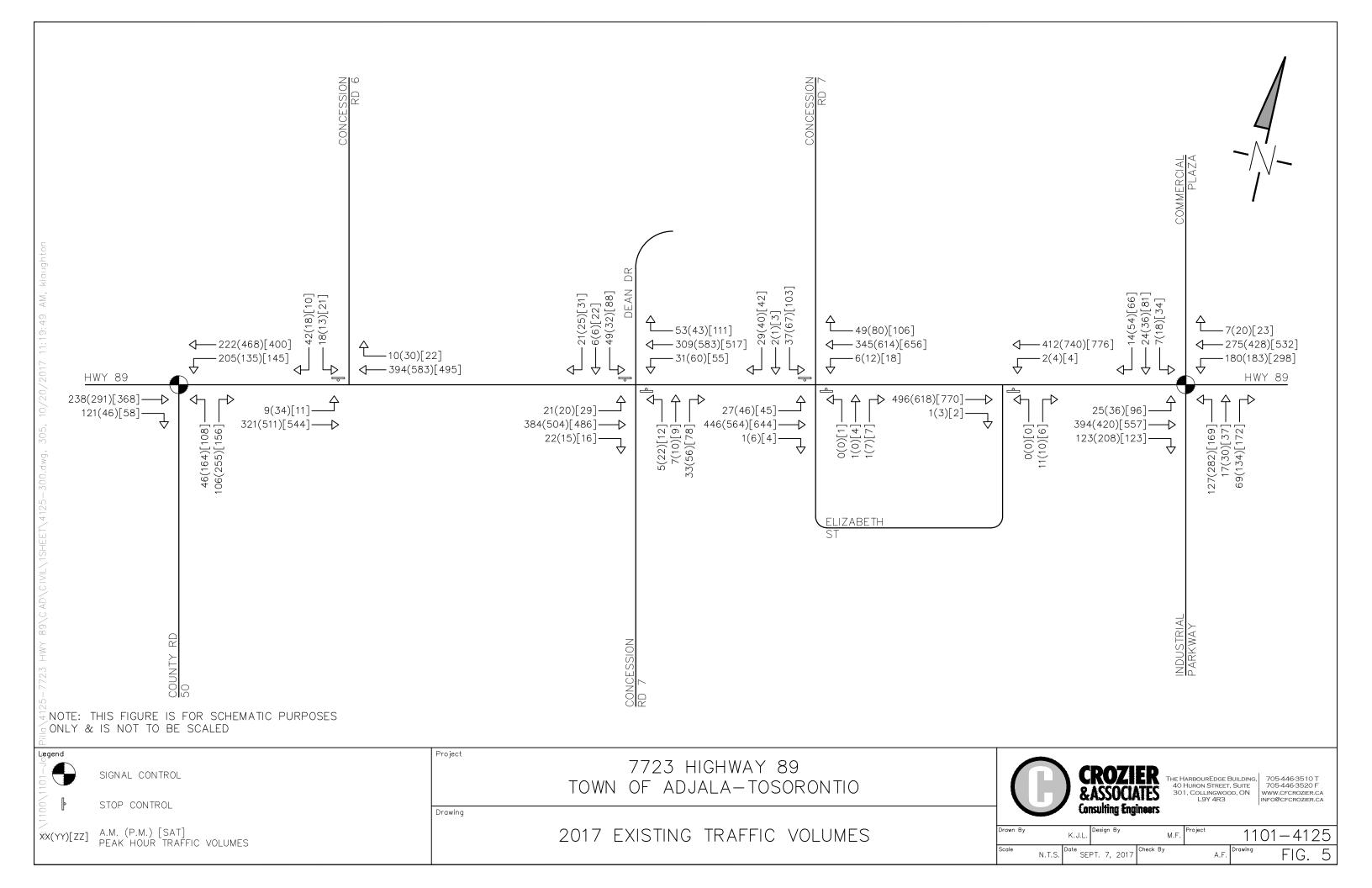
Drawing

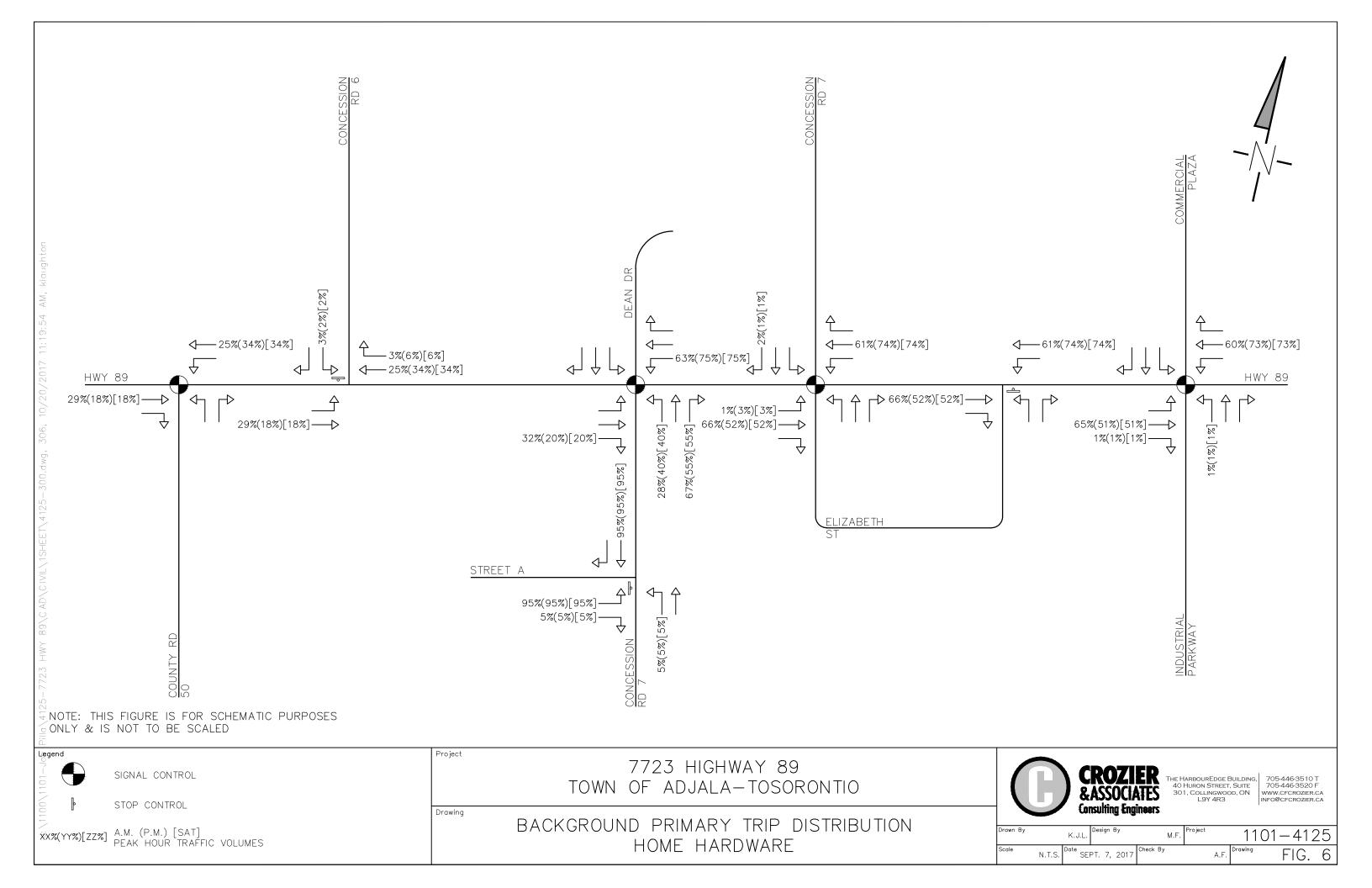
EXISTING ACCESS LOCATIONS DEAN DRIVE TO INDUSTRIAL PARKWAY

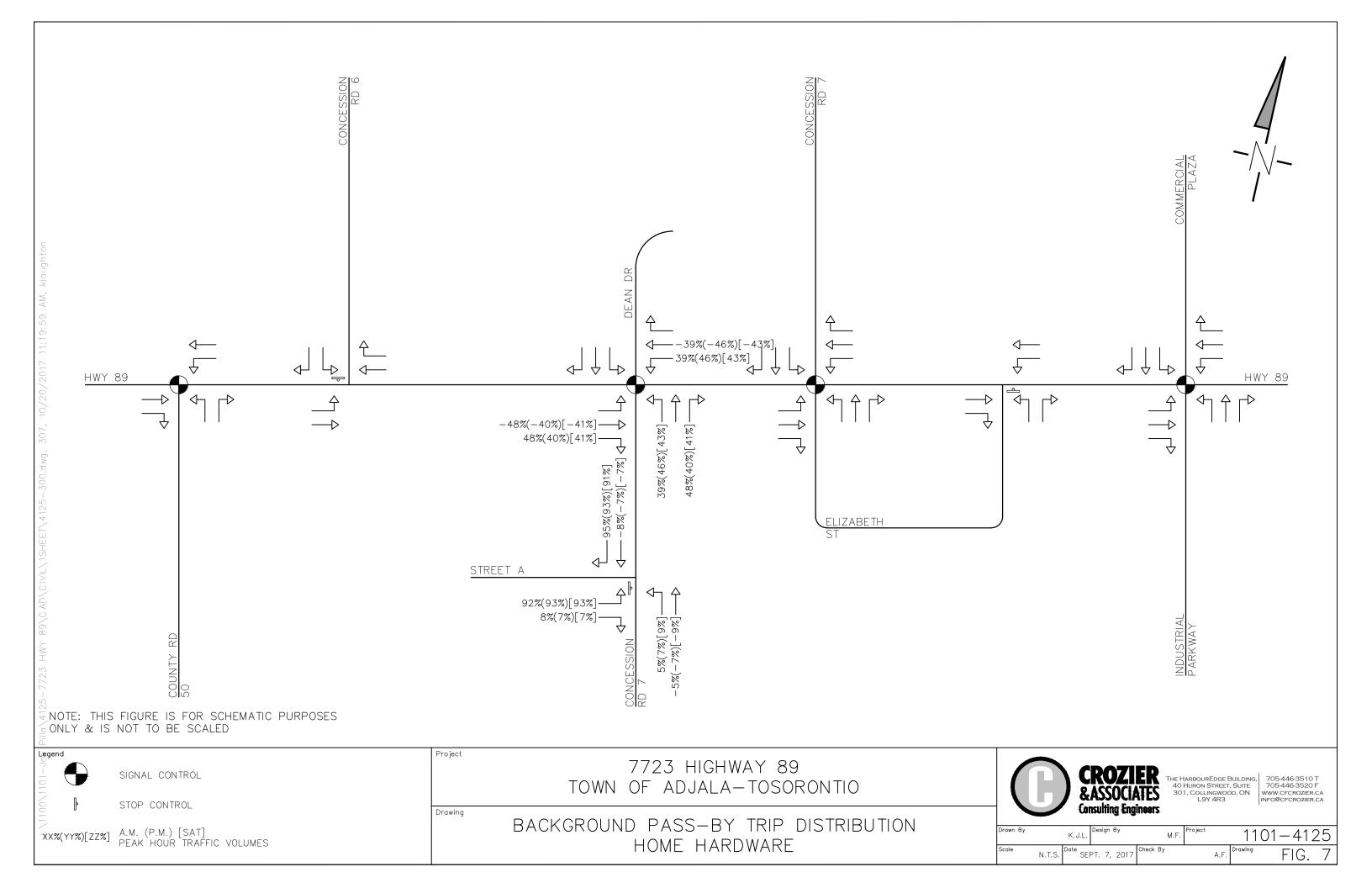


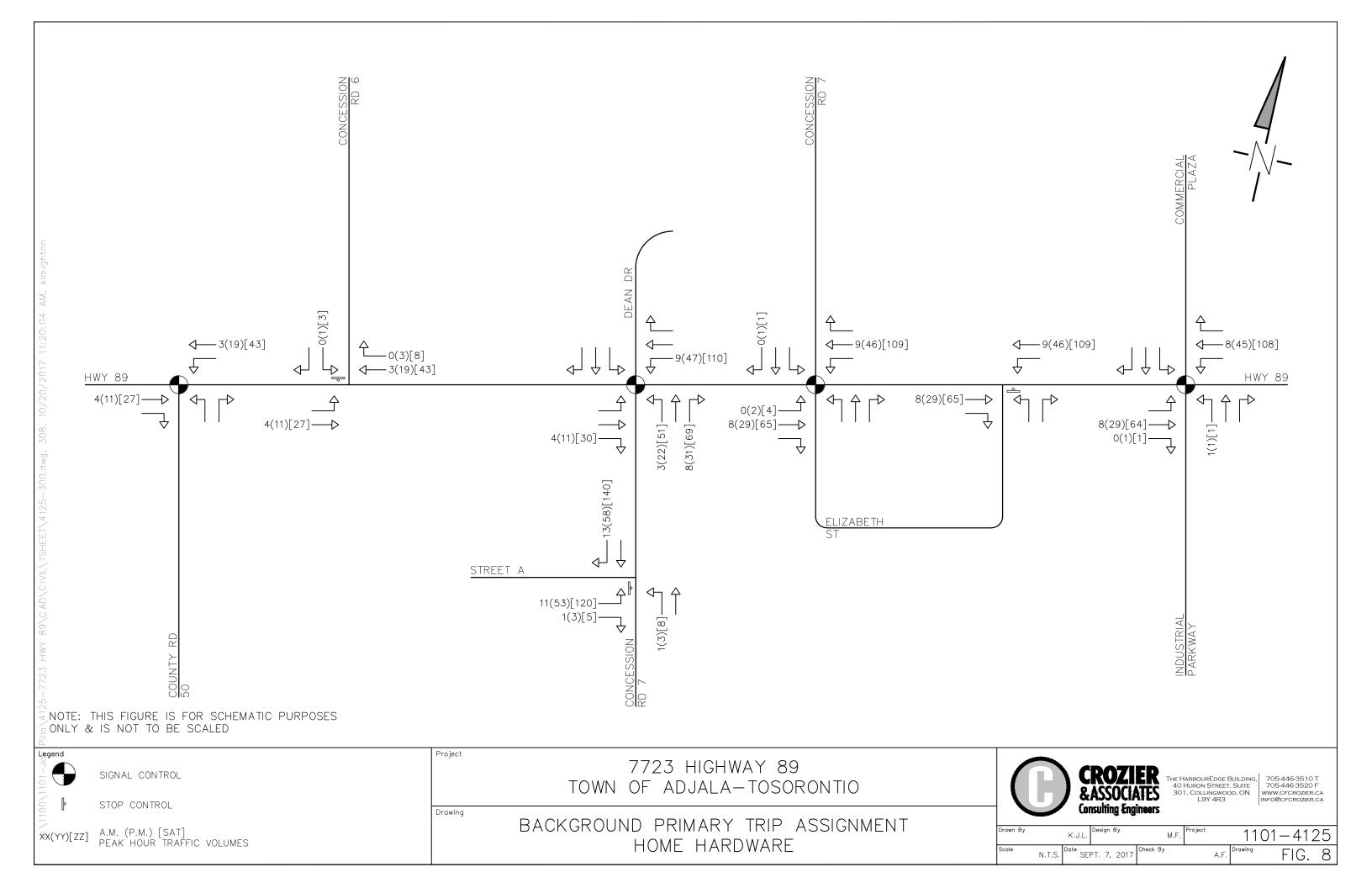
THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3 TO5-446-3510 T 705-446-3510 T 705-446-3520 F www.cfcrozier.ca

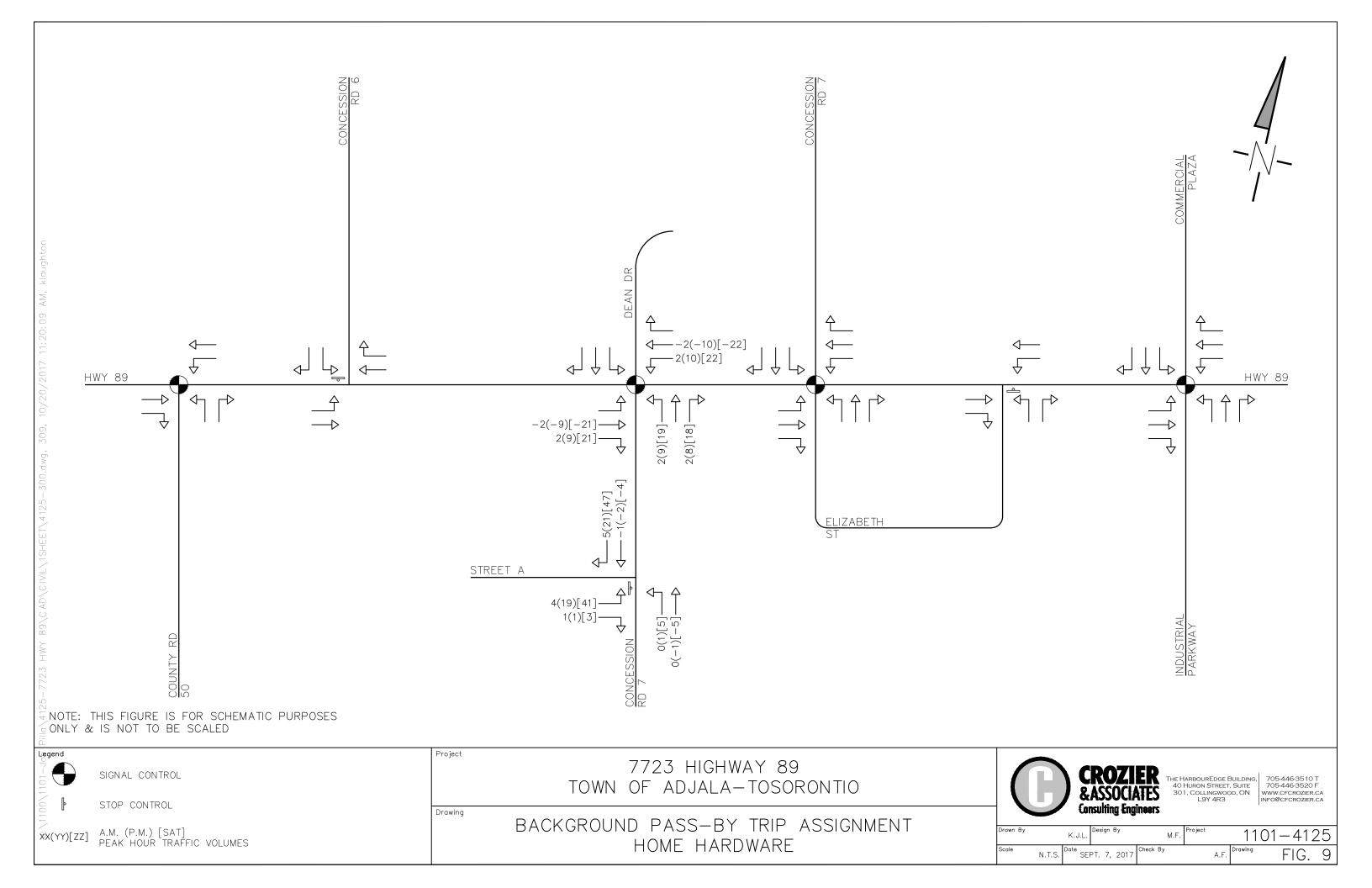
1101-4125 Date SEPT. 7, 2017 FIG. 4

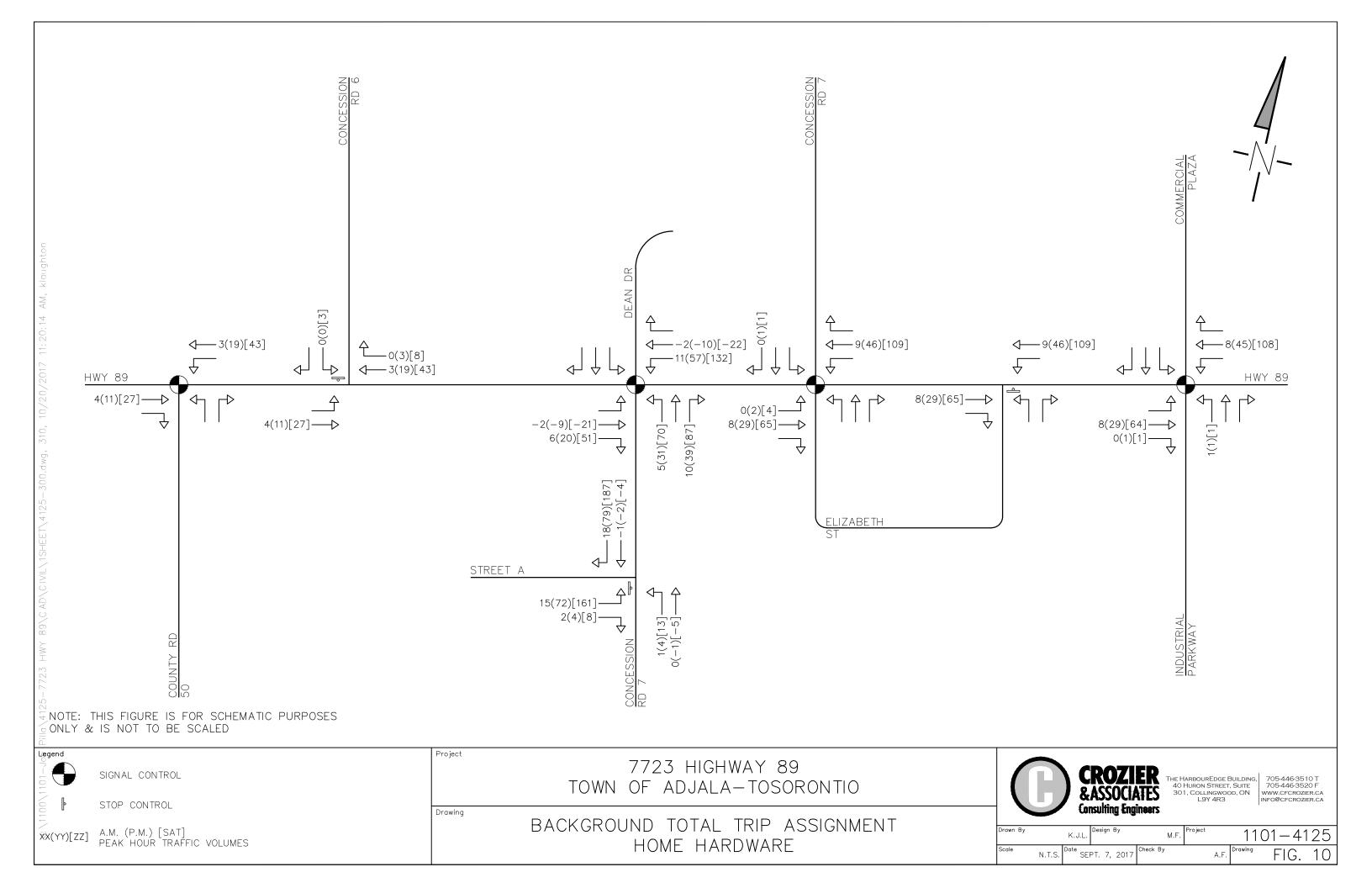


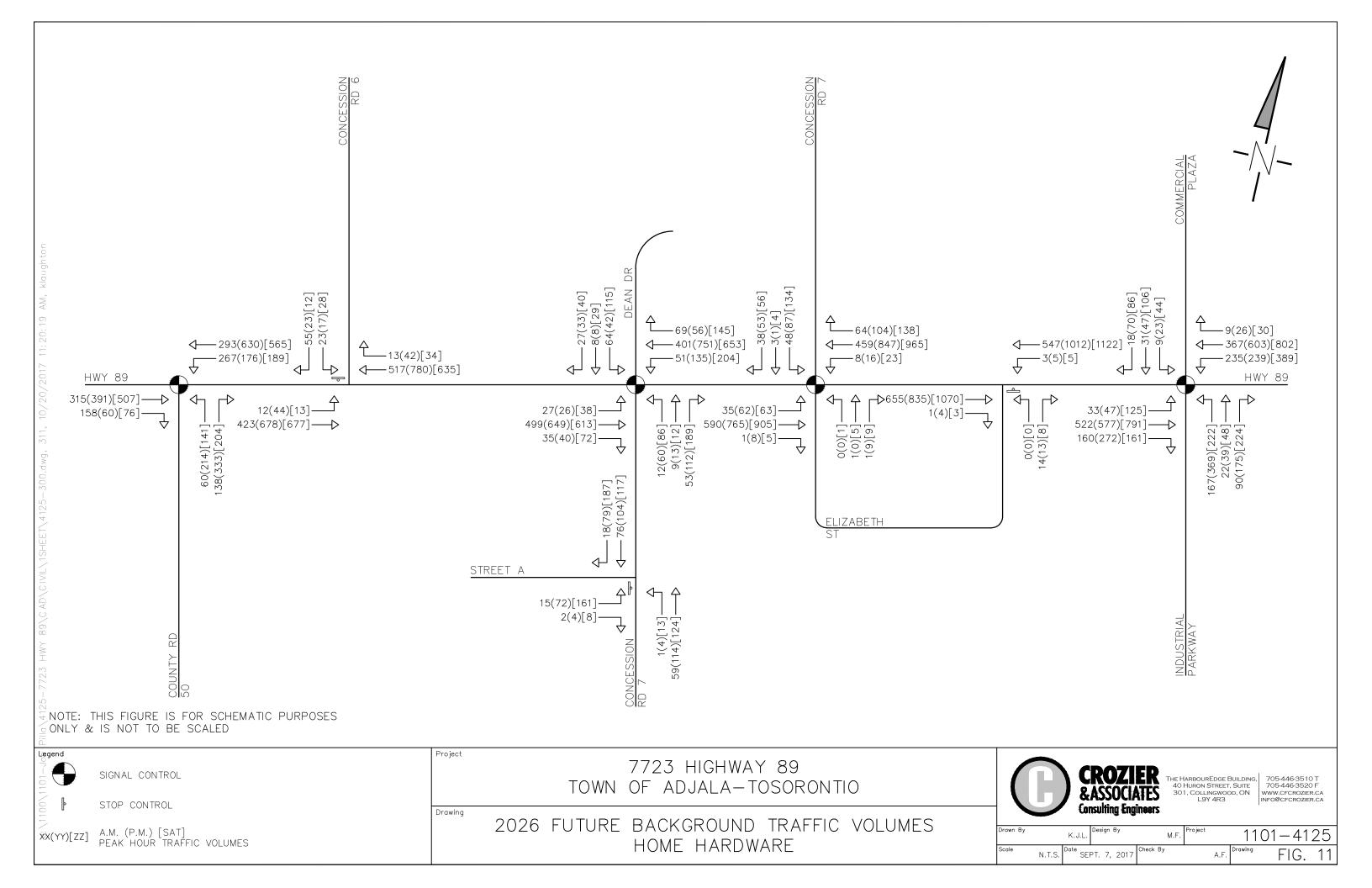


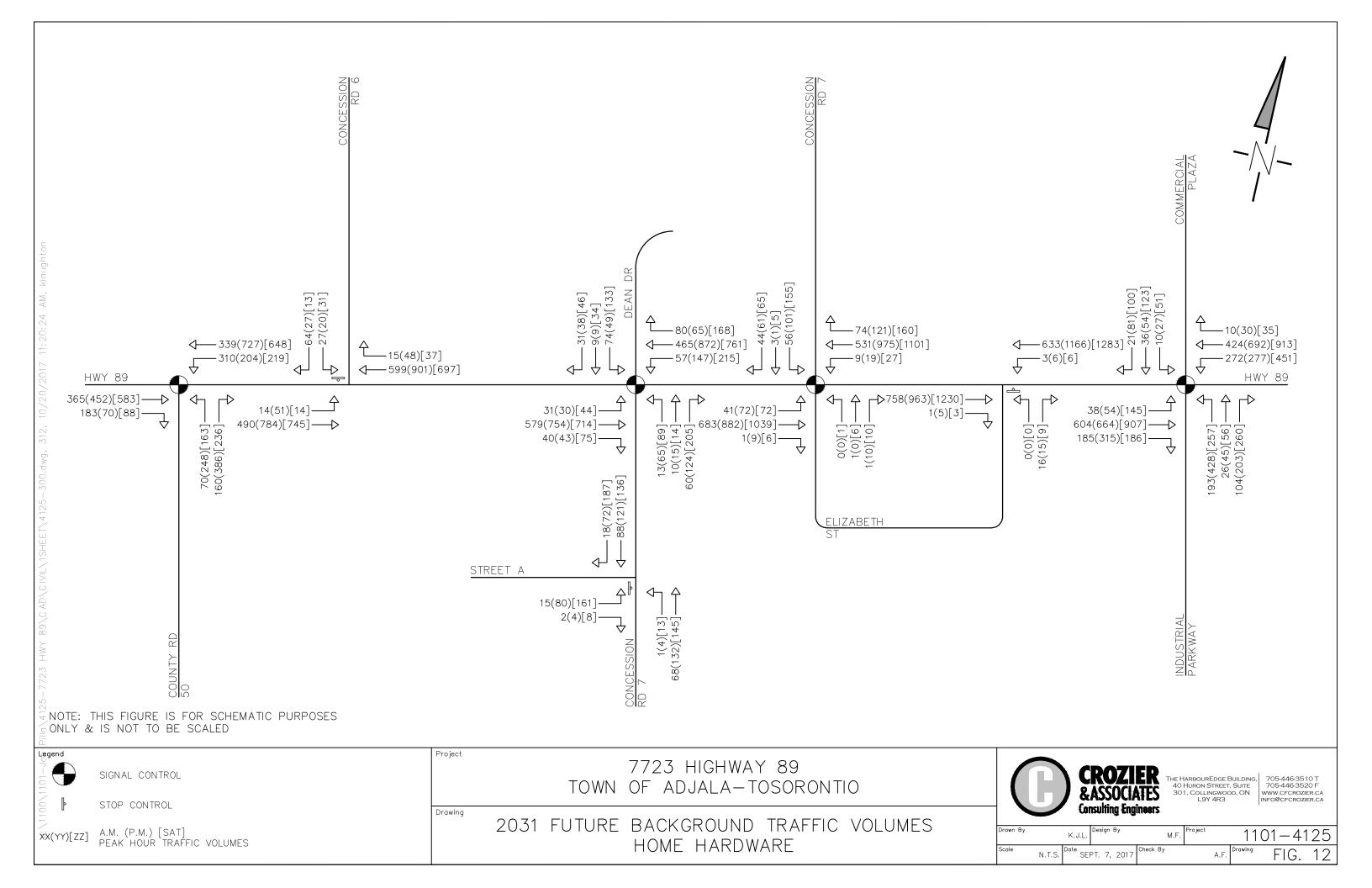


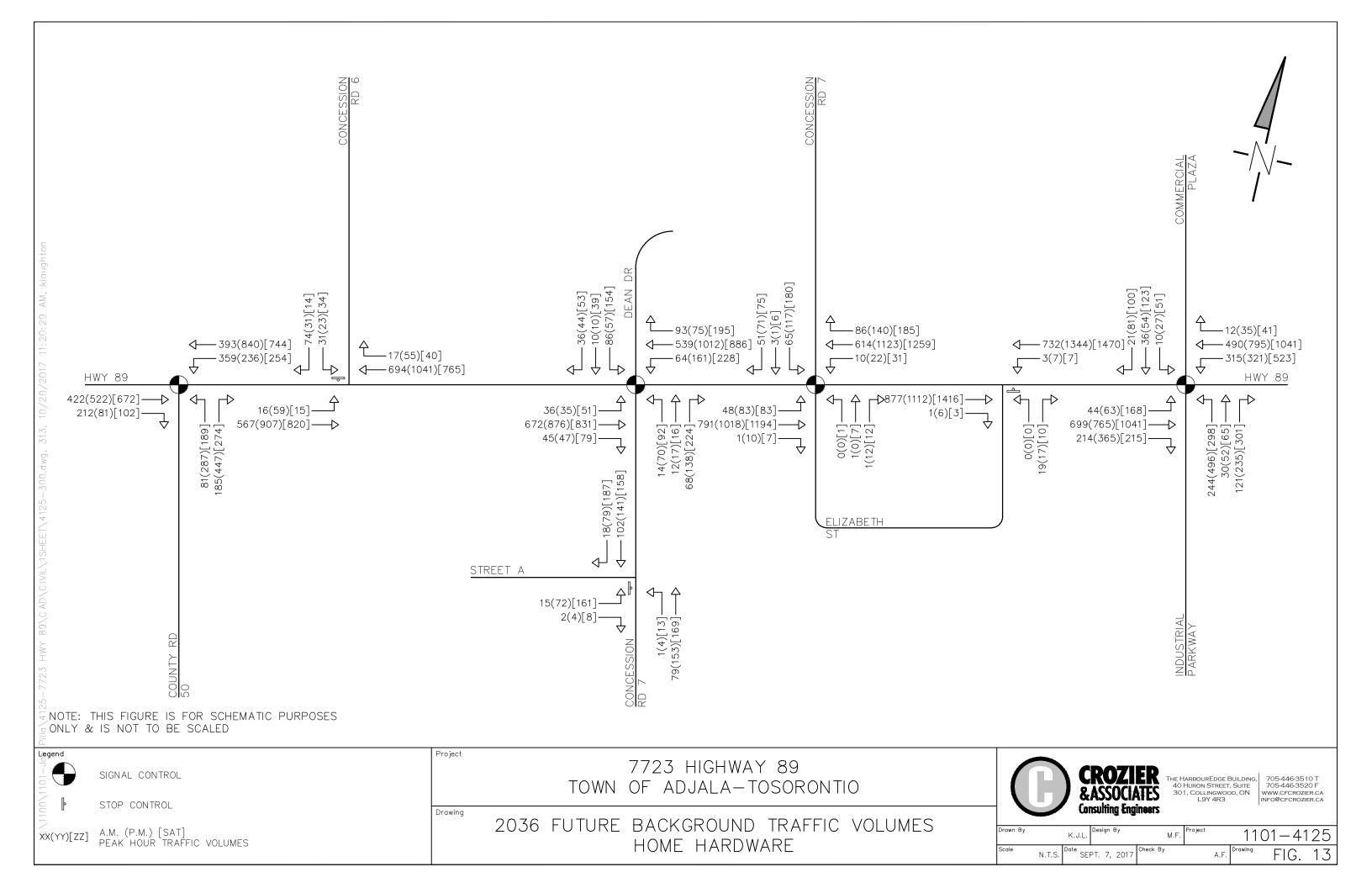


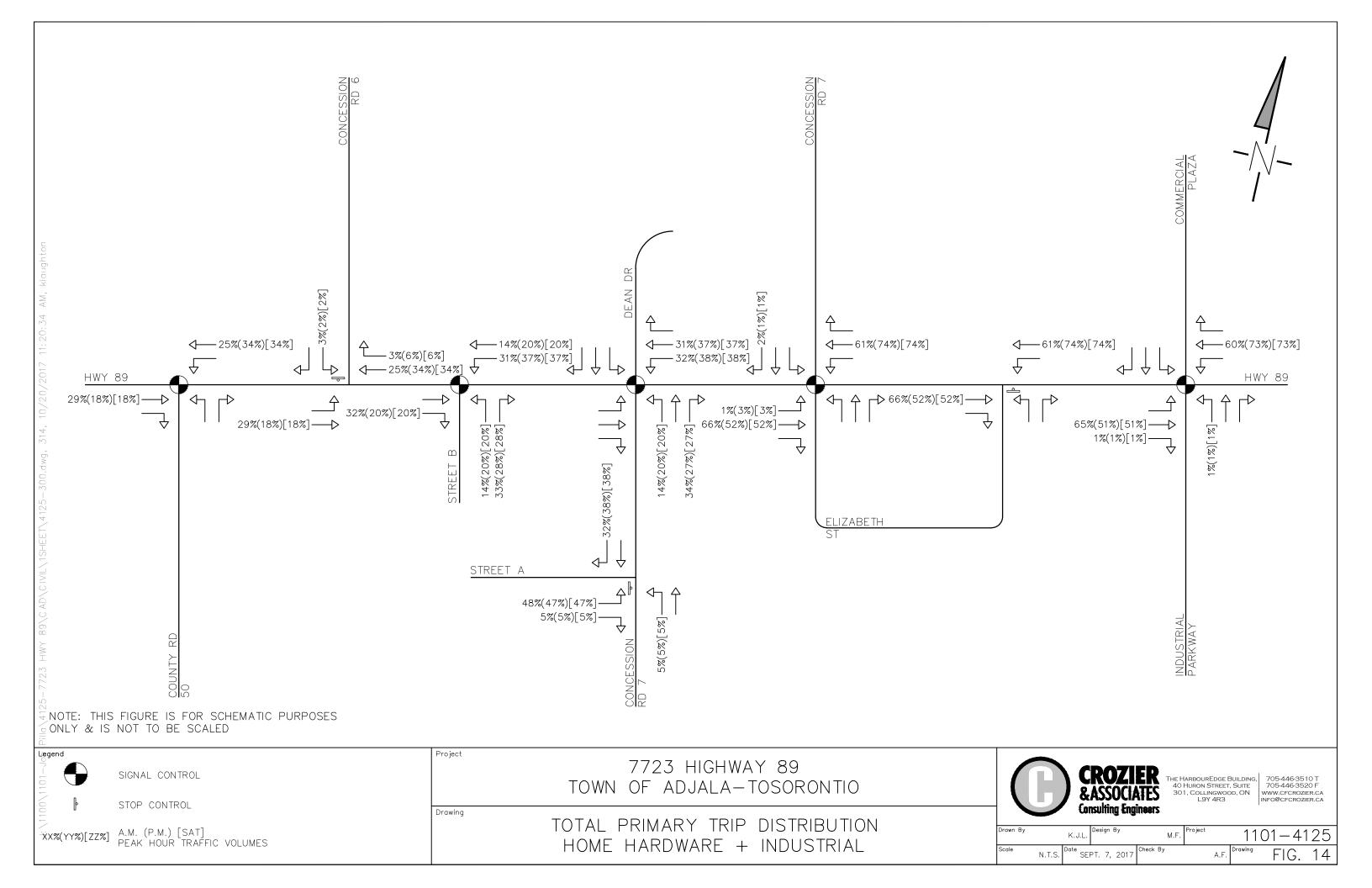


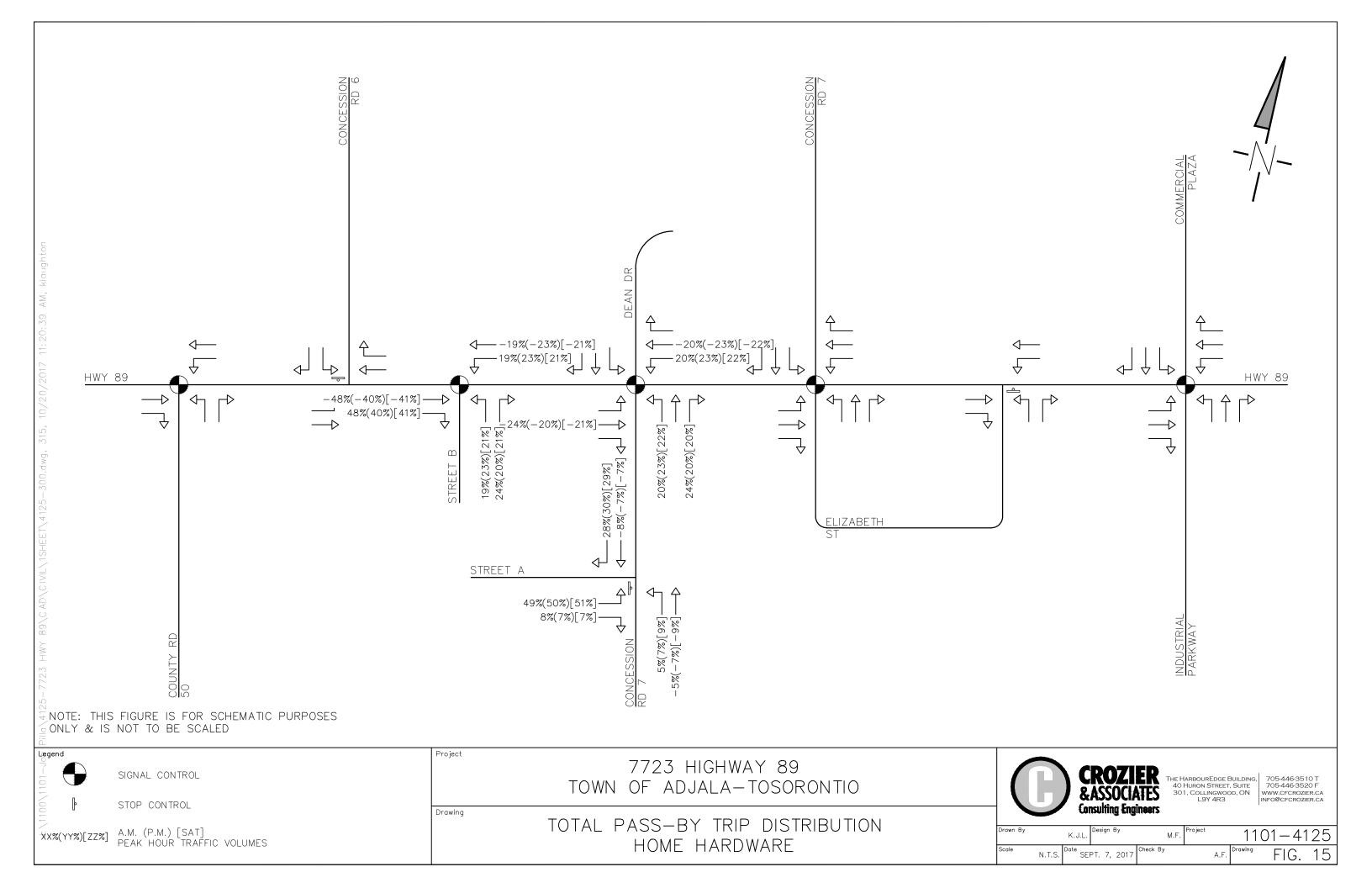


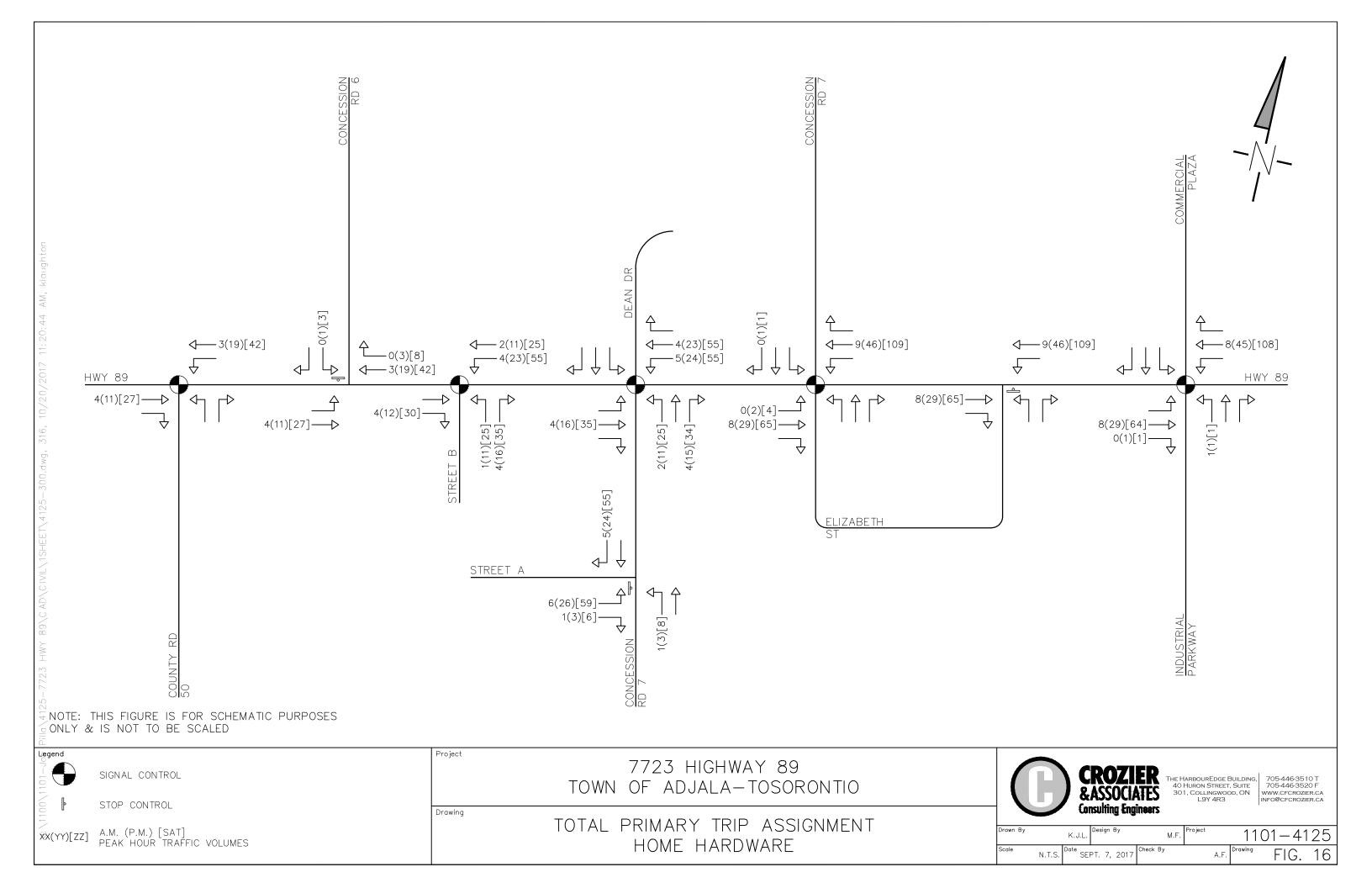


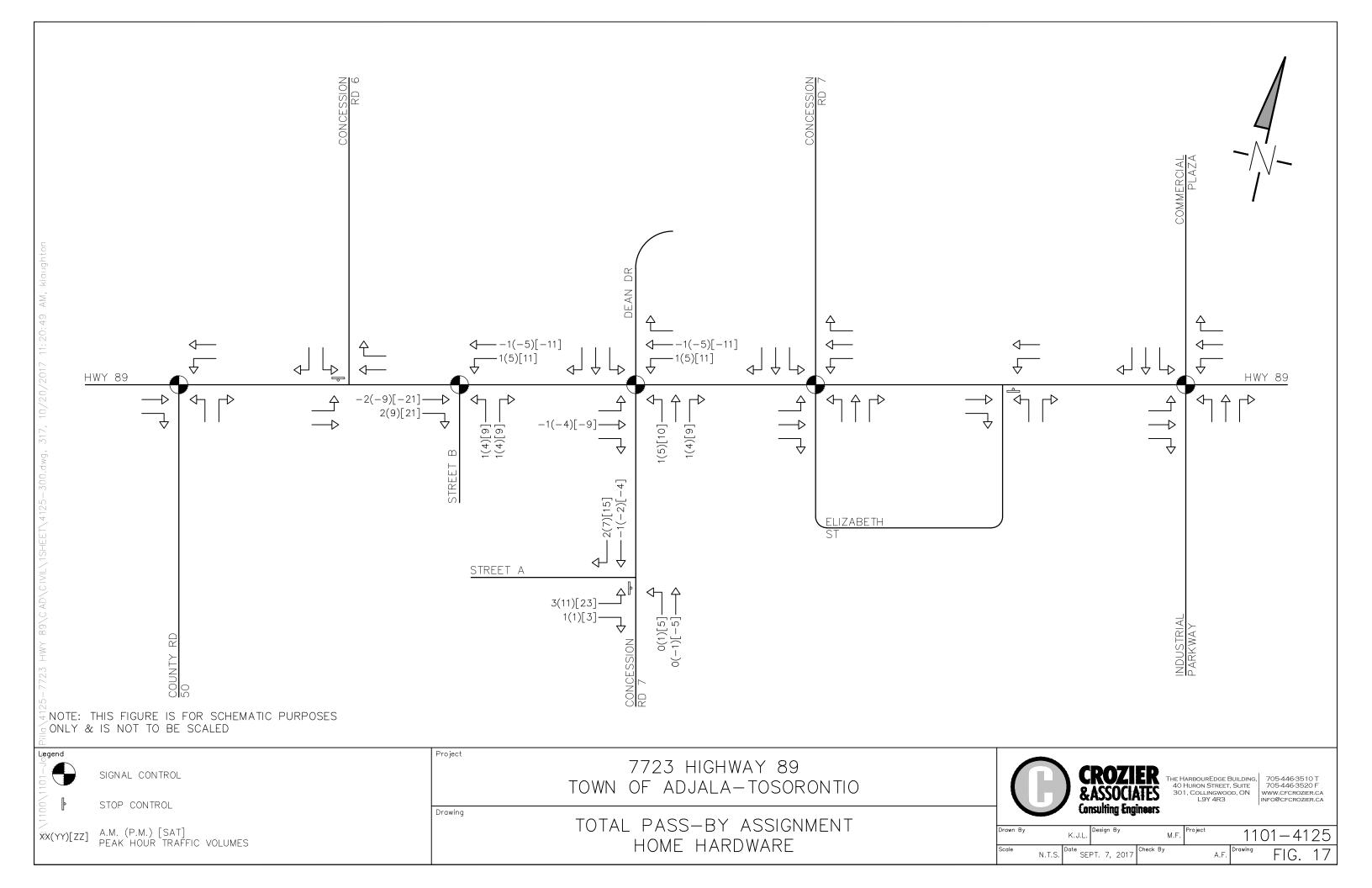


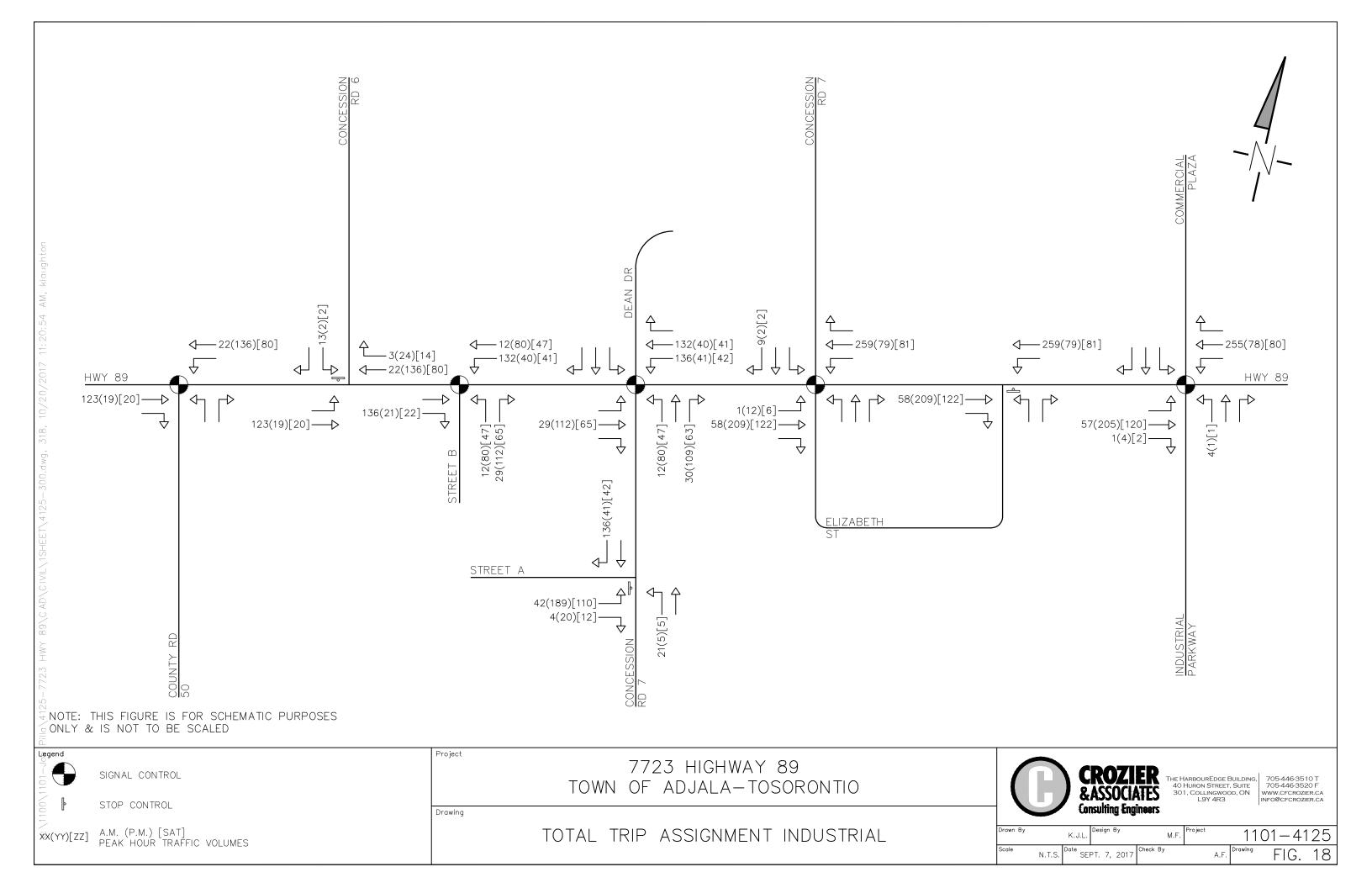


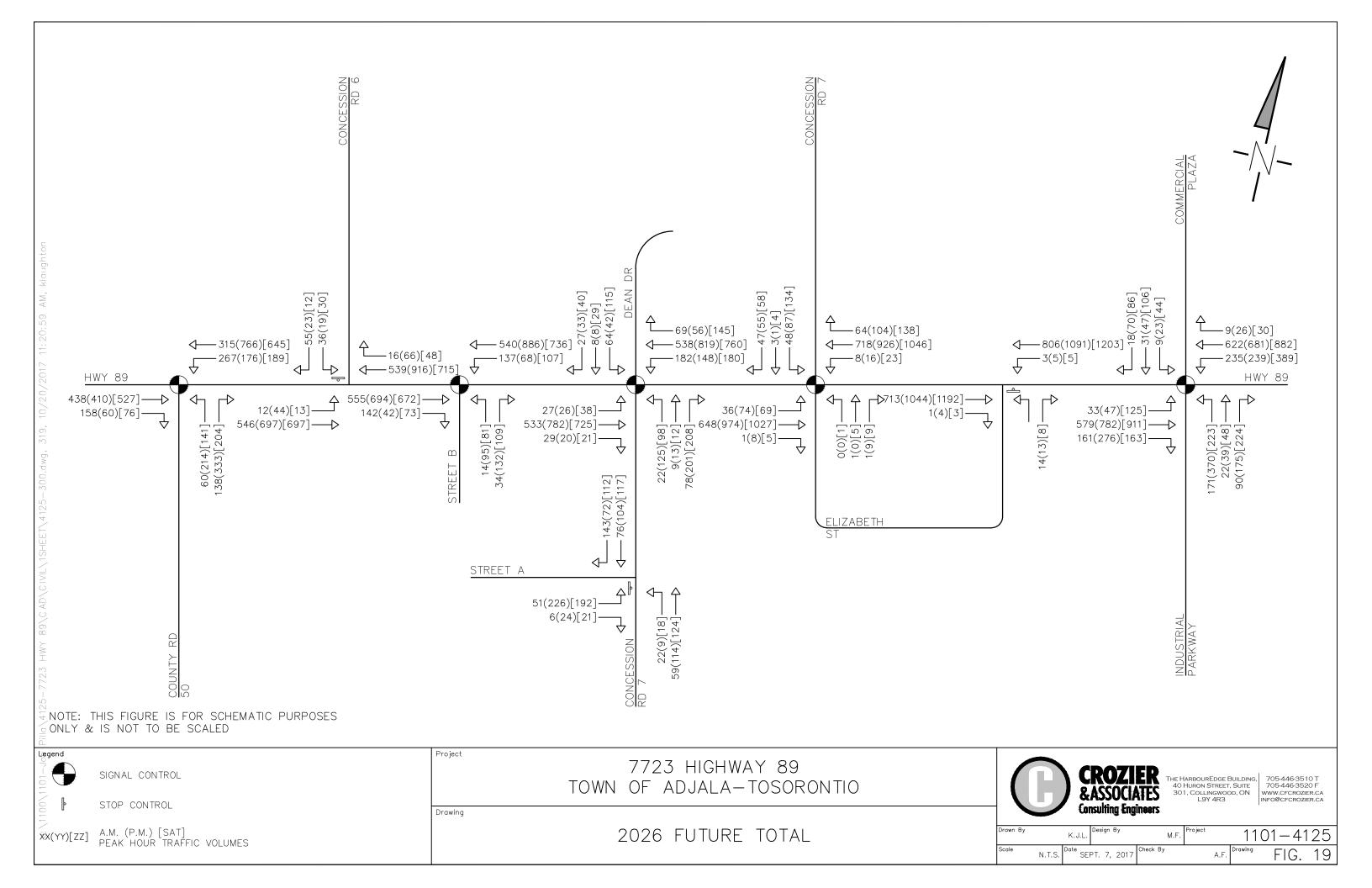


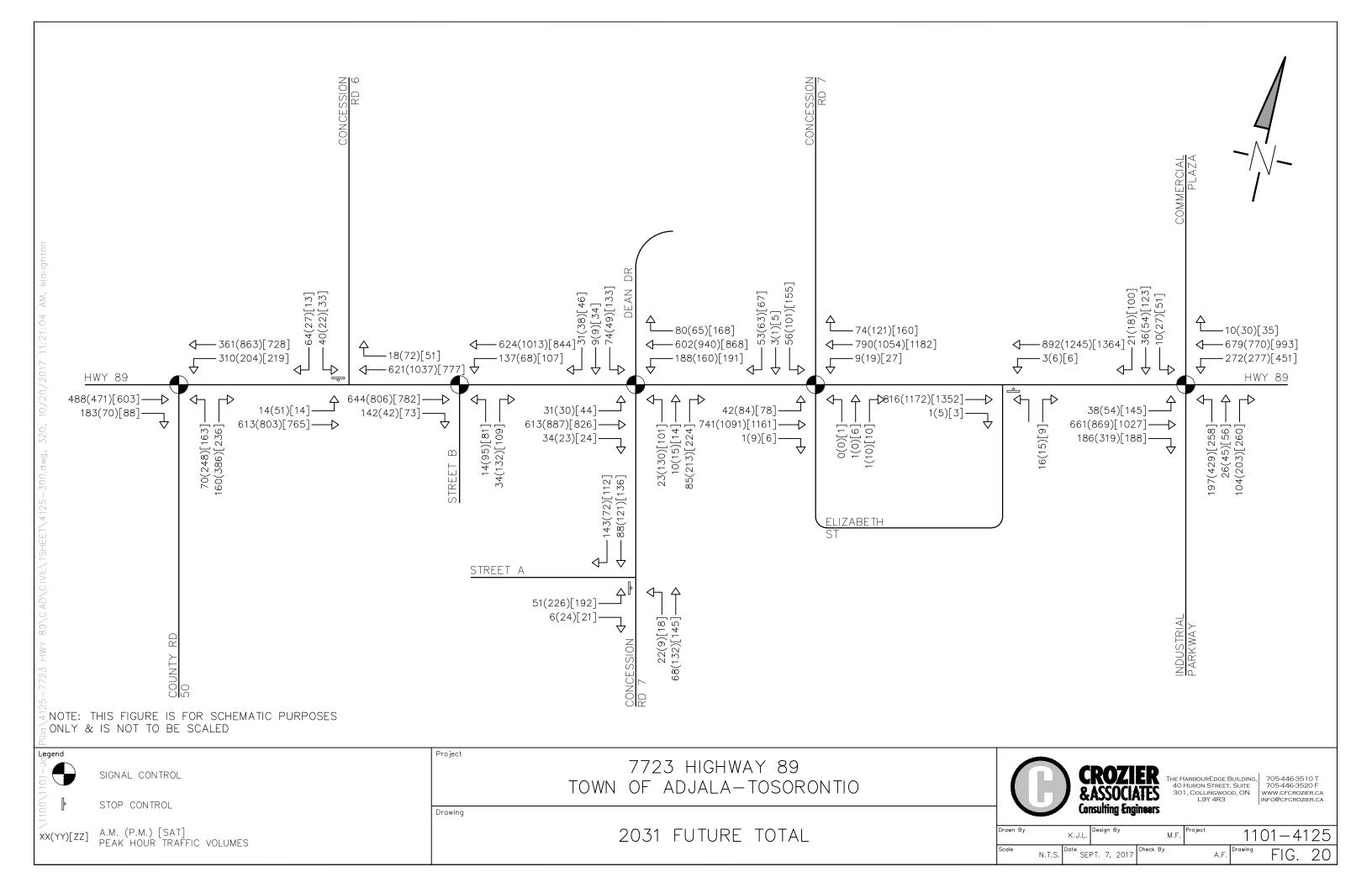


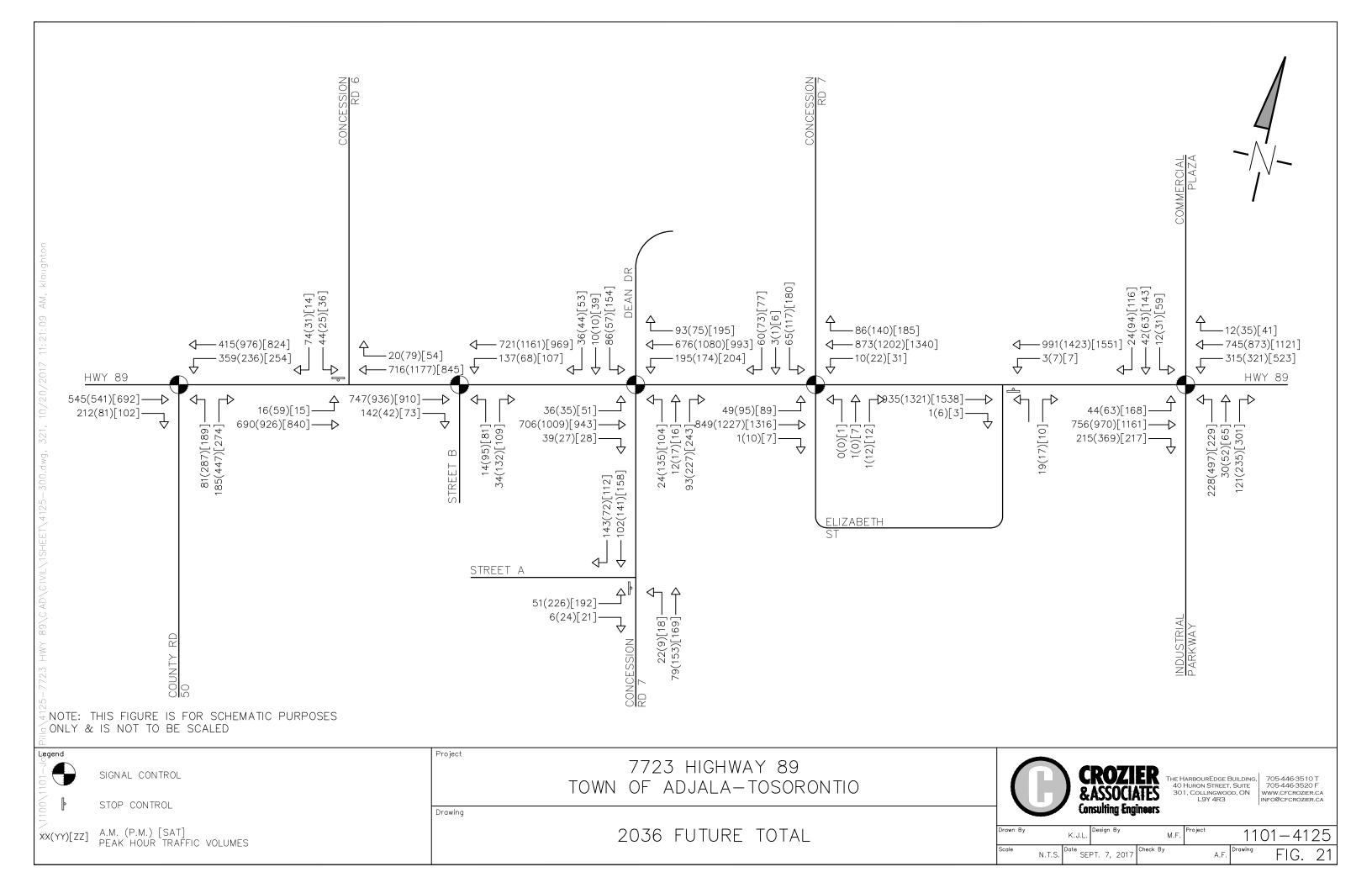


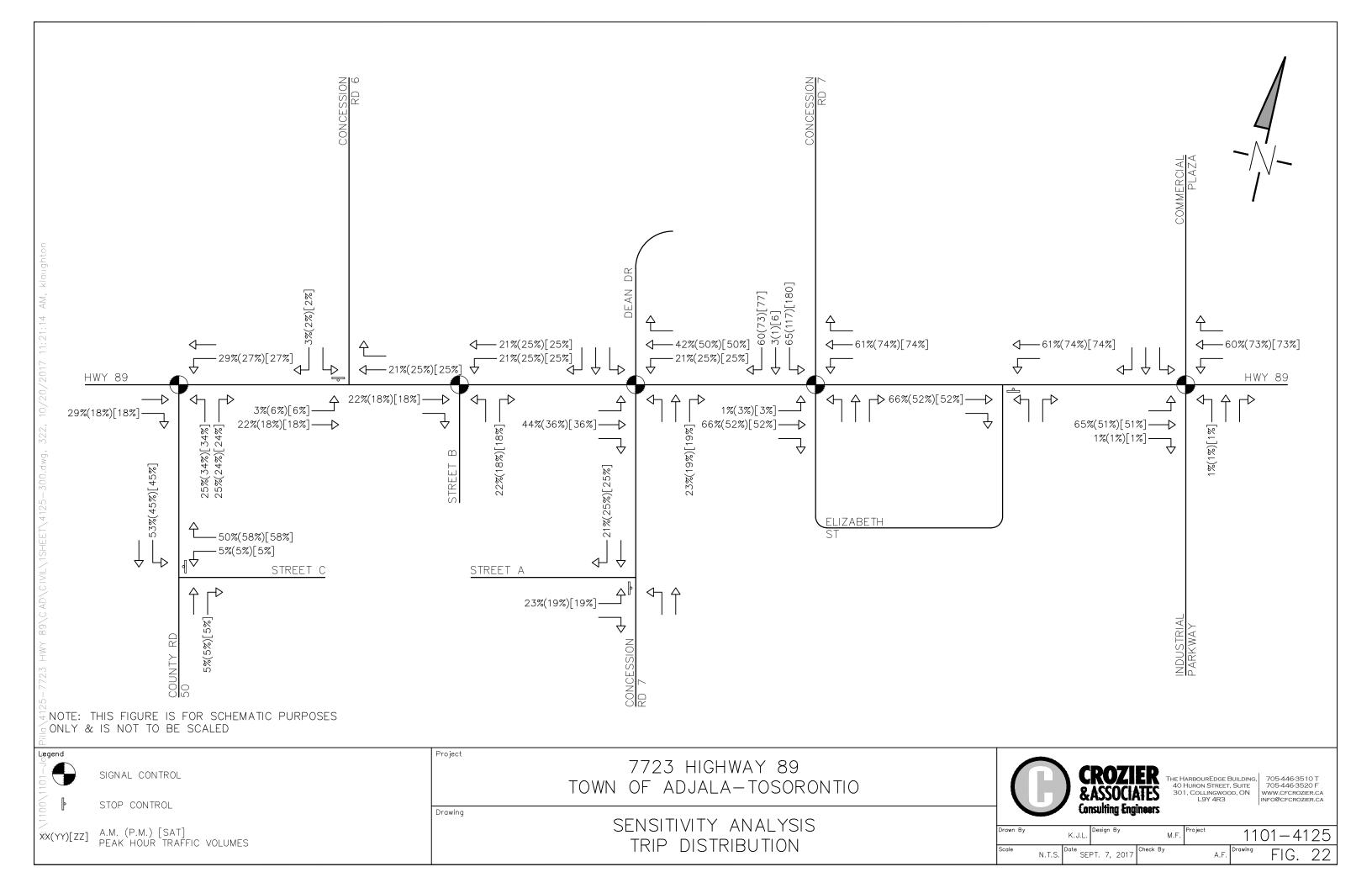


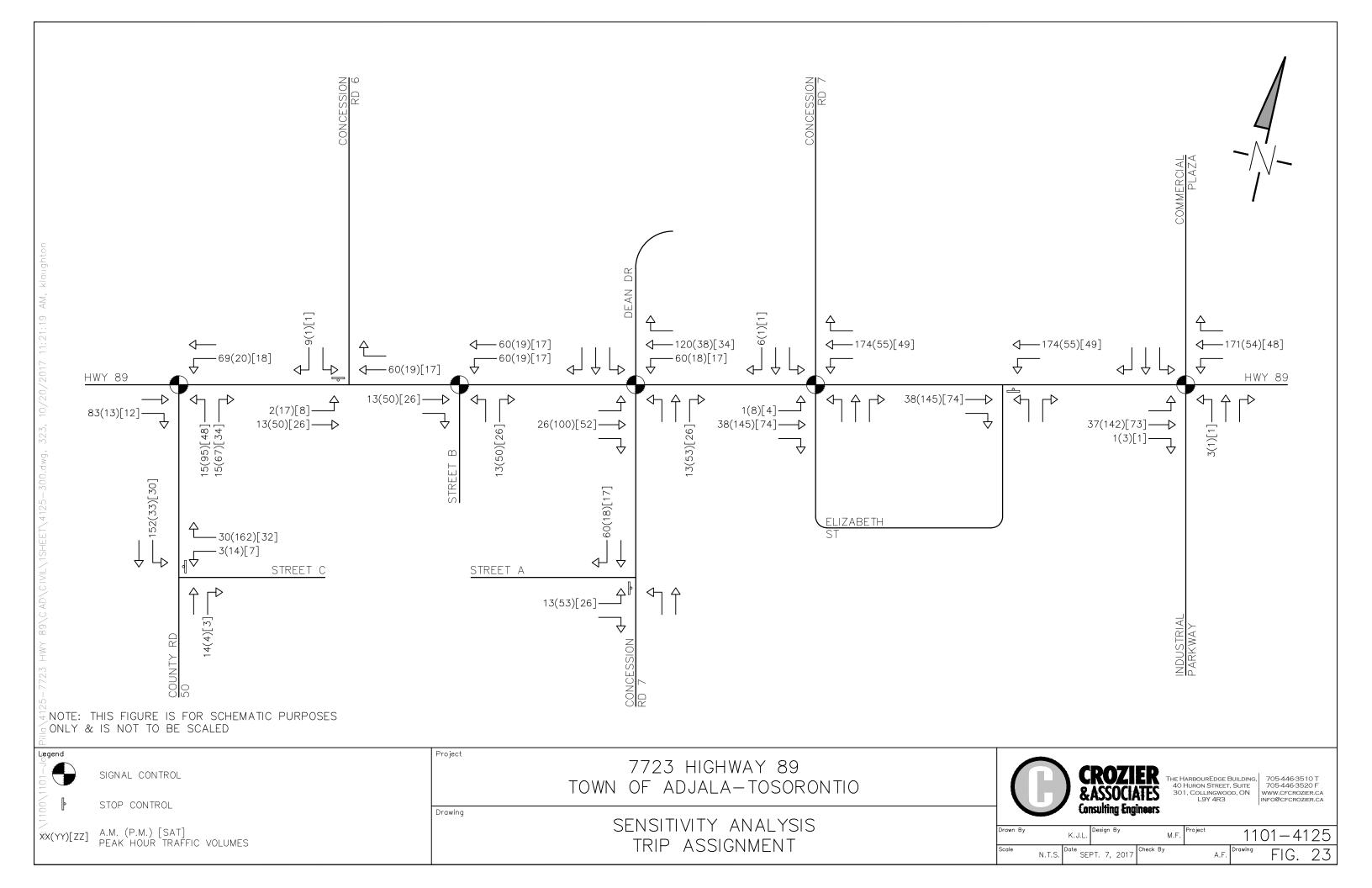


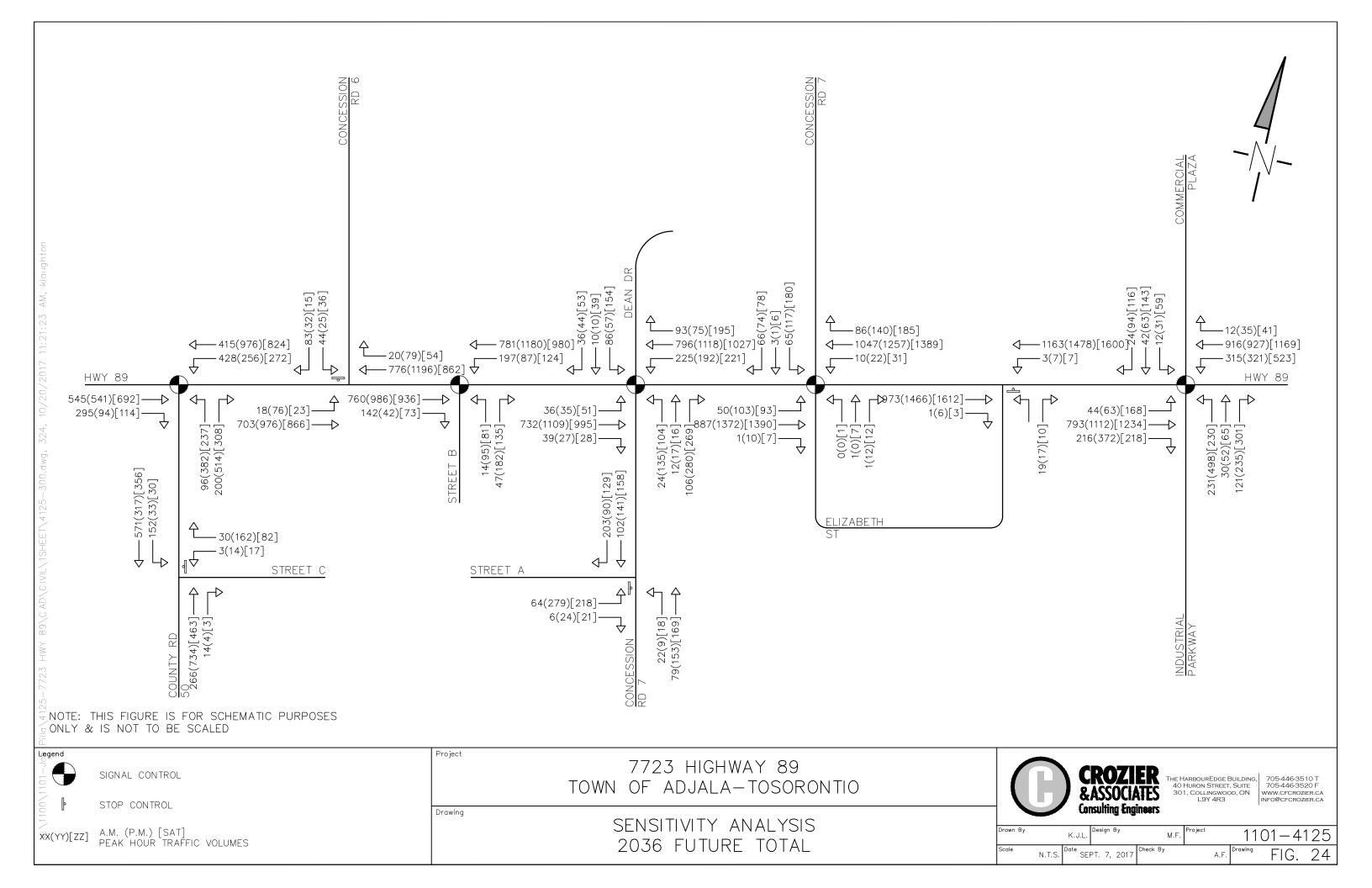














7723 HIGHWAY 89 TOWN OF ADJALA-TOSORONTIO

Drawing

POTENTIAL ACCESS CONFIGURATION



THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3 HOPOECFCROZIER.CA

Drawn By		K.J.L.	Design	Ву	M.F.	Project	110)1-41	25
Scale	N.T.S.	Date SEI	PT. 7,	2017	Check By	A.F.	Drawing	FIG.	25